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OFFERING MEMORANDUM **NOT FOR GENERAL CIRCULATION IN THE UNITED STATES**

€400,000,000 6.375% Senior Notes due 2023

Vallourec, a French *société anonyme*, is offering €400,000,000 principal amount of its 6.375% senior notes due 2023 (the "Notes").

The Notes will mature on October 15, 2023. Vallourec will pay interest on the Notes semi-annually on each April 15 and October 15, commencing October 15, 2018, at a rate of 6.375% per annum. Vallourec may redeem all or part of the Notes at any time on or after October 15, 2020 at the redemption prices described in this offering memorandum. At any time prior to October 15, 2020, Vallourec may redeem all or part of the Notes at a redemption price equal to 100% of their principal amount plus the applicable premium described in this offering memorandum. In addition, at any time prior to October 15, 2020, Vallourec may also redeem up to 40% of the Notes with the net proceeds from certain equity offerings. Upon certain events constituting a change of control (as defined in this offering memorandum), Vallourec may be required to make an offer to purchase the Notes at a price equal to 101% of the principal amount thereof. In the event of certain developments affecting taxation, Vallourec may redeem all, but not less than all, of the Notes.

This offering memorandum constitutes a prospectus for the purpose of the Luxembourg law dated July 10, 2005 on Prospectuses for Securities, as amended. Application will be made to admit the Notes to listing on the Official List of the Luxembourg Stock Exchange and to trading on the Euro MTF market ("Euro MTF").

Investing in the Notes involves a high degree of risk. Prospective investors should read this entire offering memorandum including, in particular, the information under "*Risk Factors*" beginning on page 27.

The Notes have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the "Securities Act"), or the laws of any other jurisdiction, and may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. In the United States, the offering is being made only to "qualified institutional buyers" (as defined in Rule 144A under the Securities Act) in compliance with Rule 144A under the Securities Act. Prospective investors are hereby notified that the initial purchasers of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A thereunder. Outside the United States, the offering is being made in reliance on Regulation S under the Securities Act. See "*Notice to Investors*", "*Plan of Distribution*" and "*Transfer Restrictions*" in this offering memorandum for additional information about eligible offerees and transfer restrictions.

Neither the U.S. Securities and Exchange Commission (the "SEC"), any state securities commission nor any non-U.S. securities authority has approved or disapproved of these securities or determined that this offering memorandum is accurate or complete. Any representation to the contrary is a criminal offense.

Price for the Notes: 100%

plus accrued interest, if any, from the issue date

Delivery of the Notes in book-entry form through Euroclear France, Euroclear Bank SA/NV ("Euroclear") and Clearstream Banking, S.A. ("Clearstream"), will be made on or about April 19, 2018.

Joint Global Coordinators and Joint Bookrunners

BNP PARIBAS **J.P. Morgan** **Société Générale**

Joint Bookrunner

Natixis

Co-Managers

CM-CIC Market Solutions **MUFG** **SMBC Nikko** **Santander**

The date of this offering memorandum is April 12, 2018.

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This offering memorandum is being furnished in connection with an offering exempt from the registration requirements of the Securities Act, solely for the purpose of enabling a prospective investor to consider the purchase of the Notes in the private placement described herein. Vallourec has furnished the information contained in this offering memorandum. No representation or warranty, express or implied, is made by the initial purchasers named herein as to the accuracy or completeness or verification of such information, and nothing contained in this offering memorandum is, or shall be relied upon as, a promise or representation by the initial purchasers in this respect, whether as to the past or the future. This offering memorandum does not constitute an offer to any person or to the public in general to subscribe for or otherwise acquire the Notes. Distribution of this offering memorandum in whole or in part to any person other than the offeree is unauthorized. Any reproduction or distribution of this offering memorandum, in whole or in part, and any disclosure of its contents or use of any information herein for any purpose other than considering an investment in Vallourec's Notes offered hereby is prohibited. By accepting delivery of this offering memorandum, the recipient agrees to the foregoing.

No person has been authorized to give any information or to make any representations in connection with the offering or sale of the Notes other than those contained in this offering memorandum. Prospective investors should carefully evaluate the information provided in this offering memorandum in light of the total mix of information available to prospective investors, recognizing that Vallourec can provide no assurance as to the reliability of any information not contained or incorporated by reference in this offering memorandum. This offering memorandum does not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities to which it relates or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation would be unlawful. The information contained in this offering memorandum is accurate only as of the date of this offering memorandum. Neither the delivery of this offering memorandum nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in Vallourec's affairs or that the information contained herein is correct as of any time subsequent to the date hereof.

In making an investment decision, prospective investors must rely upon their own examination of Vallourec and the terms of this offering, including the merits and risks involved.

Prospective investors should read the entire document and, in particular, the section headed "*Risk Factors*", when considering an investment in Vallourec.

None of Vallourec or the initial purchasers, or any of their respective representatives, is making any representation to any offeree or purchaser of the Notes regarding the legality of an investment in the Notes by such offeree or purchaser under the laws applicable to such offeree or purchaser. Each prospective investor should consult with its own advisors as to the legal, tax, business, financial and related aspects of a purchase of the Notes.

The Notes have not been and will not be registered under the Securities Act or the securities laws of any state of the United States, and may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. In the United States, the offering of the Notes is being made only to "qualified institutional buyers" (as defined in Rule 144A under the Securities Act). Prospective purchasers that are qualified institutional buyers are hereby notified that the initial purchasers of the Notes may be relying on an exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A. Outside the United States, the offering is being made in offshore transactions (as defined in Regulation S).

In addition, until the expiration of the period beginning 40 days after the commencement of the offering, an offer or sale of Notes within the United States by a dealer (whether or not it is participating in the offering) may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than pursuant to the foregoing.

To permit compliance with Rule 144A in connection with resales of the Notes, for as long as any of the Notes remain outstanding and are "restricted securities" within the meaning of Rule 144(a)(3) under the Securities Act, Vallourec will furnish, upon request, to a holder of Notes or to a prospective purchaser of Notes designated by a holder, the information required to be delivered under Rule 144A(d)(4) under the Securities Act, if at the time of such request, Vallourec is not a reporting company under Section 13 or Section 15(d) of the U.S. Securities Exchange Act of 1934, as amended, (the "Exchange Act"), or exempt from reporting pursuant to Rule 12g3-2(b) under the Exchange Act.

The distribution of this offering memorandum and the offering and the sale of the Notes in certain jurisdictions may be restricted by law. Vallourec and the initial purchasers require that persons into whose possession this offering memorandum comes inform themselves about and observe any such restrictions. No action has been taken in any jurisdiction by Vallourec or the initial purchasers that would permit a public offering of the Notes offered hereby. No offer or sale of the Notes may be made in any jurisdiction except in compliance with the applicable laws thereof. Accordingly, neither this document nor any advertisement or any other offering material may be distributed or published in any jurisdiction except under circumstances that will result in compliance with any applicable laws and regulations. Persons

into whose possession this offering memorandum comes are required to inform themselves about and observe any such restrictions, including those set out in the following paragraphs. Any failure to comply with these restrictions may constitute a violation of the securities laws of any such jurisdiction. For a further description of certain restrictions on sales, offers and subscriptions of the Notes, see "*Plan of Distribution*" and "*Notice to Investors*". This offering memorandum does not constitute an offer of, or an invitation to sell or purchase, any of the Notes in any jurisdiction in which such offer or invitation would be unlawful.

In connection with this offering, each of the initial purchasers and any of their respective affiliates, acting as an investor for its own account, may take up Notes in this offering and in that capacity may retain, purchase or sell for its own account such Notes or related investments and may offer or sell such Notes or other investments otherwise than in connection with this offering. Accordingly, references in the offering memorandum to Notes being offered or placed should be read as including any offering or placement of Notes to any of the initial purchasers or any of their respective affiliates acting in such capacity. None of the initial purchasers intends to disclose the extent of any such investment or transactions otherwise than in accordance with any legal or regulatory obligation to do so. In addition, certain of the initial purchasers or their affiliates may enter into financing arrangements (including swaps or contracts for differences) with investors in connection with which such initial purchasers (or their affiliates) may from time to time acquire, hold or dispose of the Notes.

STABILIZATION

IN CONNECTION WITH THE ISSUE OF THE NOTES, BNP PARIBAS (THE "STABILIZING MANAGER") (OR PERSONS ACTING ON BEHALF OF THE STABILIZING MANAGER) MAY OVER-ALLOT NOTES OR EFFECT TRANSACTIONS WITH A VIEW TO SUPPORTING THE MARKET PRICE OF THE NOTES AT A LEVEL HIGHER THAN THAT WHICH MIGHT OTHERWISE PREVAIL. HOWEVER, THERE IS NO ASSURANCE THAT THE STABILIZING MANAGER (OR PERSONS ACTING ON BEHALF OF THE STABILIZING MANAGER) WILL UNDERTAKE STABILIZATION ACTION. ANY STABILIZATION ACTION MAY BEGIN ON OR AFTER THE DATE ON WHICH ADEQUATE PUBLIC DISCLOSURE OF THE FINAL TERMS OF THE OFFER OF THE NOTES IS MADE AND, IF BEGUN, MAY BE ENDED AT ANY TIME, BUT IT MUST END NO LATER THAN THE EARLIER OF 30 DAYS AFTER THE ISSUE DATE OF THE NOTES AND 60 DAYS AFTER THE DATE OF THE ALLOTMENT OF THE NOTES. ANY STABILIZATION ACTION OR OVER ALLOTMENT MUST BE CONDUCTED BY THE STABILIZING MANAGER (OR PERSONS ACTING ON BEHALF OF THE STABILIZING MANAGER) IN ACCORDANCE WITH ALL APPLICABLE LAWS AND RULES.

MIFID II product governance / Professional investors and ECPs only target market – Solely for the purposes of each manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties and professional clients only, each as defined in Directive 2014/65/EU (as amended, "MiFID II"); and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the manufacturer's target market assessment; however, a distributor subject to MiFID II is responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the manufacturer's target market assessment) and determining appropriate distribution channels.

Prohibition of sales to EEA retail investors – The Notes described in the attached offering memorandum are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area ("EEA"). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; or (ii) a customer within the meaning of Directive 2002/92/EC (as amended, the "Insurance Mediation Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II. Consequently no key information document required by Regulation (EU) No 1286/2014 (as amended the "PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

TABLE OF CONTENTS

NOTICE TO INVESTORS....2
FORWARD-LOOKING STATEMENTS....6
AVAILABLE INFORMATION....7
PRESENTATION OF FINANCIAL INFORMATION....8
INDUSTRY AND MARKET DATA....9
INCORPORATION BY REFERENCE....10
EXCHANGE RATES....11
OFFERING MEMORANDUM SUMMARY....12
SUMMARY FINANCIAL AND OPERATING DATA....22
RISK FACTORS....27
USE OF PROCEEDS....42
CAPITALIZATION....43
MARKETS AND INDUSTRY....44
MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS....50
BUSINESS....79
AGREEMENTS RELATING TO STRATEGIC INITIATIVES....110
SHARE OWNERSHIP....113
DESCRIPTION OF CERTAIN INDEBTEDNESS....114
DESCRIPTION OF THE NOTES....121
BOOK-ENTRY, DELIVERY AND FORM....121
TAXATION....177
PLAN OF DISTRIBUTION....181
TRANSFER RESTRICTIONS....184
LEGAL MATTERS....187
INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRMS AND STATUTORY AUDITORS OF THE COMPANY....187
SERVICE OF PROCESS AND ENFORCEMENT OF LIABILITIES....187
CERTAIN INSOLVENCY LAW CONSIDERATIONS....188
GENERAL INFORMATION....202
INDEX TO VALLOUREC'S CONSOLIDATED FINANCIAL STATEMENTS....1

NOTICE TO INVESTORS

Vallourec, having made all reasonable inquiries, confirms to the best of its knowledge, information and belief that the information contained in this offering memorandum with respect to Vallourec and its consolidated subsidiaries and affiliates taken as a whole and the Notes offered hereby is true and accurate in all material respects and is not misleading, that the opinions and intentions expressed in this document are honestly held and that there are no other facts the omission of which would make this offering memorandum as a whole misleading in any material respect. Subject to the following paragraphs, Vallourec accepts responsibility for the information contained in this offering memorandum.

Vallourec is providing this offering memorandum only to prospective purchasers of the Notes. You should read this offering memorandum before making a decision whether to purchase any Notes. You must not use this offering memorandum for any other purpose or disclose any information in this offering memorandum to any other person.

This offering memorandum does not constitute an offer to sell or an invitation to subscribe for or purchase any of the Notes in any jurisdiction in which such offer or invitation is not authorized or to any person to whom it is unlawful to make such an offer or invitation. No action has been, or will be, taken to permit a public offering in any jurisdiction where action would be required for that purpose. Accordingly, the Notes may not be offered or sold, directly or indirectly, and this offering memorandum may not be distributed, in any jurisdiction except in accordance with the legal requirements applicable to such jurisdiction. You must comply with all laws that apply to you in any place in which you buy, offer or sell any Notes or possess this offering memorandum. You must also obtain any consents or approvals that you need in order to purchase, offer or sell any Notes or possess or distribute this offering memorandum. Vallourec and the initial purchasers are not responsible for your compliance with any of the foregoing legal requirements. See "*Plan of Distribution*".

None of Vallourec, the initial purchasers or any of Vallourec's or the initial purchasers' respective representatives is making an offer to sell the Notes in any jurisdiction except where such an offer or sale is permitted. Vallourec is relying on exemptions from registration under the Securities Act for offers and sales of securities that do not involve a public offering. By purchasing Notes, you will be deemed to have made the acknowledgments, representations, warranties and agreements set forth under "*Transfer Restrictions*" in this offering memorandum. You should understand that you will be required to bear the financial risks of your investment for an indefinite period of time.

This offering memorandum is based on information provided by Vallourec and by other sources that Vallourec believes are reliable. The initial purchasers named in this offering memorandum, the Trustee, the Paying Agent, the Registrar and the Transfer Agent make no representation or warranty, express or implied, as to the accuracy or completeness of such information, and nothing contained in this offering memorandum is, or shall be relied upon as, a promise or representation by the initial purchasers with respect to Vallourec or the Notes as to the past or the future.

By purchasing the Notes, you will be deemed to have acknowledged that you have reviewed this offering memorandum and have had an opportunity to request, and have received, all additional information that you need from Vallourec. No person has been authorized in connection with any offering made by this offering memorandum to provide any information or to make any representations other than those contained in this offering memorandum. You should carefully evaluate the information provided by Vallourec in light of the total mix of information available to you, recognizing that Vallourec can provide no assurance as to the reliability of any information not contained in this offering memorandum.

The information contained in this offering memorandum speaks as of the date hereof. Neither the delivery of this offering memorandum at any time after the date of publication nor any subsequent commitment to purchase the Notes shall, under any circumstances, create an implication that there has been no change in the information set forth in this offering memorandum or in Vallourec's business since the date of this offering memorandum.

None of Vallourec, the initial purchasers, the Trustee, the Paying Agent, the Registrar, the Transfer Agent or any of Vallourec's or the initial purchasers' respective representatives are making any representation to you regarding the legality of an investment in the Notes by you under any legal, investment or similar laws or regulations. You should not consider any information in this offering memorandum to be legal, financial, business, tax or other advice. You should consult your own attorney, business advisor and tax advisor for legal, financial, business and tax and related aspects of an investment in the Notes. You are responsible for making your own examination of Vallourec and its business and your own assessment of the merits and risks of investing in the Notes.

You should contact the initial purchasers with any questions about this offering or if you require additional information to verify the information contained in this offering memorandum.

Neither the SEC nor any state securities commission has approved or disapproved of these securities or determined if this offering memorandum is truthful or complete. Any representation to the contrary is a criminal offense.

This communication is only being distributed to and is only directed at (i) persons who are outside the United Kingdom or (ii) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order") or (iii) high net worth companies, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). The Notes are only available to, and any invitation, offer or agreement to subscribe, purchase or otherwise acquire such Notes will be engaged in only with, relevant persons. Any person who is not a relevant person should not act or rely on this document or any of its contents.

In addition, the Notes are subject to restrictions on transferability and resale, which are described under the captions "*Plan of Distribution*" and "*Transfer Restrictions*". By possessing this offering memorandum or purchasing any Note, you will be deemed to have represented and agreed to all of the provisions contained in those sections of this offering memorandum.

The Notes will be issued in the form of one or more global notes, all of which will be deposited with or on behalf of, Euroclear and Clearstream. Beneficial interests in the global notes will be shown on, and transfers of beneficial interests in the global notes will be effected only through, records maintained by Euroclear and Clearstream or their respective participants. See "*Book-Entry, Delivery and Form*".

Vallourec will not, nor will any of its agents, have responsibility for the performance of the obligations of Euroclear and Clearstream or their respective participants under the rules and procedures governing their operations, nor will Vallourec or its agents have any responsibility or liability for any aspect of the records relating to, or payments made on account of, book-entry interests held through the facilities of any clearing system or for maintaining, supervising or reviewing any records relating to these book-entry interests. Investors wishing to use these clearing systems are advised to confirm the continued applicability of their rules, regulations and procedures.

Vallourec reserves the right to withdraw this offering of the Notes at any time. Vallourec and the initial purchasers also reserve the right to reject any offer to purchase the Notes in whole or in part for any reason or no reason and to allot to any prospective purchaser less than the full amount of the Notes sought by it. The initial purchasers and certain of their related entities may acquire, for their own accounts, a portion of the Notes.

Notice Relating to the U.S. Securities Act

The Notes have not been and will not be registered under the Securities Act or the securities laws of any state of the United States, and may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. In the United States, the offering of the Notes is being made only to "qualified institutional buyers" (as defined in Rule 144A under the Securities Act). Prospective purchasers that are qualified institutional buyers are hereby notified that the initial purchasers of the Notes may be relying on an exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A. Outside the United States, the offering is being made in offshore transactions (as defined in Regulation S).

In addition, until the expiration of the period beginning 40 days after the commencement of the offering, an offer or sale of Notes within the United States by a dealer (whether or not it is participating in the offering) may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than pursuant to the foregoing.

Notice to Investors in the European Economic Area

In relation to each Member State of the EEA the initial purchasers have represented and agreed that they have not made and will not make an offer of Notes which are the subject of the offering contemplated by this offering memorandum to the public in that Member State other than offers:

(a) to any legal entity which is a qualified investor as defined in the Prospectus Directive; or

(b) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of Notes shall result in a requirement for the publication by the Issuer or the initial purchasers of a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any Notes in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe the Notes, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including by Directive 2010/73/EU), and includes any relevant implementing measure in the Member State.

Solely for the purposes of each manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties and professional clients only, each as defined in Directive 2014/65/EU (as amended, "MiFID II"); and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the manufacturer's target market assessment; however, a distributor subject to MiFID II is responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the manufacturer's target market assessment) and determining appropriate distribution channels.

The Notes described in the attached offering memorandum are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the EEA. For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; or (ii) a customer within the meaning of Directive 2002/92/EC (as amended, the "Insurance Mediation Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II. Consequently no key information document required by Regulation (EU) No 1286/2014 (as amended the "PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the EEA has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

Notice to Certain European Investors

France

The initial purchasers have represented and agreed that they have not offered or sold and will not offer or sell, directly or indirectly, any Notes to the public in France and they have not distributed or caused to be distributed and will not distribute or cause to be distributed any Notes to the public in France, within the meaning of Article L.411-1 of the French Monetary and Financial Code (*Code monétaire et financier*) and Title I of Book II of the *Règlement Général* (General regulation) of the *Autorité des marchés financiers* (the French financial markets authority) (the "AMF"). Consequently, the Notes may not be, directly or indirectly, offered or sold to the public in France (*offre au public de titres financiers*), and neither this offering memorandum nor any offering or marketing materials relating to the Notes must be made available or distributed in any way that would constitute, directly or indirectly, an offer to the public in France.

This offering memorandum or any other offering material relating to the Notes and such offers, sales and distributions have been and will be made in France only to (a) persons providing investment services relating to portfolio management for the account of third parties (*personnes fournissant le service d'investissement de gestion de portefeuille pour compte de tiers*) and (b) qualified investors (*investisseurs qualifiés*), other than individuals, as defined in, and in accordance with, Articles L.411-2 and D.411-1 of the French Monetary and Financial Code.

Prospective investors are informed that:

(i) this offering memorandum has not been and will not be submitted for clearance to the AMF;

(ii) in compliance with Articles L.411-2 and D.411-1 of the French Monetary and Financial Code, any qualified investors subscribing for the Notes should be acting for their own account; and

(iii) the direct and indirect distribution or sale to the public of the Notes acquired by those investors to whom offers and sales of the Notes may be made as described above may only be made in compliance with Articles L.411-1 to L.411-4, L.412-1 and L.621-8 to L.621-8-3 of the French Monetary and Financial Code and applicable regulations thereunder.

United Kingdom

Each initial purchaser has represented and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 ("FSMA")) received by it in connection with the issue or sale of the Notes in circumstances in which Section 21(1) of the FSMA does not apply to the Issuer; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the Notes in, from or otherwise involving the United Kingdom.

Notice to Prospective Investors in Canada

The Notes may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the Notes must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this Offering Memorandum contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Notice to Investors in Other Jurisdictions

The distribution of this offering memorandum and the offer and sale or resale of the Notes may be restricted by law in certain jurisdictions. Persons into whose possession this offering memorandum (or any part hereof) comes are required by Vallourec and the initial purchasers to inform themselves about, and to observe, any such restrictions.

FORWARD-LOOKING STATEMENTS

This offering memorandum includes "forward-looking statements" within the meaning of the U.S. federal securities laws, which involve risks and uncertainties, including, without limitation, certain statements made in the sections entitled "*Risk Factors*", "*Business*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*". Prospective investors can identify forward-looking statements as those that contain words such as "believes", "expects", "may", "should", "seeks", "approximately", "intends", "plans", "estimates", or "anticipates" or similar expressions that relate to Vallourec's strategy, plans, intentions or expectations.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. Forward-looking statements are not guarantees of future performance. Vallourec's actual financial condition, results of operations and cash flows, and the development of the industry in which it operates, may differ materially from what is described in or suggested by the forward-looking statements contained in this offering memorandum. In addition, even if Vallourec's financial condition, results of operations and cash flows, and the development of the industry in which Vallourec operates, are consistent with the forward-looking statements contained in this offering memorandum, those results or developments may not be indicative of results or developments in subsequent periods. Important factors that could cause those differences include, but are not limited to:

- the impact of the economic environment and oil and gas prices on Vallourec's operations;
- economic cycles that affect the markets in which Vallourec sells its products, including in particular the oil and gas, power generation and industrial markets;
- Vallourec's dependence on a limited number of customers for a significant share of its revenues;
- the effect of competitive pressures on prices charged for Vallourec's products and activity levels;
- risks associated with Vallourec's activities in emerging markets;
- the need to innovate and develop new technology, and to protect intellectual and industrial property;
- Vallourec's ability to integrate successfully the businesses or assets Vallourec acquires;
- the risk of failure to meet Vallourec's announced objectives, including those associated with the Transformation Plan;
- any write-downs of goodwill or other non-current assets on Vallourec's balance sheet;
- operational risks, including risks related to health, safety and the environment, raw materials prices, product liability, industrial accidents, internal controls, information technology systems and the recruitment of qualified employees;
- legal risks, including risks relating to its contractual relations with Nippon Steel & Sumitomo Metal Corporation ("NSSMC") and tax risks; and
- exposure to market risks, including in particular foreign exchange rate risk and liquidity risk.

Vallourec undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Vallourec cautions prospective investors that the foregoing list of important factors may not contain all of the material factors that are important to such prospective investors. In addition, in light of these risks, uncertainties and assumptions, the forward-looking events discussed in this offering memorandum might not occur. When considering forward-looking statements, prospective investors should keep in mind the risk factors and other cautionary statements included in this offering memorandum and the information incorporated by reference herein, in particular those described in the "*Risk Factors*" section of this offering memorandum.

AVAILABLE INFORMATION

Each purchaser of Notes from the initial purchasers will be furnished with a copy of this offering memorandum and, to the extent provided to the initial purchasers by Vallourec, any related amendment or supplement to this offering memorandum. The information incorporated by reference herein may be consulted at Vallourec's website, http://www.vallourec.com. Other information contained on or accessible through Vallourec's website is not a part of this offering memorandum. See "*Incorporation by Reference*".

So long as any Notes are outstanding and are "restricted securities" within the meaning of Rule 144 under the Securities Act, Vallourec will, upon request, furnish to any holder or beneficial owner of the Notes the information required to be delivered pursuant to Rule 144A(d)(4) under the Securities Act to permit compliance with Rule 144A in connection with resales of the Notes if, at the time of the request, Vallourec is neither a reporting company under Section 13 or 15(d) of the Exchange Act, nor exempt from reporting pursuant to Rule 12g 3-2(b) thereunder. Any such request should be directed to Vallourec at 27, avenue du Général Leclerc, 92660 Boulogne-Billancourt Cedex—France, Attention: Investor Relations, Telephone: (33) 1 49 09 39 76.

Additionally, so long as any of the Notes are listed on the Euro MTF and the rules of the Luxembourg Stock Exchange so require, copies of these filings, this offering memorandum and other information relating to the Notes will be available in the specified offices of the listing agent in Luxembourg at the address listed on the inside of the back cover of this offering memorandum.

PRESENTATION OF FINANCIAL INFORMATION

In this offering memorandum, references to "euro", "EUR" or "€" are to the single currency introduced at the start of the third stage of the European Economic and Monetary Union pursuant to the Treaty establishing the European Union, references to "U.S. dollars", "$" or "U.S.$" are to United States dollars, and references to "BRL" or "reals" are to Brazilian reals.

Unless otherwise indicated, statements in this offering memorandum relating to market share, ranking and data are derived from management estimates based, in part, on independent industry publications, reports by market research firms or other published independent sources. Any discrepancies in any table between totals and the sums of the amounts listed in such table are due to rounding.

As used in this offering memorandum "Vallourec," the "Company" and the "Group" refer to Vallourec S.A. and its consolidated subsidiaries and associates, except as the context otherwise requires. References to "Vallourec S.A." are to Vallourec S.A., the parent company of the Group.

Vallourec prepares its consolidated financial statements in euros, in accordance with International Financial Reporting Standards as adopted by the European Union ("IFRS"). This offering memorandum includes Vallourec's consolidated financial statements as of and for the years ended December 31, 2015, 2016 and 2017 (the "Audited Financial Statements"), which have been audited by KPMG S.A. and Deloitte & Associés, independent registered public accounting firms, as stated in their reports therein. Unless otherwise indicated or the context otherwise requires, references to "consolidated financial statements" in this offering memorandum refer to the Audited Financial Statements.

Vallourec's fiscal year ends on December 31. References in this offering memorandum to a fiscal year, such as "fiscal year 2017", relate to Vallourec's fiscal year ended on December 31 of that year.

This offering memorandum contains the measures industrial margin, EBITDA, free cash flow and net financial debt. Industrial margin is equal to revenues less cost of sales, which for this purpose excludes depreciation and amortization charges. EBITDA is equal to industrial margin less selling, general and administrative expenses (excluding depreciation and amortization), and plus or minus certain other income and expenses, and is equivalent to the *résultat brut d'exploitation* in Vallourec's French language consolidated financial statements. Free cash flow is an indicator calculated from certain line items in Vallourec's consolidated statement of cash flows (net cash from operating activities less gross capital expenditures). Net financial debt is an indicator that is not required by, or presented in accordance with, IFRS or any other generally accepted accounting standards, and it is therefore a non-IFRS financial measure. Net financial debt is equal to gross financial debt (bank loans and other borrowings, plus overdrafts and short-term borrowings) less cash and cash equivalents and excludes the shareholder loan that is included as a separate line item in Vallourec's consolidated balance sheet (the "Shareholder Loan"). In addition to the foregoing measures, Vallourec presents in this offering memorandum certain indicators and ratios that are based on such measures. It also presents certain as-adjusted financial data that gives effect to the issuance of the Notes offered hereby and the application of the net proceeds therefrom to redeem the August 2019 Bonds at their maturity as set forth under "*Use of Proceeds*".

Vallourec presents all of these indicators, ratios and data because it believes that they are of interest for investors, and similar measures are widely used by certain investors, securities analysts and other interested parties as measures of performance, liquidity and financial condition. These indicators may not be comparable to similarly titled measures of other companies, have limitations as analytical tools and, in the case of net financial debt, should not be considered in isolation or as a substitute for analysis of Vallourec's gross financial debt and cash and cash equivalents, as reported under IFRS.

INDUSTRY AND MARKET DATA

In this offering memorandum, Vallourec relies on and refers to information regarding its business and the markets in which it operates and competes. The facts and information on which Vallourec bases the statements made and the views expressed herein are derived from several sources, including reports from the International Energy Agency and IHS. Certain of the information is based on internal analyses made by Vallourec. Estimates and projections related to market size and demand are inherently forward-looking in nature and subject to the risks and uncertainties described under "*Forward-Looking Statements*".

Industry publications generally state that the information contained therein has been obtained from sources believed to be reliable, but some of the information may have been derived from estimates or subjective judgments or may have been subject to limited audit or validation. In addition, information based on Vallourec's internal analyses may reflect a variety of public and non-public sources, as well as subjective judgments made by Vallourec. While Vallourec believes this market data and other information to be accurate and correct and has taken reasonable actions to ensure that the industry and market data cited herein has been extracted accurately and used in its proper context, Vallourec has not independently verified any data from third-party or other sources or ascertained the underlying assumptions relied upon therein. Estimates or judgments, particularly as they relate to expectations about Vallourec's market and industry, involve risks and uncertainties and are subject to change based on various factors, including those discussed under "*Risk Factors*" and "*Forward-Looking Statements*" elsewhere in this offering memorandum. Targets, projections and other forward-looking statements in this offering memorandum are not guarantees of future performance and actual events and circumstances could differ materially from current expectations. Numerous factors could cause or contribute to such differences. See "*Risk Factors*" and "*Forward-Looking Statements*".

INCORPORATION BY REFERENCE

Vallourec has incorporated by reference in this offering memorandum certain information that it has made publicly available in the English translation of its 2017 *document de référence* (Registration Document) filed with the AMF on March 21, 2018, under the number D.18-0161 (the “2017 Registration Document”). This means that Vallourec has disclosed important information to prospective investors by referring them to certain portions of the 2017 Registration Document.

The following information contained in the 2017 Registration Document is incorporated by reference in this offering memorandum:

- Chapter 4 of the 2017 Registration Document relating to environmental, health, safety and employee-related matters; and

- Chapter 7 of the 2017 Registration Document relating to the composition and operation of the Management Board and Supervisory Board, compensation and benefits and certain related matters.

No information from the 2017 Registration Document or any other document is incorporated by reference in this offering memorandum, except as expressly set forth above.

Any statement made in the portions of the 2017 Registration Document incorporated by reference in this offering memorandum shall be deemed to be modified or superseded for purposes of this offering memorandum to the extent that a statement contained in this offering memorandum or in a later document incorporated by reference modifies or supersedes such statement. Any statement that is modified or superseded shall not be deemed, except as modified or superseded, to constitute a part of this offering memorandum.

The 2017 Registration Document may be consulted at Vallourec’s website free of charge at http://www.vallourec.com. Other information contained on or accessible through Vallourec’s website is not a part of this offering memorandum.

EXCHANGE RATES

The following table sets forth, for the periods and dates indicated, certain information concerning the exchange rates for the euro expressed in U.S. dollars per euro. Information concerning the U.S. dollar exchange rate is based on the noon buying rate in New York City for cable transfers in foreign currencies as certified for customs purposes by the Federal Reserve Bank of New York (the "Noon Buying Rate"). Such rates are provided solely for convenience and no representation is made that euros were, could have been, or could be, converted into U.S. dollars at these rates or at any other rate. Such rates were not used by Vallourec in the preparation of its consolidated financial statements included in this offering memorandum. The Noon Buying Rate on April 6, 2018 was U.S.$1.23 per euro.

	Dollars per euro exchange rate			
	Period-end	High	Low	Average[(1)]
Year ended December 31,				
2013	1.38	1.38	1.28	1.33
2014	1.21	1.39	1.21	1.33
2015	1.09	1.20	1.05	1.11
2016	1.06	1.15	1.04	1.11
2017	1.20	1.20	1.04	1.13
2018 (through April 6, 2018)	1.23	1.23	1.22	1.23
Month				
October 2017	1.16	1.18	1.16	1.18
November 2017	1.19	1.19	1.16	1.17
December 2017	1.20	1.20	1.17	1.18
January 2018	1.24	1.25	1.19	1.22
February 2018	1.22	1.25	1.22	1.23
March 2018	1.23	1.24	1.22	1.23

(1) The annual average rate is the average of the Noon Buying Rates on the last business day of each month.

OFFERING MEMORANDUM SUMMARY

*The following summary highlights selected information contained elsewhere or incorporated by reference in this offering memorandum. Accordingly, this summary may not contain all of the information that may be important to prospective investors. Vallourec urges prospective investors to carefully read and review this entire offering memorandum and Vallourec's consolidated financial statements, including the notes thereto, included herein, as well as the portions of the 2017 Registration Document incorporated by reference herein, in order to understand Vallourec and the terms of the offering before investing. In particular, prospective investors should read the "*Risk Factors*" section of this offering memorandum to determine whether an investment in the Notes is appropriate for such prospective investors.*

Overview

Vallourec is a world leader in premium tubular solutions, primarily serving the energy markets, including the oil and gas sector and the power generation industry. Vallourec's expertise also extends to industrial sectors, such as the mechanicals, automotive and construction industries. With approximately 19,500 employees, integrated manufacturing facilities, advanced research and development ("R&D") and a presence in more than 20 countries, Vallourec offers its customers innovative global solutions to meet the energy challenges of the 21st century.

- For the **oil and gas market** (representing, together with petrochemicals, 68.5% of Vallourec's consolidated revenues in 2017), the Group offers a comprehensive range of products and services, including seamless tubes and premium connections for exploration and production, transport and processing, designed and developed specifically for operating in extreme conditions (high pressure, high temperature, offshore, etc.).
- For the **power generation market** (representing 10.9% of Vallourec's consolidated revenues in 2017), Vallourec offers a premium range of tubes for the construction of conventional and nuclear power plants, including solutions for the latest generation of energy-efficient thermal power plants that help reduce carbon dioxide emissions.
- For **industrial markets** (representing 20.6% of Vallourec's consolidated revenues, together with certain other revenues, in particular iron ore sales, in 2017), the Group offers a wide range of tubes for mechanical engineering applications (hydraulic cylinders, cranes, agricultural machinery, etc.), the automotive industry (tubes and axles for both light- and heavy-weight vehicles), construction (bridges, stadiums, airport terminals, etc.) and various other industrial sectors.

Vallourec offers one of the most extensive ranges of seamless tubes in the world, with products in many sizes and proportions (such as length, diameter and thickness), including up to 1,500 mm in external diameter, as well as more than 250 composition grades (*i.e.*, high-grade and low-grade carbon-steel alloys, stainless steel and nickel alloys).

Vallourec has a global footprint, with a presence in more than 20 countries and a diversified geographical sales mix. In 2017, 27.6% of Vallourec's consolidated revenues were generated in North America, 15.8% in Europe, 31.3% in Asia and the Middle East, 16.3% in South America (primarily Brazil) and 9.0% in Africa and the rest of the world.

As a market leader, Vallourec is positioned to take advantage of favorable long-term trends in the oil and gas sector, which will require significant investment from oil and gas companies in the coming years in order to maintain supply levels as the market imbalances of recent years are progressively resolved. The market for Vallourec's products has rebounded in the United States, which has shown strong demand for oil and gas products thanks to an increased number of active rigs. Vallourec has also noted an improvement in oil and gas operations in Brazil. Overall, world oil demand appears to have stabilized.

Vallourec's performance is benefiting from its Transformation Plan, a major industrial reorganization and strategic initiative adopted in 2016. Pursuant to the Transformation Plan, Vallourec has established two highly competitive production hubs in Brazil and China while optimizing its European footprint. In 2017, Vallourec established a new organizational structure around four regions and two central departments and rolled out new production channels, aimed at strengthening the Group's customer focus in each region in which it operates, optimizing the use of the Group's global resources and boosting its development.

The combination of improved market conditions and the beneficial effects of the Transformation Plan have translated into improved financial performance for Vallourec in 2017, leading to an initial recovery from two difficult years that were characterized by spending cuts on the part of customers in the oil and gas sector and a challenging macroeconomic environment.

In 2017, Vallourec's consolidated revenues were €3,750 million, an increase of 26.5% (15.2% at constant scope and exchange rates) from revenue of €2,965 million in 2016. In 2017, Vallourec's EBITDA was €2 million (an improvement from negative EBITDA of €219 million in 2016) and its net loss, Group share, was €537 million (compared

to €758 million in 2016). These results represent an improvement in the Group's results that reflects better performance in its U.S. and Brazilian operations, together with the successful implementation of its strategic initiatives and efforts to streamline its business.

As of December 31, 2017, Vallourec's total assets were €6,886 million, its net financial debt was €1,542 million and its shareholders' equity, Group share, was €2,426 million. In addition, as of December 31, 2017, Vallourec had total committed undrawn credit facilities of €2,040 million. As of December 31, 2017, on an as-adjusted basis after giving effect to the issuance of the Notes offered hereby and the application of the proceeds therefrom to redeem the August 2019 Bonds, Vallourec would have had a combined total of cash and undrawn credit facilities of approximately €3 billion. Vallourec S.A. had a market capitalization of €2,043 million as of market close on April 5, 2018.

Vallourec's Business

Vallourec supplies premium tubular solutions to meet the needs of customers in oil and gas, power generation and industrial markets throughout the world.

Oil and gas

Vallourec offers a line of tubular solutions to the oil and gas industry that satisfies the most demanding requirements and covers the entire value chain, from exploration and production to transport and processing of oil and gas. Its principal products and services for the oil and gas sector include the following:

- *Exploration and production:* Vallourec provides exploration and production customers with casing and tubing (known as Oil Country Tubular Goods, or "OCTG"), connected by VAM® premium connections based on technology patented by the Group in 1965 and developed in partnership with NSSMC since 1985. The Group also provides an extensive range of drill pipes and risers, although it announced on December 11, 2017 that it had received a binding offer from NOV for the purchase of its "Drilling Products" business. The sale is expected to be completed in the first half of 2018. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Year ended December 31, 2017 compared with year ended December 31, 2016—Key events of 2017.*"

- *Transport of oil and gas:* Vallourec offers offshore and onshore line pipes, as well as welding solutions and services for onshore and offshore projects.

- *Tubes for umbilicals:* The Group's products include premium welded stainless steel tubes with sophisticated mechanical characteristics for umbilicals, which are structures comprising tubes, cables and/or optical fibers that are used to connect seabed equipment to a control station at the surface for applications in the offshore oil industry.

- *Hydrocarbon processing:* Vallourec provides pipes and fittings for industrial fluids and hydrocarbon processing.

- *Services:* To respond to the needs of its customers in terms of efficiencies, cost and integrity, Vallourec Services has expanded its offering of services to include innovative solutions tailored to specific project needs, such as on-site offshore and onshore welding, coating, bending, and complex project management.

Vallourec premium products and solutions for the oil and gas sector are adapted to the most extreme and increasingly complex and challenging environments, such as deep wells, corrosive environments, deviated and horizontal wells, high pressure/high temperature (HP/HT), and offshore/deep offshore wells.

Power generation

Vallourec provides a full range of tubes for the construction of conventional and nuclear power plants, including seamless carbon and alloy steel tubes, seamless nickel-alloy tubes and a wide range of related services. The Group has made a strong commitment to the reduction of carbon dioxide emissions by offering solutions for the latest generation of supercritical and ultra-supercritical thermal power plants, whose pressure and operating temperatures are higher than conventional thermal power plants, making them more energy-efficient.

Industry

Vallourec offers light and resistant tubes for a wide range of industrial applications, primarily in Europe and Brazil. Its products include hollow sections, tubes and hollow bars for three main industrial markets:

- *Mechanicals:* cranes, hydraulic cylinders and agricultural machinery.
- *Automotive:* tubular solutions for all vehicle types, both light and heavy.
- *Construction:* bridges, stadiums, airport terminals and exhibition halls, among others.

Market Trends

Recent trends

In 2017, the first tangible signs of a recovery materialized in the U.S. oil and gas market. The Group also registered an improvement in oil and gas operations in Brazil, while tender activity in other international oil and gas markets began to resume at a gradual pace. An improved macroeconomic context in Europe and Brazil supported the Group's "industry and other" activities. Power generation revenue retracted in 2017 as a result of a challenging market environment for both conventional and nuclear applications. According to IHS, exploration and production capital expenditures for oil and gas projects grew approximately 7% between 2016 and 2017, driven primarily by investments in the United States. However, the timing and magnitude of a global market rebound is yet to be confirmed.

In the United States, in 2017, increased prices for West Texas Intermediary (WTI) crude oil led to better rig activity. According to Baker Hughes, the average number of active rigs in 2017 stood at 875 units, compared with an average of 510 units in 2016 (an increase of 71.6%). At the end of 2017, the rig count increased 46.7% compared to the end of 2016. In addition to the active rig count, OCTG consumption in the United States is being driven by rig efficiencies, with consumption trends per rig rising steadily since 2015 (according to data from Baker Hughes and Preston US OCTG consumption in January 2018).

Between the end of 2016 and the end of 2017, the increased rig count resulted in higher levels of OCTG shipments. This momentum has enabled seamless pipe manufacturers to announce sales price increases. Distributor inventories are estimated by Preston in its Pipe and Tube Report as of September 2017 to have fallen from 10 months as of June 2016 to less than 2 months in March 2017 before reaching approximately 2.9 months as of December 2017, taking into account Preston's restatement of slow-moving inventories at the end of 2016.

In the Gulf of Mexico, the number of drilling platforms stood at 18 units at the end of 2017, according to Baker Hughes, down 4 units compared with the end of 2016.

In the Europe, Africa, Middle East and Asia region ("EAMEA"), the business environment started to improve in 2017 with more projects. In the Middle East, the rig count stood at 378 units at December 31, 2017, broadly stable compared to 376 units at December 31, 2016. Demand from national oil companies ("NOCs") remained active, while international oil companies ("IOCs") tendering activity started to resume. In Africa, tendering activity regained some momentum in 2017, in an environment that remained competitive. Some projects were also launched in the North Sea. International oil companies progressively started to approve projects again in 2017, and their capital expenditures have stabilized. In 2017, 33 international oil and gas projects reached final investment decision approval, three times more than in 2016.

In Brazil, operations continue to be driven by Petrobras's capital expenditure plan. The five-year, 2018-2022 Business and Management Plan forecasts investments of U.S.$74.5 billion and continues to prioritize exploration and production projects with 81% of total capital expenditures dedicated to these projects with continued focus on the exploration of pre-salt fields, drilling in very deep waters (over 2,000 meters), far offshore and in highly corrosive environments.

Long-term trends and Vallourec's positioning

Vallourec's products are critical to the oil and gas, power generation and industrial markets. In the oil and gas sector, Vallourec's products are essential components of production and transportation of crude oil and natural gas. In each of its key market segments, Vallourec has continued to maintain leadership positions due to its strong customer relationships and reputation for technological excellence. Having successfully navigated challenging market conditions (in particular in the oil and gas sector) in recent years, Vallourec believes that its incumbent market leadership positions, together with a focus on premium solutions, have the greatest potential to deliver growth and attractive margins in the future.

Vallourec believes that there are a number of long-term trends that should support demand for its products and services. These include the following:

- *Long-term demand for oil and gas.* According to the International Energy Agency (IEA), worldwide demand for oil is expected to rise from approximately 93.9 mb/d in 2016 to 100.3 mb/d in 2025 and 104.9 mb/d in 2040 (IEA projections based on "New Policies" scenario which takes into account policies that are already in place and those officially announced). The IEA expects the majority of the growth in production to meet this demand to come from Brazil, North America and OPEC countries. The strong presence of the Group in these regions ideally positions its business to take advantage of the growth that is expected to occur as the market recovers. The oil and gas market is recovering in the United States ahead of other markets, as individual investment projects in the United States generally require substantially lower capital expenditures and shorter lead time to restart than the larger and more complex projects found in other countries, particularly those with substantial deep offshore resources.

  The IEA estimated in January 2018 that world oil demand was broadly equal to world oil supply in the first quarter of 2018. It expects demand to grow slightly more quickly than supply over the balance of 2018. If this trend is confirmed, it should encourage international oil companies, who make up the Group's principal customers, to resume their capital expenditure programs, and national oil companies to pursue their investments. In addition, even if oil demand increases more slowly than the IEA anticipates, the Group believes that as certain oil fields reach a mature phase of production, incremental investment to offset the impact of reservoir depletion and to increase production efficiency should generate demand for the Group's products.

  Vallourec has a nimble industrial structure and has an industrial production footprint that enables it to serve customers around the world. The Group's large scope of operations allows it to pivot its focus to the areas where the investment cycle begins its recovery and shift this focus throughout the cycle. Vallourec's well-invested production base allows it to operate at maximum capacity without having to incur significant additional expenditures and places it in a position to swiftly respond to the market's recovery.

- *Long-term trends in the power generation market.* As developed nations continue to pursue alternative and renewable sources of energy, the mix of energy sources worldwide is diversifying, with coal's share in the electric energy mix expected to decrease to 26% by 2040 compared with 37% in 2016, according to the IEA (IEA projections for 2040 based on "New Policies" scenario which takes into account policies that are already in place and those officially announced). This decline is expected to be primarily driven by the developed world's aim to "decarbonize" its power mix by using cleaner energy sources, particularly in Europe, whereas Southeast Asia, together with India and other developing economies in Asia, is the primary growth centre of coal demand in the world. Although India and China remain active, Chinese authorities have decided to reduce the number of projects, with the aim of limiting total coal-fired capacities to below 1,100 GW in 2020. At the same time, regulations worldwide are promoting the installation of more renewable energy production capacity.

  Difficulties of funding, issues related to increasing focus on safety of facilities, and political reluctance on the part of some countries, have impacted the rebound of nuclear power. However, in Europe, the United Kingdom has launched a nuclear program targeting an additional capacity of the nuclear fleet in operation of 16 GW by 2030. In addition, China has confirmed its target, in line with its carbon dioxide emissions reduction commitments of September 2014, to reach an installed nuclear capacity of 58 GW in 2020 (from 32 GW in 2017) that will increase to 150 GW by 2030, according to the World Nuclear Association.

- *Industrial markets that react to economic cycles*. The Group's industrial activities cover a range of product lines, serving markets such as mechanicals (including cranes, hydraulic machinery and agricultural equipment), the automotive industry and the construction sector. Each of these markets is subject to economic cycles, and could generate significant demand if economic trends become more favorable. Demand for industrial applications is dependent upon the growth or decline of specific sectors, such as automotive, construction or industrial manufacturing sectors. Such growth or decline is driven by numerous factors, but overall bears a broad correlation with GDP growth. Other factors that could generate growth in these markets include public infrastructure spending and any increases in worldwide commodity prices

Competitive Strengths

A world leader in premium tubular solutions with focus on bespoke solutions for major clients

Vallourec is a world leader in the market for premium tubular solutions, which are high-performance solutions based on tubular products whose manufacture requires significant technological and industrial expertise, and Vallourec

offers its clients a wide range of related services. The global premium tubes market has relatively few participants, and Vallourec's strong competitive advantages have consistently kept it among its leaders. Vallourec believes it is one of the few producers to offer a full range of services, from technical support to supply chain management and field services. As oil and gas exploration and development become more capital intensive and often require drilling deeper, further offshore or in locations more distant to existing infrastructure, Vallourec's customers will seek tubular solutions that are adapted to some of the harshest conditions. In addition, increased environmental regulations and the focus of local communities, the media and oil and gas company shareholders on environmental stewardship have led to an emphasis on higher standards of safety and quality. Vallourec believes customers therefore should be more inclined to choose premium tubular solutions that are tried and tested with a long history of reliability from a handful of suppliers, such as itself, who are able to support their customers around the world.

Vallourec has built a reputation among oil companies as a reliable supplier of tubular solutions for applications in the most demanding conditions. For instance, Vallourec's VAM® connections, which were invented and patented in 1965, provide tubes with connections that are resistant to pressure and compression and ensure a perfect seal. This technology has been recognized by oil companies as a major breakthrough and has contributed since the mid-1960s to Vallourec's reputation as a reference supplier for difficult applications. In order to make the use of this technology widespread, Vallourec decided to license it to Sumitomo Metals in 1976. VAM® connections have become the worldwide reference for secure connections in harsh environments. The continued development of the VAM® connections is today ensured through a joint R&D agreement between Vallourec and NSSMC. This cooperation has helped make the VAM® brand a global standard in the OCTG market that is found throughout the world and is used in the most ambitious and challenging projects. Most recently, Vallourec launched VAM® 21™, its highest performing and most reliable VAM® connection to date. VAM® 21™ is a threaded and coupled premium connection that boasts an innovative, advanced design that is compliant with stringent standards and affords new opportunities to improve well designs.

Vallourec offers customized solutions for specific clients or needs. For example, in 2012, Vallourec and Petrobras together launched a combined project team that succeeded in developing solutions to the specific challenges related to offshore drilling in pre-salt fields, which are extremely difficult environments in ultra-deep (over 2,000 meters) water and involving highly corrosive reservoirs located below a 3,000-meter layer of salt. Today, approximately 80% of the products that Vallourec sells to Petrobras are bespoke designs resulting from this research that accommodate Petrobras's complex operations.

More generally, the era of easy oil and gas exploration and development has passed in most regions, and most new field developments are made in challenging environments such as deep water, high pressure, high or very cold temperatures, highlighting the necessity to develop and offer reliable and secure solutions while remaining competitive in the current cycle.

A diversified footprint across markets and geographies

Vallourec benefits from a diversified global footprint with exposure to all the key regions for oil and gas production, including Asia and the Middle East (31.3% of revenues in 2017), North America (27.6% of revenues in 2017), South America (16.3% of revenues in 2017), Europe (15.8% of revenues in 2017) and the rest of the world (9.0% of revenues in 2017).

In addition to this geographical diversification, Vallourec's products and services are used in an array of industries, including oil and gas (61.3% of revenues in 2017), petrochemicals (7.2% of revenues in 2017), power generation (10.9% of revenues in 2017) and mechanicals, automotive, construction and other industries (20.6% of revenues in 2017).

Vallourec also benefits from a diversified client base, with large global clients such as Total, Chevron, ExxonMobil, Shell, Aramco, Petrobras, Sonatrach, B&L Pipeco, Premier Pipe, Champions, Pyramid, TechnipFMC, Mercedes Benz, Dong Fang and Doosan, but no customer that accounts for more than 10% of the Group's consolidated revenue in 2017.

Finally, thanks to its optimized industrial footprint, Vallourec now has rolling mills in the key regions of North America, Brazil, Germany and China, along with local finishing units worldwide that are located close to its customers.

State-of-the-art integrated, fully invested and optimized industrial set-up

Vallourec has invested significantly in its production facilities in recent years in order to reinforce its premium position, improve flexibility and productivity and reduce production costs. Even in difficult market cycles, Vallourec has maintained the quality of its industrial facilities and global presence while lowering production costs. Following the completion of its industrial reorganization, Vallourec has optimized its operations in Brazil and China, with a focus on state-of-the-art, low-cost facilities to serve international oil and gas markets, and has streamlined its European operations, which include facilities in Germany and France that satisfy the strictest industry quality standards. Vallourec is also very

well positioned in the U.S. oil and gas market, where it has two rolling mills equipped with the latest technology and heat treatment and threading units. Vallourec is thus able to provide premium solutions to customers in all major geographical markets, while benefitting from cost-effective production facilities adapted to each market.

As part of the Transformation Plan, Vallourec merged one of its Brazilian entities, Vallourec Tubos do Brasil ("VBR"), with Vallourec & Sumitomo Tubos do Brasil ("Old VSB"), a subsidiary of NSSMC, to form Vallourec Soluções Tubulares do Brasil ("VSB"). The merger has fostered industrial synergies by concentrating steel production at Vallourec's highly efficient Jeceaba premium mill while closing older blast furnaces. Moreover, the mill in Jeceaba is strategically located next to two of Vallourec's subsidiaries, which supply the mill with raw materials. Additionally, its location in the state of Minas Gerais allows Vallourec to transport its tubes via roads and rail networks to the major port cities of Rio de Janeiro, Santos and Vitoria. In China, Vallourec's acquisition of Tianda Oil Pipe ("TOP") in 2016 (a company in which it previously held a 19.7% interest) has given the Group full access to a highly efficient, state-of-the-art mill with finishing capabilities. For additional information on steps taken to optimize Vallourec's industrial footprint, see "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Transformation Plan*".

Vallourec believes that its industrial reorganization should contribute significantly to EBITDA going forward, even before taking into account the impact of any market recovery. Vallourec will also have the capacity to serve growing customer demand as the market recovers, without the need for major capital expenditure investments, providing the Group with the potential for significant operational leverage to generate additional EBITDA.

Extensive technological expertise and brand trust-recognition with major clients providing a competitive advantage

Innovation has always been at the heart of Vallourec's strategy and has contributed significantly to its leading market position. In order to maintain its premium standing, Vallourec has to respond to the radical and rapid evolution of its clients' needs by offering them tailored solutions that are simultaneously safe, reliable and environmentally friendly, while creating value.

The Group operates six dedicated research centers in France, Germany, the United States and Brazil that specialize in specific products, processes and technologies. Vallourec's R&D division employs over 500 researchers and technicians, and the Group has a dedicated Development & Innovation (D&I) department that was created in connection with the roll-out of its new organizational structure to boost its R&D efforts.

In addition to R&D, Vallourec seeks to continuously strengthen its industrial property portfolio with sustained patent filings. In 2017, Vallourec filed 28 new basic patents and pursued approximately 470 geographical extensions of existing patents. Vallourec will continue to protect its industrial and intellectual property through filings and registrations as well as litigation if necessary.

Vallourec also maintains close collaboration with key customers to answer their particular needs, including through various framework agreements with key oil companies, such as Total and Petrobras. To strengthen its proximity to its customers, Vallourec has developed a commercial excellence program that focuses on, among other things, the management of a network of key account managers who allow Vallourec to gain a detailed understanding of each customer's needs.

Proven ability to reduce costs and increase operating leverage

Vallourec has demonstrated its ability to adapt to challenging economic conditions through cost reduction, while strengthening its business by implementing plans that will ideally position the Group for the potential market recovery and allow it to continue to grow and expand its business.

Vallourec has a consistent history of reducing costs to adapt to changing market situations. Since the significant decline in international oil and gas prices in late 2014, Vallourec adopted two plans as part of its cost reduction efforts: the Valens Plan in February 2015 and the Transformation Plan in February 2016. As a result of these initiatives, Vallourec has achieved significant cost reductions and improved the management of its capital expenditures and working capital. In particular, it has generated €315 million of gross savings in two years (2016 and 2017), compared to its target to achieve €400 million of gross savings over five years (2016-2020). Its SG&A costs were reduced from €513 million in 2015 to €440 million in 2017. These cost reductions and reorganized operations have permitted the Group to improve its financial performance significantly, achieving, in two years, approximately half of the additional contribution to EBITDA targeted by the Group for 2020. Vallourec believes it is well-positioned to benefit from continued efficiencies and a recovering market to achieve the remainder of its objectives. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook*".

Further, Vallourec has taken steps to adapt its working capital requirements and capital expenditures to its reduced activity levels. The Group's working capital requirements decreased by €61 million in 2017, while industrial capital expenditures declined to €152 million (compared to €268 million in 2015 and €175 million in 2016).

A solid liquidity position

Vallourec's financial flexibility is underpinned by its ability to adapt spending and working capital requirements, as well as a significant liquidity buffer. In particular:

- Vallourec has adapted its capital expenditures and working capital requirements to the market environment of recent years. The Group's capital expenditures declined from €268 million in 2015 to €152 million in 2017. Its working capital requirements in 2017 declined by €61 million despite a 26.5% increase in revenues, reflecting in part significant efficiencies in operating working capital management.
- The Group has a significant liquidity position, with €1,021 million in cash and cash equivalents and €2,040 million of committed and undrawn credit facilities as of December 31, 2017. Vallourec has significant headroom under its gearing ratio covenant, with a ratio of 47% as of December 31, 2017 compared to a maximum of 75% as of December 31, 2017 and a maximum of 100% as of December 31, 2018, December 31, 2019 and December 31, 2020.
- Vallourec successfully issued €550 million in October 2022 Bonds and €250 million in October 2022 Convertible Bonds in October 2017 to enhance its liquidity and extend its maturity profile. After the refinancing of the August 2019 Bonds with the proceeds of the offering of the Notes, the Group will have no bond maturities before 2022.

Vallourec believes this liquidity position provides the Group with significant flexibility to continue implementing its strategy to take advantage of a potential market recovery while covering all of its debt maturities.

Committed anchor investors supporting Vallourec's strategy

As part of the Group's capital increase in May 2016, NSSMC and Bpifrance (the French public investment bank) increased their stakes in Vallourec to 15% each. The increase in NSSMC's stake was part of an overall strengthening of its industrial partnership with the Group, including the reinforcement of a key R&D agreement that has made VAM® a market leader. This move cemented an industrial partnership that has lasted for more than 40 years. The investment of Bpifrance also illustrated the strategic importance of Vallourec to the economic landscape in France.

Strong and experienced management team

Vallourec's management team and Supervisory board members have significant experience in the industry. For example, the Chairman of Vallourec's Management Board, Philippe Crouzet, has over 30 years of experience in the manufacturing industry, having held various leadership positions in management, strategy and finance in the industry before being appointed to his current position in 2009. Olivier Mallet, Vallourec's Chief Financial Officer and member of the Management Board, has 23 years of experience as Director or Chief Financial Officer in various industries, including 15 years in heavy manufacturing and energy. Vallourec believes its highly experienced senior management team has the expertise to lead Vallourec through changing market cycles and continue the successful implementation of its Transformation Plan.

Vallourec's supervisory board is comprised of 13 members and includes current and former executives of Thalès, Pernod Ricard, Airbus, Bolloré, BP and Alstom, among others.

Strategy

Vallourec has been successful in its implementation of the Transformation Plan since it was announced in February 2016, strengthening the Group and enabling it to weather adverse market conditions through a focus on three key pillars: premium positioning, proximity to its customer base and reinforced competitiveness. Vallourec remains focused on these three pillars as it positions itself for long-term future profitability.

Focus on premium products and solutions

The Group intends to continue concentrating its activities on premium products and solutions that take full advantage of Vallourec's capacity for innovation and technological excellence, including the quality and reputation of Vallourec's VAM® line of connections. Vallourec focuses on providing solutions that allow its oil and gas customers to access increasingly complex deposits, such as in deep wells, corrosive environments, deviated and horizontal wells, high pressure / high temperature conditions and offshore drilling. Vallourec offers products adapted to uses such as shale gas

drilling, arctic environment wells, deep water projects, extended reach applications and salt dome projects. Vallourec also believes it is one of the few producers to offer a full range of services, from technical support to supply chain management and field services. Vallourec has invested significantly in its production facilities in recent years to reinforce and maintain its premium position among its competitors, rendering further major capital expenditures unnecessary in the immediate future. The Group's OCTG products meet the high technical standards required to satisfy its customers' complex needs and are the basis for its established reputation as a quality supplier for its global customer base. In the power generation market, Vallourec's premium products contribute to the efficiency of power plants and the extension of their lifecycles. In the industrial sectors, Vallourec concentrates on reducing the weight of mechanical components, designing lighter structures and contributing to its customers' efficiency and cost effectiveness goals.

Vallourec believes its strategy of concentrating on premium products and solutions allows it to differentiate its offerings from more commoditized producers, providing the potential for larger order volumes and better margins. In addition, the development of premium OCTG products and solutions requires close collaboration with Vallourec's main customers, solidifying these relationships and providing the Group with valuable information that improves its ability to analyze and service their needs as they evolve.

Global coverage with local presence

Vallourec seeks to position itself as close as possible to its key customers in order to reduce its operating costs and effectively market its services. Vallourec evaluates its holdings in order to determine where its assets will be best placed to ensure its future success, and it seeks to operate a small number of efficient steel and rolling mills close to its largest markets while retaining local premium finishing capabilities throughout the world.

To complement its manufacturing facilities in Europe, the United States, Brazil and more recently China, Vallourec has developed local finishing lines (such as heat treatment and threading) as close as possible to its customers, in order to reduce lead time, integrate local content, establish customer proximity and leverage local leadership. For example, threading lines have been implemented in Nigeria and China (Changzhou) in order to meet the requirements of the local market and to thread locally manufactured premium tubes. Heat treatment and threading lines have also been developed in Indonesia and Saudi Arabia.

Vallourec's Brazilian operations have been streamlined, including through the formation of VSB by merging Old VSB with VBR, which was completed on October 1, 2016. This optimization has allowed Vallourec to create a single production center in Brazil, simplifying its operations and generating significant industrial and cost synergies. Further, Vallourec's January 2017 sale to Asco Industries of a 60% majority stake in the Saint-Saulve steel mill and the closure of two rolling mills in France allowed the Group to continue rationalizing its manufacturing activities and adjusting its production capacity to a level appropriate for current market demand.

In China, Vallourec's December 2016 acquisition of full control of TOP positions Vallourec to export from a highly competitive hub to other regions, including the Middle East, other regions in Asia or Africa.

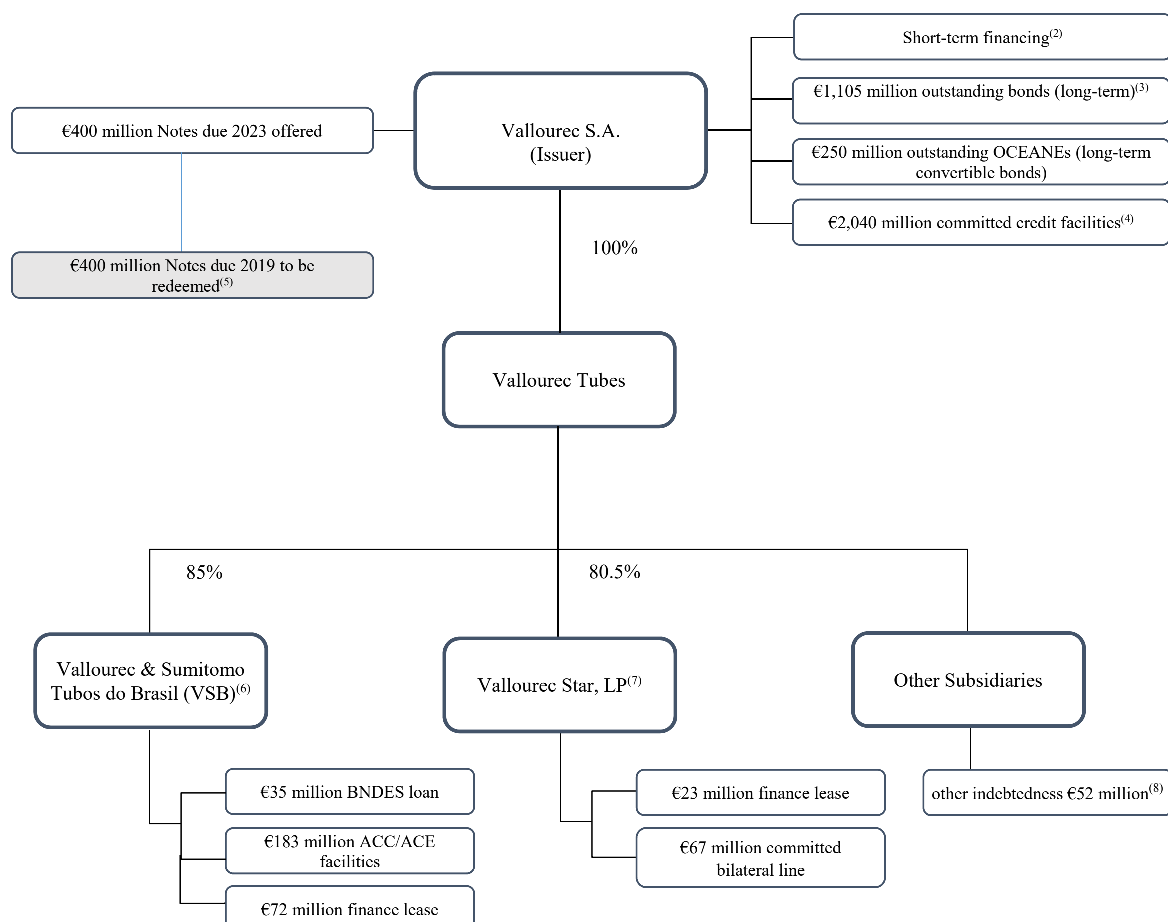
Bolster Vallourec's competitiveness through increased operational efficiency

Vallourec intends to maintain its cost flexibility and optimize the efficiency of its worldwide operations in order to remain as competitive as possible with other market participants. Vallourec believes that, following the implementation of the Transformation Plan and its strategic initiatives, it has an advantage over its competitors, resulting from having made the necessary adjustments during the market downturn to profit sustainably as the markets recover. By pursuing cost reductions to improve the value chain for its oil and gas customers, Vallourec believes it will position itself as a preferred industry partner for these companies.

Recent Developments

On April 5, 2018, Vallourec announced that it had signed new contracts for the supply of products and services to Petrobras. Within the framework of these three-year long term agreements,Vallourec will supply Petrobras' operations with premium seamless OCTG products and associated accessories, premium steel grades and connections using state-of-the-art technology and specialized services. The products and associated services will be used by Petrobras on its offshore oil and gas exploration and production wells, located at important reservoirs of the pre-salt basin. Petrobras production coming from the pre-salt area already represents more than 50% of Petrobras' total production.

Corporate and financing structure as of December 31, 2017, as adjusted[(1)]



(1) As adjusted to give effect to the issuance of the Notes offered hereby and the application of the proceeds therefrom to redeem the August 2019 Bonds at their maturity. See "*Use of Proceeds*" and "*Capitalization*". For a description of the Group's financing arrangements other than the Notes offered hereby, see "*Description of Certain Indebtedness*". On the Issue Date, none of the Issuer's subsidiaries will guarantee the Notes. As adjusted to give effect to the application of the proceeds from the Notes offered hereby and the redemption of the August 2019 Bonds at their maturity using the proceeds therefrom, the Issuer's subsidiaries would have had €432 million of indebtedness outstanding all of which would have been structurally senior to the Notes offered hereby. The Group had no debt that was secured as of December 31, 2017. The Vallourec Star, LP bilateral line is guaranteed by Vallourec S.A.

(2) Short-term financing consists of €416 million, including €397 million outstanding under Vallourec's commercial paper facility and €19 million of other short-term debt, principally consisting of accrued interest.

(3) The €1,355 million aggregate principal amount of outstanding bonds at the Vallourec S.A. level (which excludes the Notes offered hereby and the €400 million August 2019 Bonds that will be repaid with the proceeds of the issuance of the Notes) includes (i) €500 million aggregate principal amount of September 2024 Bonds (ii) €55 million aggregate principal amount of August 2027 Bonds, (iii) €250 million aggregate principal amount of October 2022 Convertible Bonds (OCEANEs) and (iv) €550 million aggregate principal amount of October 2022 Bonds. These amounts do not reflect charges for unamortized issuance costs of (i) €2 million, (ii) €1 million, (iii) €2 million and (iv) €8 million, respectively. The amounts shown for the Notes offered hereby do not reflect estimated charges for unamortized issuance costs of €6 million.

(4) Credit facilities at the Vallourec S.A. level provide total commitments of €2,040 million and consist of its amended and restated €1.1 billion credit line maturing February 2020 (the maturities for €1,034 million of which were extended to February 2021), its €450 million credit line maturing in February 2020, its amended and restated €400 million credit line maturing in July 2020 and its amended and restated €90 million bilateral credit line maturing in February 2021.

(5) The August 2019 Bonds will be redeemed with the proceeds of the issuance of the Notes offered hereby when they mature and will remain outstanding until then.

(6) VSB indebtedness is calculated at an exchange rate of BRL3.9729/€1.00 as of December 31, 2017.

(7) Vallourec Star, LP indebtedness is calculated at an exchange rate of U.S.$ 1.1993/€1.00 as of December 31, 2017.

(8) Consists mainly of bank overdrafts and accrued interest.

Corporate Information

Vallourec is a *société anonyme* formed in 1899 and incorporated under the laws of the Republic of France and registered within the Nanterre (Hauts-de-Seine) Trade and Companies Registry under number 552 142 200. Vallourec's principal executive offices are located at 27, avenue du Général Leclerc, 92100 Boulogne-Billancourt (France), and Vallourec's phone number is +33 (0)1 49 09 35 00. Vallourec's website is www.vallourec.com. Information contained on, or accessible through, Vallourec's website is not a part of this offering memorandum other than as specifically provided herein. See "*Incorporation by Reference*".

THE OFFERING

The Issuer	Vallourec S.A.
Securities Offered	€400,000,000 aggregate principal amount of 6.375% senior notes due 2023 (the "Notes").
Issue Date	April 19, 2018.
Transfer Restrictions	Vallourec has not registered the Notes under the Securities Act or any state securities laws. The Notes may not be offered or sold except under an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act and applicable state securities laws. See "*Transfer Restrictions*".
Use of Proceeds	The gross proceeds of the Notes will be €400 million and the net proceeds from the offering of the Notes are expected to be €394 million. The Group intends to use the gross proceeds from the offering of the Notes, together with cash on hand, to refinance the August 2019 Bonds by redeeming them when they mature, and to pay certain fees and expenses. Until then, Vallourec will retain such proceeds in its general corporate treasury account and reduce existing and future short-term borrowings. The general corporate treasury account is invested in short-term money-market and similar instruments and is available to fund ongoing operating and investment requirements. See "*Use of Proceeds*" and "*Capitalization*".

The Notes

Issue Price	100% (plus accrued and unpaid interest from the Issue Date).
Maturity	The Notes will mature on October 15, 2023.
Interest	6.375% per annum, payable semi-annually in arrears on April 15 and October 15 of each year, beginning on October 15, 2018.
Ranking	The Notes: • will be the Issuer's general senior unsecured obligations; • will rank *pari passu* in right of payment among themselves and with any existing and future unsecured indebtedness of the Issuer that is not expressly subordinated in right of payment to the Notes; • will not be guaranteed on the Issue Date and will be structurally subordinated to all indebtedness and other liabilities (including trade payables) of the Issuer's subsidiaries that do not guarantee the Notes (which, as of the Issue Date, includes all of the Issuer's subsidiaries, but which may be subject to change in the future); • will rank senior in right of payment to any existing and future subordinated obligations of the Issuer; and • will be effectively subordinated to any existing or future secured indebtedness of the Issuer, to the extent of the value of the property and assets securing such indebtedness.
Optional Redemption	The Issuer may redeem all or part of the Notes at any time on or after October 15, 2020 at the redemption prices described in this offering memorandum. At any time prior to October 15, 2020, the Issuer may redeem all or part of the Notes at a redemption price equal to 100% of their principal amount plus the applicable premium described in this offering memorandum. In addition, at any time prior to October 15, 2020, the Issuer may also redeem up to 40% of the aggregate principal amount of the Notes with the net proceeds from certain equity offerings.
Change of Control	Upon certain events constituting a change of control, Vallourec may be required to make an offer to purchase the Notes at a price equal to 101% of the principal amount thereof.

Redemption for Changes in Tax Law	The Issuer will be required to pay additional amounts to the holders of the Notes to compensate them for any amounts deducted from payments to them in respect of the Notes on account of certain taxes and other governmental charges. If the Issuer becomes obliged to pay such additional amounts as a result of a change in law, the Issuer may at its sole discretion redeem the Notes outstanding at their principal amount, in whole but not in part, together with accrued and unpaid interest, if any, to but not including the date of redemption.
Certain Covenants and Events of Default	The Indenture governing the Notes (the "Indenture") will contain certain covenants and events of default that, among other things, limit Vallourec's ability and that of certain of its subsidiaries to: • incur or guarantee additional indebtedness or issue preferred stock; • pay dividends or make other distributions; • make certain restricted investments or other payments; • purchase equity interests or redeem subordinated indebtedness prior to its maturity; • create or incur certain liens; • create or incur restrictions on the ability to pay dividends or make other payments to the Issuer; • enter into transactions with affiliates; and • sell assets (including the capital stock of Vallourec's subsidiaries) or merge or consolidate with another company. All of these limitations are subject to a number of important qualifications and exceptions. If at any time the Notes receive ratings of BBB− or higher from S&P Global Ratings ("Standard & Poor's") or, if no rating by Standard & Poor's then exists, the equivalent of such rating from Moody's Investors Service, Inc. ("Moody's"), and no default or event of default has occurred and is continuing, certain restrictions, covenants and events of default will cease to be applicable to the Notes for so long as the Notes maintain such ratings.
Taxation	For a description of the material tax consequences of an investment in the Notes, see "*Taxation*".
Denomination	Each Note will have a minimum denomination of €100,000 and integral multiples of €1,000 in excess thereof.
Listing	Application will be made to admit the Notes to listing on the Official List of the Luxembourg Stock Exchange and to trading on the Euro MTF.
Governing Law	The Notes and the Indenture will be governed by, and construed in accordance with, the laws of the State of New York.
Trustee	BNY Mellon Corporate Trustee Services Limited.
Paying Agent	The Bank of New York Mellon, London Branch.
Listing Agent, Transfer Agent and Registrar	The Bank of New York Mellon SA/NV, Luxembourg Branch.

*For further information regarding the Notes, see "*Description of the Notes*".*

Risk Factors

Investment in the Notes offered hereby involves certain risks. Prospective investors should carefully consider the information under "*Risk Factors*" and all other information included or incorporated by reference in this offering memorandum before investing in the Notes.

SUMMARY FINANCIAL AND OPERATING DATA

The summary financial and selected operating data as of and for the years ended December 31, 2015, 2016 and 2017 set forth below have been derived from Vallourec's consolidated financial statements included in this offering memorandum, which have been audited by KPMG S.A. and Deloitte & Associés, independent registered public accounting firms, as stated in their reports therein. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations*".

Vallourec maintains its books and records in euros and prepares its consolidated financial statements in accordance with IFRS.

The summary financial and selected operating data should be read in conjunction with Vallourec's consolidated financial statements, including the notes thereto, included in this offering memorandum, and with the information set forth herein under the headings "*Available Information*", "*Presentation of Financial Information*" and "*Management's Discussion and Analysis of Financial Condition and Results of Operations*".

Summary Financial Data

Consolidated Statement of Income Data

	For the year ended December 31,		
(in € million)	**2015**	**2016**	**2017**
Revenue	**3,803**	**2,965**	**3,750**
Cost of sales[1]	(3,352)	(2,727)	(3,297)
Industrial margin[2]	**451**	**238**	**453**
Sales, general and administrative costs[1]	(513)	(448)	(440)
Other	(15)	(9)	(11)
EBITDA[2]	**(77)**	**(219)**	**2**
Depreciation of industrial assets	(303)	(283)	(297)
Other depreciation and amortization	(44)	(49)	(44)
Impairment of assets and goodwill	(296)	(71)	(65)
Asset disposals, restructuring costs and non-recurring items	(118)	(127)	(79)
Operating income / (loss)	**(838)**	**(749)**	**(483)**
Net financial income / (expense)	**(75)**	**(131)**	**(174)**
Income tax	15	80	100
Share in net income / (loss) of associates	—	(8)	(3)
Consolidated net income / (loss)	**(898)**	**(808)**	**(560)**
Net income / (loss), Group share	**(865)**	**(758)**	**(537)**

(1) Before depreciation and amortization.

(2) Industrial margin is equal to revenues less cost of sales, which for this purpose excludes depreciation and amortization charges. EBITDA is equal to industrial margin less selling, general and administrative expenses (excluding depreciation and amortization), and plus or minus certain other income and expenses, and is equivalent to the *résultat brut d'exploitation* in Vallourec's French language consolidated financial statements. Vallourec presents these indicators because it believes that they are of interest for investors, and similar measures are widely used by certain investors, securities analysts and other interested parties as measures of performance, liquidity and financial condition. These indicators may not be comparable to similarly titled measures of other companies. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations*".

Consolidated Statement of Cash Flow Data

(in € million)	For the year ended December 31, 2015	2016	2017
Cash flow from (used in) operating activities before changes in working capital requirements	(229)	(399)	(332)
Change in operating working capital requirements	632	179	61
Net cash flow from (used in) operating activities	**403**	**(220)**	**(272)**
Net cash flow from (used in) investing activities	**(279)**	**(268)**	**(95)**
Net cash flow from (used in) financing activities	**(553)**	**1,095**	**130**
Impact of changes in exchange rates	(55)	44	(30)
Change in cash	**(484)**	**653**	**(267)**

Consolidated Statement of Financial Position Data

(in € million)	As of December 31, 2015	2016	2017
Net intangible assets	149	125	89
Goodwill	329	383	348
Net property, plant and equipment	3,161	3,618	2,977
Biological assets	155	88	71
Associates	177	125	102
Other non-current assets	233	349	137
Deferred tax assets	149	190	242
Total non-current assets	**4,353**	**4,877**	**3,966**
Inventories and work in progress	1,066	1,035	1,004
Trade and other receivables	545	546	568
Derivatives—assets	20	58	32
Other current assets	307	283	231
Cash and cash equivalents	631	1,287	1,021
Total current assets	**2,569**	**3,209**	**2,856**
Assets held for sale	69	46	64
Total assets	**6,991**	**8,132**	**6,886**
Total non-current liabilities	**2,246**	**1,549**	**2,105**
Total current liabilities	**1,647**	**2,678**	**1,812**
Total equity and liabilities	**6,991**	**8,132**	**6,886**

Selected Operating Data

Revenue by Activity

(in € million)	For the year ended December 31, 2015	2016	2017
Oil and gas	2,361	1,791	2,299
Petrochemicals	205	129	268
Oil and gas, petrochemicals	**2,566**	**1,920**	**2,567**
Power generation	**559**	**486**	**408**
Mechanicals	363	279	368
Automotive	114	101	144
Construction and other[1]	201	179	263
Industry and other	**678**	**559**	**775**
Total	**3,803**	**2,965**	**3,750**

(1) Including sales of iron ore.

Revenue by Geographical Market

(in € million)	For the year ended December 31, 2015	2016	2017
France	114	91	105
Germany	316	280	279
Other EU countries[1]	419	276	210
Total Europe	**849**	**647**	**594**
North America	**1,096**	**559**	**1,033**
Brazil	555	456	599
Other Central and South America	41	11	13
Total South America	**596**	**467**	**612**
China	262	257	451
Other Asia and Middle East	590	591	724
Total Asia and Middle East	**852**	**848**	**1,175**
CIS	31	27	30
Rest of the world	379	417	306
Total rest of the world	**410**	**444**	**336**
Total revenue	**3,803**	**2,965**	**3,750**

(1) Other European Union countries, excluding Germany and France.

Free Cash Flow

(in € million)	For the year ended December 31, 2015	2016	2017
Cash flow from (used in) operating activities	(229)	(399)	(332)
Change in operating working capital requirement	632	179	61
Net cash flow from (used in) operating activities	**403**	**(220)**	**(272)**
Gross capital expenditures	(268)	(175)	(152)
Free cash flow[1]	**135**	**(395)**	**(423)**

(1) Free cash flow is equal to net cash flow from operating activities less gross capital expenditures. Vallourec presents this indicator because it believes that it is of interest for investors, and similar measures are widely used by certain investors, securities analysts and other interested parties as measures of performance, liquidity and financial condition. This indicator may not be comparable to similarly titled measures of other companies. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations*".

Other Financial Metrics

(in € million except for ratios)	As of or for the year ended December 31, 2015	2016	2017
Net financial debt[1]	**1,519**	**1,287**	**1,542**
Net gearing ratio[2]	**50%**	**34%**	**53%**
Net gearing ratio, as per bank covenants[3]	**43%**	**35%**	**47%**
EBITDA	**(77)**	**(219)**	**2**

(1) Calculated as gross financial debt less cash and cash equivalents, and excludes the Shareholder Loan. See "*Presentation of Financial Information*".

(2) Calculated as net financial debt divided by total equity.

(3) Calculated as per the covenants in the Group's principal credit agreements as of December 31 of each year, as the ratio between the Group's net consolidated debt and the Group's equity, restated for gains and losses on derivatives and valuation differences (gains and losses on the consolidated subsidiaries in foreign currencies). See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Liquidity and consolidated indebtedness*" and "*Description of Certain Indebtedness*".

RISK FACTORS

Investing in the Notes involves a high degree of risk. Before investing, prospective investors should carefully consider these risk factors and all other information, including the information incorporated by reference, in this offering memorandum. Additional risks and uncertainties of which Vallourec is not aware or that Vallourec believes are immaterial may also adversely affect its business, financial condition, liquidity, results of operations or prospects. Prospective investors are cautioned that if any of these events occur, Vallourec's business, financial condition, liquidity, results of operations or prospects could be materially and adversely affected and such prospective investors could lose some or all of any investment in the Notes.

Risks Relating to Vallourec and Its Business Environment

Vallourec's revenues and earnings depend to a large extent on spending by customers in the oil and gas sector.

The Group's activity is dependent on the level of expenses incurred by oil and gas companies for exploration, production and development of oil and natural gas reserves. In 2016 and 2017, respectively, 60.4% and 61.3% of the Group's consolidated revenue was earned in the oil and gas sector (excluding petrochemicals).

Since 2015, spending by oil and gas companies has been significantly impacted by the sharp drop in global oil prices, which began in late 2014, resulting from overproduction of oil compared to demand. In response to the drop in oil prices, oil and gas companies intensified control of their costs, reducing their expenses and optimizing their inventory levels, which had a significant impact on the demand for tubes. This drop in the level of spending by oil and gas companies also had the effect of increasing pressure on tube prices.

While there have been initial signs of recovery (especially in the U.S. market), the market remains volatile. Oil and gas prices increased in 2017 compared to 2016, and have further increased in early 2018, but there can be no assurance that this trend will continue. Moreover, there is a time lag between increases in oil and gas prices and decisions by oil and gas companies to increase spending, particularly outside the United States where projects are generally more complex, resulting in a greater period of time for spending decisions. No assurances can be given as to whether the U.S. recovery will continue or extend to other regions in which the Group operates, whether a lasting imbalance between supply and demand will persist or whether the market climate will deteriorate. The investments of oil and gas companies could be subject to other negative factors such as changes in applicable laws and regulations, changes in the political environment or weather conditions. These factors could consequently have a negative impact on the Group's activity, results and outlook.

The market for Vallourec's tubular solutions is subject to cyclical trends affecting the Group's results.

The tube market is traditionally subject to cyclical trends that result both from economic changes in the oil and gas sector, and from macroeconomic conditions that have an impact on the other business sectors of the Group, including mechanicals, automotive, construction and power generation, which together accounted for 35.2% and 31.5% of the Group's consolidated revenues in 2016 and 2017, respectively. These sectors have important business cycles that follow trends in the economic climate and which are likewise influenced by other factors, such as the economic growth outlook. Economic uncertainty and volatility have increased in recent years, and may continue to increase due to numerous factors, such as the potential impacts of the anticipated withdrawal of the United Kingdom from the European Union and other political decisions such as the imposition of tariffs on certain steel and aluminum imports in the United States. Any of these cyclical trends or other political or economic developments may impact demand for the Group's products, the price of the raw materials used to manufacture them and the price at which the Group is able to sell them. While Vallourec seeks to reduce its exposure to economic cycles through geographic and customer diversification, the establishment of long-term client relationships and cost flexibility, there can be no assurance that such measures will be sufficient to counteract the impact of adverse cycles, particularly when they are widespread. Deterioration in the global economic climate and the financial markets could therefore have a significant adverse effect on the Group's sales, earnings, cash flow and outlook.

The Group derives a significant percentage of its consolidated revenue from a limited number of major customers.

In 2017, the Group generated 20% of its consolidated revenue from its five largest customers and 28% of its consolidated revenue from its ten largest customers. No customer accounted for more than 10% of the Group's consolidated revenue in 2017. Most customers are not required to purchase a fixed amount of products or services over a given period and could decide to terminate their contracts, not renew them, or renew them on terms that, particularly with respect to pricing, are less favorable for the Group. The loss of one or more of the Group's major customers could have a significant adverse effect on the Group's business, financial position and results. In addition, in a deteriorating global economic environment, a worsening of its customers' financial position may expose the Group to the risk of payment default.

The Group faces intense competition in the markets in which it operates.

The Group operates in a highly competitive international environment, with its competition varying in degrees of intensity in the Group's different sectors:

- In the oil and gas sector, despite being positioned largely on the premium product market, Vallourec is significantly affected by strong competition in the OCTG commodity tubes market, which exerts downward pressure on prices throughout the market, including on the prices of premium connections and tubes and in particular on the prices of the least differentiated products. Oil companies, particularly international oil companies, are seeking to develop a strategy of qualifying low-cost suppliers, particularly Chinese suppliers, who have progressed technically and developed premium connections for the least differentiated categories. This has had the effect of increasing pressure on the prices of established operators, who have significantly reduced their prices in an effort to be able to win tenders. This new competition has impacted the Europe and Africa ("EA") and the Middle East and Asia ("MEA") regions in particular. The intensification of the competitive landscape in an increasingly globalized seamless tube market could negatively impact the Group's market share, volumes, revenue and profitability.

- In the power generation sector, the Group has noted increased competition since 2009, in particular in the Chinese market, due to the decision of some customers to give preference to local manufacturers who have entered the market for higher grade products, potentially at the expense of the stringency of the customers' technical requirements; and

- In the petrochemicals, mechanicals, automotive and construction sectors, the Group faces stronger competition as a result of customer requirements being less sophisticated.

The Group seeks to address competitive pressures by positioning itself on the premium product and solutions market, pursuing a strategy of innovation and development of products in partnership with customers, justifying long-term relationships, maintaining a strong patent portfolio and advanced know-how, and reducing its cost base. These initiatives may not be sufficient to offset the impact of competition on prices and the Group's ability to win tenders. Accordingly, one or more of the foregoing competitive pressures could negatively impact the Group's financial results and business.

The Group conducts a significant part of its business in emerging markets, which may be subject to risks such as periods of financial or political instability that could adversely impact the Group's business.

The Group conducts a significant part of its business in emerging countries, in part to be located close to its customers. The risks associated with doing business in these countries include political, economic and social instability (which can result in nationalization and expropriation of assets), uncertainty as to applicable law and inconsistent application of laws and the impact of international sanctions, as well as financial instability and increased exchange rate risk. There are also risks for personnel deployed on assignment or permanently, with a heightened risk of events such as industrial accidents and terrorism. Vallourec seeks to reduce the risks to its personnel by systematically evaluating safety and security risks and putting into place emergency procedures, and the risks relating to its business by identifying alternative production facilities in other countries and adopting business continuity plans. These measures may not be sufficient to avoid the impact of these risks. The Group may not be in a position to take out insurance or hedge against some of these risks, and may also encounter problems in performing its activities in such countries, which could have an impact on its employees and/or results, growth or outlook.

The Group's success depends on the continual technological development of its products.

The tubes market is subject to technological change. The Group may not be able to anticipate changes that could affect the Group's activities in the future. Third-party technological innovations could affect the competitiveness of the Group's existing products and services and have a negative impact on the value of existing patents and the revenue generated by the Group's licenses. The Group's financial outlook could be affected and the Group might find itself at a competitive disadvantage if it were unable to develop or access (either alone or through partnerships) new technology, products or services ahead of its competitors, or if its new technology, products or services were not to have the success expected in the market. Furthermore, the Group faces the risk that competitors may access the Group's manufacturing secrets, or certain innovations that are not yet patented or that are not eligible to be patented. While the Group seeks to address these risks through significant investments in innovation, identifying client needs, reinforcing its digital strategy, undertaking initiatives to partner with key actors in the digital market space, continual monitoring of technological developments in the market, seeking to obtain patent protection where available and protecting know-how through confidentiality agreements, it cannot be certain that these measures will be effective to reduce its exposure to these risks. If the Group fails to maintain its technological advantages or if the procedures established by the Group's Security

Department and IT Department fail to protect it from these risks, the Group's results and outlook could be adversely affected.

The Group's failure to protect its intellectual property could adversely affect its business and results.

Risks related to intellectual property primarily stem from:

- disputes brought by third parties against the Group;
- the appropriation of its technologies by competitors; and
- fraudulent use by third parties of its trademarks.

The laws and regulations as well as the judicial systems in some countries in which the Group operates may not provide effective protection for intellectual property rights or effective means to combat counterfeiting. Even in countries with relatively strong protections for intellectual property, such as France, Germany and the United States, Vallourec faces such risks.

The Group has been faced, as have other tubular products and accessories manufacturers, with the existence of counterfeit products for sale on the market, which use the trademarks of Vallourec and its subsidiaries, and which are sometimes even accompanied by false certificates. These counterfeiting activities may confuse customers in terms of the source of products and allow the counterfeiters to derive unfairly a profit from the Group's investments and reputation, with a corresponding loss in profit to the Group. In addition to the risk of losing customers drawn to cheaper products, there is a material risk of accidents if the counterfeit products have problems with quality and do not comply with applicable standards, which in turn could negatively impact the Group's image and, indirectly, its financial results.

If the Group is unable to successfully protect, maintain and defend its intellectual property, the Group would risk losing a portion of its technological edge, customers and income sources, and any such loss could have a significant adverse effect on its results and image.

The Group faces risks related to its external and internal growth strategy.

In pursuing its development strategy, the Group has engaged, and could in the future engage, in external and internal transactions targeting growth through the acquisition of businesses and companies, and the construction of new production units, as well as the development of strategic partnerships. However, the underlying assumptions regarding the profitability of its investment projects may prove to be mistaken, or the Group may not manage to successfully integrate acquired or merged companies. Consequently, the expected benefits of future or already completed external or internal growth transactions may not be realized within the expected timeframe or to the expected extent, or at all, and this could affect the Group's financial position. These transactions include risks related to difficulties in the integration of personnel, activities, technologies and customers. Furthermore the Group may suffer liabilities or impairment of assets, or become subject to claims, arising out of such transactions or their related agreements.

Risks Relating to Vallourec's Operations and Financial Performance

The Group's financial objectives are subject to assumptions that may prove untrue, in which case the Group might not achieve such objectives.

For the purposes of its operational organization and in order to allocate its resources, Vallourec has set a number of targets for 2018 and in the medium-term, including targeted EBITDA performance. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook*". These targets are based on data, assumptions and estimates that Vallourec considers reasonable, including the assumption that the Transformation Plan will continue to be successfully implemented.

The assumptions and estimates underlying the financial targets are likely to evolve or be modified due to uncertainties that are linked to the economic environment and, above all, to the level of spending by companies in the oil and gas sector, from which the Group draws the bulk of its revenue. The oil and gas sector has suffered from a significant downturn since late 2014 and, although there have been signs of recovery in the oil and gas markets in 2017 and early 2018, particularly in the United States, significant uncertainty regarding any market recovery remains. Moreover, many international oil companies have not yet launched new exploration and production projects, resulting in a lag in the recovery of volumes and prices on the international OCTG market. The Group's outlook is dependent on the timing and extent of recovery of global oil and gas activity, particularly offshore activity. In the context of the current market environment, the timing and durability of any recovery of volumes and prices remains uncertain. Given the challenges in the sectors in which

the Group is active, it is also difficult to reliably assess the Group's outlook and forecast its needs, particularly in terms of capacity and operating resources, technology requirements and product volumes.

The Group's outlook is also largely dependent on its ability to continue to successfully implement the Transformation Plan. The Group may not attain the objectives of the Transformation Plan within the planned timeframes or at all and may not achieve sustained benefits from these initiatives even if successfully implemented due to numerous reasons, including economic uncertainties that are beyond the Group's control. If the Transformation Plan does not produce the expected results, this could have a significant adverse effect on Vallourec's results, financial position and outlook. Furthermore, a failure to achieve the objectives of the Transformation Plan could increase the cost of the Group's financing or cause the Group to breach financial ratios in its credit facilities, compromise its ability to return to an investment grade rating and more generally have a negative impact on the Group's liquidity by restricting the Group's access to the capital markets, which could impact the Group's ability to achieve its targets.

Any change in, or unforeseen events impacting, the Group's assumptions or estimates may impact the Group's ability to achieve its targets and could consequently have an adverse effect on Vallourec's results and financial position.

The Group and its operations are subject to numerous environmental regulations, which may result in material liabilities and costs.

In the various countries in which the Group operates, particularly in Europe, the United States, Brazil and China, its production activities are subject to numerous environmental regulations that are extensive and constantly changing. These regulations concern, in particular, management of major accidents, the use of chemicals (REACH regulations in Europe), disposal of wastewater, disposal of special industrial waste, air and water pollution, carbon dioxide emissions and site protection. The Group's activities could, in the future, be subject to even more stringent regulations requiring it to incur expenditures in order to comply with regulations or pay new taxes.

All French plants require authorizations to operate in accordance with the provisions of Law No. 76-663 of July 19, 1976, as amended, relating to facilities classified for environmental protection and with Decree No. 77-1133 of September 21, 1977 codified in Article R.512-1 of the French Environmental Code. Any major changes at these sites (such as investments, extensions and reorganizations) require the updating of these authorizations in collaboration with the local Regional Departments for the Environment, Land-use Planning and Housing (*Directions régionales de l'environnement, de l'aménagement et du logement—DREAL*). The Group's plants located outside France are subject to similar local regulations requiring specific authorizations for various environmental aspects of these sites including air, water and waste management. The Group regularly renews all requisite authorizations for its plants pursuant to local laws and regulations, but no assurance can be given that its current authorizations will not be revoked or that it will be able to renew and obtain required authorizations in the future.

Efforts to comply with these authorizations and, more generally, with the laws and regulations applicable to environmental matters, are costly. Moreover, compliance with such laws and regulations cannot eliminate all the inherent environmental risks that the very nature of the Group's industrial activity involves. The Group could consequently be faced with an environmental accident that could have a material impact on the continuing operation of the sites concerned, as well as on its financial position. In addition, regulatory authorities or courts may require the Group to carry out investigations and clean-up operations, or restrict its activities or close its facilities temporarily or permanently, and/or pay fines. Given the long industrial history of several of the Group's sites (whether currently in use or obsolete), the soil or ground water may have been polluted, and pollution may be discovered or occur in the future. Vallourec could be required to decontaminate the sites concerned or incur other clean-up costs. The estimated cost for remediation of the French sites, for example, would total almost €3 million if activity at such sites ceased. In relation to its former activities, the Group could be held responsible in the event of past damage to persons or property, which could adversely affect Vallourec's results.

The Group is subject to risks related to occupational safety and health, and failure to manage such risks could harm the Group's reputation and business.

The Group faces risks that occupational accidents and illnesses affecting its labor force may arise, which could render the Group liable for payments or damages. In France, some of the Group's subsidiaries are involved in civil proceedings on the use of asbestos. These proceedings were initiated by certain employees or former employees who alleged they had contracted an occupational illness linked to asbestos, with the aim of obtaining a judgment that would give them supplementary social security benefits. The outcome of the current asbestos-related cases cannot be predicted with reasonable certainty. In addition, the Group cannot provide any assurance that the number of existing cases linked to asbestos, or new cases, will not have material adverse effects on the Group's financial position or on its image.

The Group's business depends on its ability to obtain raw materials at acceptable cost.

Tube production consumes raw materials such as iron ore, coal, coke and scrap. Apart from in-house sources of supply, raw materials and energy represent a significant expense item for the Group. An increase in the price of raw materials and energy would lead to a corresponding increase in the production cost of the Group's finished products. Uncertainty surrounding economic trends, along with a highly competitive environment in the international market for tubes, means that the Group may not be able to pass on any increases in raw materials and energy prices to its customers, which could reduce Group margins and have a negative impact on the Group's financial results.

Impairment of goodwill and fixed assets could negatively affect the Group's results.

The downturn in the markets in which the Group participates, in particular in the oil and gas sector, has led the Group to record charges for goodwill impairment and the write-down of the carrying value of fixed assets totaling €296.2 million in 2015, €71.4 million in 2016 and €65.1 million in 2017. As of December 31, 2016 and December 31, 2017, goodwill amounted to €382.7 million and €348.2 million, respectively. The Group can provide no assurance that future events will not result in an additional impairment of certain fixed assets and/or goodwill. Potential significant impairments could have an adverse effect on the financial position and results of the Group for the fiscal year for which such charges are recorded, and on the Group's liquidity, in particular if such charges impair the Group's ability to meet the financial ratio covenants included in the Group's credit agreements. See "*—The Group's debt exposes it to certain risks, and it may incur significantly more indebtedness, which could exacerbate these risks.*"

If the Group is unable to maintain a high level of production and manufacturing quality, its positioning in the market for premium tubular solutions may be adversely affected and the Group could be subject to liability.

The Group's positioning in the market for premium tubular solutions requires the implementation of a demanding quality control program for its products and services. However, the Group faces the risk that some of its products or services may have production or manufacturing defects or faults which could potentially cause damage to property, personnel or installations attached to the tubes, lead to an interruption of business for customers or third parties, or cause environmental damage. The Group's quality control procedures for its products and services cannot fully eliminate the risk that defects or faults could occur in Group products or services. If such defects or faults occurred, they could potentially require damages to be paid by the Group, cause a drop in demand for these products and services, or damage the Group's reputation for safety and quality, resulting in a significant impact on the financial position, earnings and image of the Group's businesses.

Failures of the Group's equipment or maintenance issues could negatively impact the Group's ability to meet its orders and, as a result, harm its reputation and financial position.

The Group's success in meeting orders depends on a high level of asset reliability. Such assets are subject to a risk of breakdown of equipment or unavailability for other reasons such as damage, fire, explosion or computer viruses. Such failures could cause delays in the delivery of orders in progress or subsequent orders for which these assets were to be used. The Group's maintenance programs cannot guarantee that all of its assets will be kept in good working order, or that breakdowns will not occur. Equipment failures are likely to lead to dissatisfaction on the part of the Group's customers, have an impact on the cost of orders and, therefore, significantly affect the financial position, results and image of the Group.

If the Group fails to maintain an effective system of internal control, it may be unable to accurately report financial results or prevent fraud, leading to an adverse impact on its business and reputation.

The Group's international profile requires complex administrative, financial and operational processes at entities with different levels of maturity in terms of internal control, evolving in a variety of legal environments and running different information systems. In this context, Vallourec faces risks related to its internal control, which could lead to inaccurate and/or inappropriate transactions or operations being carried out, or could lead to Vallourec being the victim of fraud, theft or embezzlement.

In addition, the Group's employees and personnel may undertake actions that violate the Group's Code of Ethics (*Charte d'éthique*) or applicable laws. The Group does business in countries which have a particular risk of exposure to corruption, which may increase the likelihood of violations. Such violations could result in material civil and/or criminal penalties, which would be likely to have a negative effect on the Group's financial position and image.

Failure by the Group to maintain or protect its information systems could damage its reputation and negatively impact its business.

The Group uses complex information systems, including in particular systems to manage its sales and logistics and to carry out its accounting and reporting, which are essential for conducting its commercial and industrial activity

The Group has also undertaken various projects that aim to digitalize its production tools and support services, which may increase the risk of theft or loss of data, including personal information relative to its clients. A defect in one of the Group's information systems or digital production tools and support services could have a material adverse impact on the activity, financial position, results or outlook of the Group.

The Group could also be the subject of complex attacks targeting its IT networks. A growing number of companies have recently been the victims of intrusions or attempted intrusions into their information systems. The techniques implemented to hack, disrupt, degrade the quality of, or sabotage information systems are constantly evolving. It is impossible to be aware of all of such techniques or to identify them before an attack is launched. The Group's precautions and means of defense may not be able to protect it against such hacking techniques, or may be unsuccessful in rapidly establishing an appropriate and effective response system. Any breakdown or interruption in the Group's IT systems that is linked to such intrusions or to other factors could have a material adverse effect on the activity, financial position, results or outlook of the Group.

The Group's success depends on retaining key personnel and identifying, recruiting and retaining qualified staff.

Vallourec's success depends on retaining key personnel within the Group and recruiting qualified staff. It also depends to a large extent on the continuing contributions made by its key executives. If the Group were to lose an important member of its management team, whether to a competitor or for any other reason, such a loss could reduce its capacity to implement its industrial or business strategy successfully.

The Group's performance also depends on the talents and efforts of highly qualified staff. Its products, services and technology are complex, and its future growth and success depend largely on the skills of its engineers and other key personnel. Ongoing training of already skilled staff is also necessary to maintain a high level of innovation and adapt to technological change. The ability to recruit, retain and develop top-quality teams is a critical factor for the Group's success, and a failure to do so could have a negative impact on its operating performance of development.

Risks Relating to Legal and Tax Matters

Provisions of the Group's agreements with its business partners include call options that, if exercised, could affect the use of certain of its assets and trademarks.

Certain industrial cooperative agreements between the Group, NSSMC and Sumitomo Corporation contain reciprocal change of control clauses under which each party has, in certain circumstances, a call option over the other party's interest or a termination right, in the event of a change of control of the other party (or of the entity that controls it).

NSSMC and/or Sumitomo Corporation have, in the event of a change of control of Vallourec Tubes or of Vallourec, the right to acquire the shares held by the Group in the capital of VAM USA LLC, VSB and VAM Holding Hong Kong. The Group has a corresponding right, in certain circumstances, to acquire the shares held by NSSMC (and in the case of VSB, the shares held by Sumitomo Corporation) in the capital of these companies in the event of a change of control of NSSMC (or the entity controlling NSSMC).

In addition, in the event of a change of control of Vallourec Oil and Gas France ("VOGFR"), Vallourec Tubes, or Vallourec, NSSMC has the right to cancel the R&D contract entered into by VOGFR and NSSMC, while retaining the right to use the R&D results jointly obtained and to enable any licensees to benefit from such results, and VOGFR benefits from the same rights in the event of a change in control of NSSMC. If NSSMC exercises its right of cancellation, it will also be entitled to continue to use the VAM® trademark for three years from the date of such cancellation.

Under the change of control provisions contained in the agreements entered into in February 2016, NSSMC would, in the event of a change of control of Vallourec Tubes, VBR or Vallourec, be entitled to acquire the Jeceaba plant (which constitutes the scope of activity of VSB prior to the effective date of the February 2016 agreements). See "*Agreements Relating to Strategic Initiatives*".

The loss by the Group of its interest in any of the relevant entities, or in the Jeceaba plant, following the exercise of the change in control clause, would have a material impact on the scope of the Group's activities and, as a result, on its revenues and earnings. In addition, if the price that Vallourec receives under the call option agreements is less than the carrying value of the relevant entities or assets in Vallourec's consolidated financial statements, the exercise of any of the call options by NSSMC would result in a loss being recorded by Vallourec.

The Group operates in numerous jurisdictions in which it faces complex taxation regimes.

As an international group that carries out its activities in numerous countries, the Group must structure its sales, industrial and financial activities in conformity with the various complex regulatory requirements to which it is subject,

and according to its sales, industrial and financial objectives. In some cases, the tax laws and regulations of the various countries in which the Group's entities are located or operate do not establish clear or definitive guidelines, and as a consequence, the tax regime that is applied to its activities, transactions or intragroup restructurings (whether past or future) may be based on the Group's interpretations of the applicable tax laws and regulations, which may be challenged by the competent tax administrations in the jurisdictions concerned. More generally, any breach of the current tax laws and regulations in the countries in which the Group or Group entities are located or operate could result in reassessment of taxes owed, or the payment of late interest, fines and penalties. Furthermore, such tax laws and regulations could change or be modified through their interpretation and application by the jurisdictions or tax administrations concerned, in particular in the context of joint initiatives occurring on an international or community scale (OECD, G20, European Union). Any of the preceding factors could result in an increase in the Group's tax burden and have a material adverse impact on its financial position and results.

The Group has in the past been subject to, and could in the future be subject to, tax reassessments and disputes in certain countries where Group entities are located or operate. When the Group considers that an outflow resulting from a tax dispute is probable, a provision is established in an amount that depends on the Group's estimate of the probable amount of the outflow. The amount payable by the Group following the conclusion of legal proceedings may be different from the Group's estimates and the amount of any provision that the Group has established. The Group therefore cannot provide assurance that its provisions will be sufficient to cover the actual amounts payable at the conclusion of any such proceedings.

The Group has significant tax losses, for which the accounting impacts are described in Note 5 to the Group's consolidated financial statements as of and for the fiscal year ended December 31, 2017 included in this offering memorandum. The Group's ability to benefit from these losses will depend on a number of factors, including (i) the ability to show tax benefits and the compatibility between the level of benefits attained and the losses incurred, (ii) the limits that apply to any tax losses imposed by French and foreign laws and regulations, (iii) the consequences of current or future tax audits or disputes, and (iv) any changes in applicable laws and regulations.

The impact of these factors could increase the tax pressure to which the Group is subject, and thus have an adverse effect on its effective tax rate, financial position and results.

Risks Relating to Financial Markets and Liquidity

The Group may be subject to interest rate risk.

The Group is exposed to interest rate risk on its variable-rate debt. As of December 31, 2017, given the Group's interest rate risk hedging policy, the impact of a 1% rise in interest rates applied to short-term rates in the euro zone, Brazilian and Chinese rates, and British and American money market rates, would result in a €1.8 million increase in the Group's annual financial expenses, based on an assumption of complete stability of the financial debt and constant exchange rates, and after taking into account the effects of any hedging instruments. This impact does not take into account the interest rate risk on commercial paper with a maximum maturity of 12 months and on cash in short-term investments (with a maximum maturity of three months).

The Group is subject to foreign exchange risk that could have a material adverse effect on its results of operations.

The assets, liabilities, revenues and expenses of the Group's subsidiaries are expressed in various currencies. The Group's financial statements are presented in euros. The assets, liabilities, revenues and expenses denominated in currencies other than the euro are translated into euros in connection with the preparation of the Group's consolidated financial statements.

If the euro rises (or falls) against another currency, the value in euros of the various assets, liabilities, revenues and expenses initially recognized in that other currency will fall (or rise). Therefore, changes in the value of the euro may have an impact on the value in euros of the assets, liabilities, revenues and expenses not denominated in euros, even if the value of these items in their original currency does not change.

In 2016 and 2017, net income, Group share, was generated to a significant extent by subsidiaries that prepare their financial statements in currencies other than the euro (mainly in U.S. dollars and Brazilian reals). As of December 31, 2017, a 10% change in exchange rates would have had an upward or downward impact on net income, Group share, of €2.1 million.

The Group is also subject to exchange rate risk resulting from sales and purchase transactions entered into by certain of its subsidiaries in currencies other than those of the countries where they operate. The main foreign currency involved is the U.S. dollar, as a significant portion of the Group's transactions (38% of Group revenue in 2017) is invoiced in U.S. dollars by companies whose functional currency is not the U.S. dollar. Exchange rate fluctuations between the euro,

the Brazilian real and the U.S. dollar may therefore negatively affect the Group's operating margin. The Group may only have a limited ability to hedge its exposure to foreign exchange risk to reduce the sensitivity of its net profits to currency fluctuations.

The Group is subject to credit risks that could have a material adverse effect on its results and financial position.

Vallourec is subject to credit risk on financial assets for which no impairment provision has been made and whose non-recovery could adversely affect the Group's results and financial position. The Group has identified three main types of receivables that have these characteristics:

- security deposits paid in connection with tax disputes and the tax receivables due to the Group in Brazil;
- trade and other receivables; and
- derivatives that have a positive fair value.

Trade receivables more than 90 days past due and not impaired amounted to €38.4 million as of December 31, 2017, or 7% of the Group's total trade receivables. In addition, as of December 31, 2017, trade receivables not yet due amounted to €435.6 million, or 80% of total net trade receivables. Of this amount, €276.5 million had a maturity between 0 and 30 days from December 31, 2017, €97.8 million had a maturity of between 30 and 60 days from December 31, 2017, €16.7 million had a maturity of 60 to 90 days from December 31, and the remainder had maturities of 90 days or more after December 31, 2017. If the Group is unable to recover these receivables, or a significant portion of them, the Group's cash flow and financial position could be negatively impacted.

The Group's debt exposes it to certain risks, and it may incur significantly more indebtedness, which could exacerbate these risks.

The Group's financial resources are primarily composed of bank financing and bond financing. As of December 31, 2017, the Group's current bank loans and other borrowings totaled €746.2 million, and the Group's noncurrent bank loans and other borrowings totaled €1,817.1 million. The majority of long-term and medium-term bank financing has been put in place through Vallourec S.A in Europe, by its subsidiary Vallourec Star, LP in the United States and, to a lesser extent, the Group's subsidiaries in Brazil. See "*Offering Memorandum Summary—Summary Corporate and financing structure as of December 31, 2017, as adjusted*", "*Capitalization*" and "*Description of Certain Indebtedness*". In addition, the Group is currently conducting a review of its lease agreements in light of the future application of IFRS 16. As of December 31, 2017, the Group's long-term lease obligations not recorded in the statement of financial position were €146.6 million.

In a context of deteriorating market conditions, the long-term senior debt rating of Vallourec was downgraded from investment grade to BB− by Standard & Poor's in February 2016 and further downgraded to B+ in May 2016 and then to B in February 2017. This downgrading may increase the Group's financing costs and make it more difficult to issue bonds as part of the Group's overall financing plan.

As of December 31, 2017, the Group had total availability under its various medium- and long-term committed credit facilities of €2,040 million, which remained entirely available and undrawn. The Group's credit facilities include: (i) an amended and restated €1.1 billion facility maturing in February 2020, the maturities for €1,034 million of which were extended to February 2021; (ii) a €450 million facility maturing in February 2020; (iii) an amended and restated bilateral line of €90 million maturing in February 2021; and (iv) an amended and restated revolving credit facility for an amount of €400 million, maturing in July 2020.

Each of these bank facilities requires Vallourec S.A. to maintain its consolidated net debt-to-equity ratio (the ratio between (a) the Group's net consolidated debt, restated for items that would not be treated as a finance or capital lease in accordance with the accounting principles applied in the preparation of the consolidated financial statements of Vallourec S.A. for the financial years ended on or prior to December 31, 2015, and (b) the Group's equity, restated for gains and losses on derivatives and valuation differences (gains and losses on the consolidated subsidiaries in foreign currencies)) (i) at no more than 75% for each 12-month period ending on December 31 on or prior to December 31, 2017 and (ii) at no more than 100% for each 12-month period ending on December 31 thereafter, in each case calculated as of December 31 of each year. Vallourec was in compliance with its bank covenant ratio as of December 31, 2017, on which date it stood at 47%, as calculated pursuant to the financing agreements (because it is tested annually under the Group's credit agreements, Vallourec calculates the ratio only as of year-end). However, in the event of noncompliance, the relevant lenders would be entitled to demand early repayment of the outstanding drawn amounts.

A change in control of Vallourec could require the repayment of some or all of the loans extended by the participating banks. The financing agreements also provide that the entire debt will be immediately due and payable if the

Group defaults on one of its debt obligations or in the case of certain specified events. In such case, or in the case of noncompliance with the bank covenant ratio, among other events, there could be serious adverse consequences for the Group's business and financial position and its ability to repay its debt. See "*Description of Certain Indebtedness—Credit Facilities*".

In the United States, the Group's U.S. subsidiary, Vallourec Star, LP, has a medium term committed U.S.$80 million credit facility with a maturity in March 2019. This facility, which is guaranteed by Vallourec S.A., was fully drawn as of December 31, 2017. This facility includes certain debt covenants relating to Vallourec Star, LP and a change of control clause. See "*Description of Certain Indebtedness*". In addition, Vallourec Star, LP has entered into a finance lease with a nominal value of U.S.$64.3 million and a final maturity of five years. As of December 31, 2017, the remaining amount owed on the lease was U.S.$27.9 million.

In Brazil, VSB has a loan granted at an initial amount of BRL448.8 million from BNDES (*Banco Nacional de Desenvolvimento Econômico e Social*). As of December 31, 2017, the residual amount outstanding under this loan was BRL4.4 million. In addition, VSB entered into a finance lease with a nominal value of BRL570 million relating to equipment needed to operate the plant at Jeceaba. As of December 31, 2017, the remaining amount owed on the finance lease was BRL287.4 million. VSB was also granted a Shareholder Loan by NSSMC in two initial tranches on August 8, 2011 and February 25, 2013, respectively, in nominal amounts of €113.5 million (BRL426.8 million) and €35 million (BRL132 million), respectively. A total of €72 million of the Shareholder Loan remained outstanding as of December 31, 2017. The Shareholder Loan is listed as a separate line item in the Group's consolidated balance sheet.

In addition to its bank financing, the Group launched a commercial paper program in October 2011 to meet its short-term needs. The program has a €1 billion ceiling and provides for issuances with maturities of up to one year. As of December 31, 2017, Vallourec had outstanding €396.8 million in commercial paper.

Finally, the Group has a total of €1,755 million aggregate amount of bonds outstanding at the Vallourec S.A. level, with maturities in August 2019 (€400 million), October 2022 (€550 million in bonds and €250 million aggregate amount of bonds convertible into new shares and/or exchangeable for existing shares of Vallourec), September 2024 (€500 million) and August 2027 (€55 million). The Group intends to repay the August 2019 Bonds at their maturity on August 2, 2019 using the net proceeds of the Notes offered hereby and cash on hand; the August 2019 Bonds will remain outstanding indebtedness until such redemption date. Further, the Group's bonds include a change of control clause that would trigger the mandatory early redemption of the bonds at the request of each bondholder in the event of a change of control of Vallourec (in favor of a person or a group of people acting jointly), and, except for the bonds convertible into new shares and/or exchangeable for existing shares of Vallourec, if such change of control results in a reduction of Vallourec's financial rating. Certain of the bonds may also be redeemed early at the request of the bondholder or Vallourec, as applicable, in the event of certain customary events of default or, except for the bonds convertible into new shares and/or exchangeable for existing shares of Vallourec, certain changes in tax regulations.

As of December 31, 2017, the Group was in compliance with its debt covenants. However, the Group is able to incur significant additional indebtedness pursuant to these debt instruments. The Group's high level of indebtedness could affect its operations in several ways, including the following:

- a significant portion of the Group's cash flows could be used to service its indebtedness;
- a high level of indebtedness could increase the Group's vulnerability to general adverse economic and industry conditions, such as the recent severe and prolonged downturn in the oil and gas industry on which the Group depends for the bulk of its revenue;
- a high level of indebtedness may place the Group at a competitive disadvantage compared to competitors that are less leveraged and therefore may be able to take advantage of opportunities that the Group's indebtedness could prevent it from pursuing; and
- a high level of indebtedness may impair the Group's ability to obtain additional financing in the future for the Group's development strategies, working capital, capital expenditures, acquisitions, general corporate or other purposes.

Any of the foregoing risks could have a material adverse effect on the Group's business and results of operations.

Risks Relating to the Notes

Vallourec S.A. is a holding company that has few material assets and sources of revenue of its own and will depend on cash from its operating subsidiaries to make payments on the Notes.

Vallourec S.A. is a holding company with no independent business or revenue-generating operations of its own and Vallourec S.A.'s only material assets are the equity interest it holds in its subsidiaries, the Group's trademark and the Group image, of which it entrusted management to Vallourec Tubes in 2014. The capacity of Vallourec S.A. to make payments under the Notes depends on the ability of its subsidiaries to distribute cash. If Vallourec S.A.'s subsidiaries do not distribute cash to Vallourec S.A. that it can use to make scheduled payments on the Notes, Vallourec S.A. will not have any other source of funds that would allow it to make payments to the holders of the Notes. The amount of dividends and distributions available to Vallourec S.A. will depend on the profitability and cash flows of its subsidiaries. The ability of these subsidiaries to make distributions, loans or advances to their respective parent companies may be limited by the laws of the relevant jurisdictions in which such subsidiaries are organized or located. In addition, as of the issue date of the Notes, none of Vallourec S.A.'s subsidiaries will guarantee the Notes and, as a result, they will have no obligation to make payments with respect to the Notes.

Each of Vallourec S.A.'s subsidiaries is a distinct legal entity and, under certain circumstances, legal and contractual restrictions may limit its ability to obtain cash from its subsidiaries. Applicable tax laws may also subject such payments to further taxation. While the indenture governing the Notes limits the ability of Vallourec S.A.'s subsidiaries to incur contractual restrictions on their ability to pay dividends or make other intercompany payments to Vallourec S.A., these limitations are subject to certain significant qualifications and exceptions and do not cover contractual restrictions existing on the issue date of the Notes. There can be no assurance that arrangements with Vallourec S.A.'s subsidiaries, the funding permitted by the agreements governing existing and future indebtedness of the Group and the Group's results of operations and cash flow generally will provide Vallourec S.A. with sufficient dividends, distributions or loans to fund payments on the Notes. In the event that Vallourec S.A. does not receive distributions or other payments from its subsidiaries, Vallourec S.A. may be unable to make required payments, including with respect to principal, interest and additional amounts, if any, on the Notes.

The Notes will be structurally subordinated to the liabilities of Vallourec S.A.'s subsidiaries.

None of Vallourec S.A.'s subsidiaries will initially guarantee the Notes, which means that holders of the Notes will have no direct claims against the assets or the earnings of the subsidiaries to satisfy obligations due under the Notes. See "*—The Company is a holding company that has few material assets or sources of revenue of its own and will depend on cash from its operating subsidiaries to make payment on the Notes*".

Generally, holders of indebtedness of, and trade creditors of, Vallourec S.A.'s subsidiaries, including lenders under bank financing agreements, are entitled to payments of their claims from the assets of such subsidiaries before these assets are made available for distribution to any direct or indirect shareholder of any such subsidiary, including Vallourec S.A. Accordingly, in the event that any of Vallourec S.A.'s subsidiaries becomes insolvent, liquidates or otherwise reorganizes:

- the creditors of Vallourec S.A. (including the holders of the Notes) will have no right to proceed against such subsidiary's assets; and

- creditors of such subsidiary, including trade creditors, will generally be entitled to payment in full from the sale or other disposal of the assets of such subsidiary before any direct or indirect shareholder, including Vallourec S.A., will be entitled to receive any distributions from such subsidiary.

As such, the Notes will be structurally subordinated to the creditors (including trade creditors) and any preferred stockholders of Vallourec S.A.'s subsidiaries. As of December 31, 2017, on an as-adjusted basis after giving effect to the offering of the Notes hereby and the application of the proceeds therefrom to redeem the August 2019 Bonds at their maturity, the Group would have had total consolidated gross financial debt of €2,558 million, of which €432 million was borrowed by Vallourec S.A.'s subsidiaries.

The rights of holders of the Notes to receive payments on the Notes is effectively junior to secured debt of Vallourec S.A.

Since the Notes are unsecured, the Notes will be effectively subordinated to any current or future secured indebtedness of Vallourec S.A., to the extent of the value of the property and assets securing such indebtedness. Although the indenture governing the Notes contains a negative pledge restriction that applies to Vallourec S.A. and its subsidiaries, such restriction is subject to a wide range of exceptions, including for any secured indebtedness existing on the issue date of the Notes. In the event of any foreclosure, dissolution, winding-up, liquidation, reorganization, administration or other bankruptcy or insolvency proceeding of Vallourec S.A., its secured creditors will have prior claims to its assets that

constitute the collateral for such secured indebtedness. As of December 31, 2017, as adjusted for the offering of the Notes and the application of the respective proceeds therefrom, none of Vallourec S.A.'s indebtedness was secured.

The Group may not generate sufficient cash to service its debt and to sustain its operations.

The Group's ability to make principal or interest payments when due on its indebtedness, including the Notes, and to fund its ongoing operations, will depend on its future performance and its ability to generate cash, which to a certain extent is subject to general economic, financial, competitive, legislative, legal, regulatory and other factors, as well as other factors discussed in this section, many of which are beyond its control. At the maturity of the Notes or any other debt which the Group may incur, if the Group does not have sufficient cash flows from operations and other capital resources to pay its debt obligations, or to fund its other liquidity needs, it may be required to refinance its indebtedness. If the Group is unable to refinance its indebtedness or obtain such refinancing on terms acceptable to it, the Group may be forced to sell assets, or raise additional debt or equity financing in amounts that could be substantial. The type, timing and terms of any future financing will depend on the Group's cash needs and the prevailing conditions in the financial markets. There can be no assurance that the Group would be able to accomplish any of these measures in a timely manner or on commercially reasonable terms, if at all. In addition, the terms of the indenture governing the Notes and the terms and conditions of the Group's other financing arrangements may limit the Group's ability to pursue any of these measures.

There may not be an active trading market for the Notes, in which case your ability to sell your Notes may be limited.

There is no existing market for the Notes. There can be no assurance as to:

- the liquidity of any market in the Notes;
- your ability to sell your Notes; or
- the prices at which you would be able to sell your Notes.

The initial purchasers of the Notes have informed Vallourec that they intend to make a market in the Notes after completing this offering. However, the initial purchasers are not obligated to make a market in the Notes and may cease market-making at any time. In addition, changes in the overall market for high-yield securities and changes in Vallourec's financial performance or in the markets where Vallourec operates may adversely affect the liquidity of the trading market in the Notes and the market price quoted for the Notes. As a result, there can be no assurance that an active trading market will actually develop for the Notes.

Historically, the markets for non-investment grade debt such as the Notes have been subject to disruptions that have caused substantial volatility in their prices. Future trading prices for the Notes will depend on many factors, including, among other things, prevailing interest rates, the Group's operating results and the market for similar securities. The market, if any, for the Notes may be subject to similar disruptions. Any disruptions may have an adverse effect on the holders of the Notes, regardless of Vallourec's prospects and financial performance. As a result, there is no assurance that there will be an active trading market for the Notes. If no active trading market develops, you may not be able to resell your holding of the Notes at a fair value, if at all.

Although an application will be made for the Notes to be listed on the Official List of the Luxembourg Stock Exchange and admitted to trading on the Euro MTF, there can be no assurance that the Notes will become or remain listed thereon. Although no assurance is made as to the liquidity of the Notes as a result of the admission to trading on the Euro MTF, failure to be approved for listing or the delisting of the Notes, as applicable, from the Official List may have a material effect on a holder's ability to resell the Notes, as applicable in the secondary market.

In addition, the indenture governing the Notes will allow Vallourec S.A. to issue additional Notes in the future which could adversely impact the liquidity of the Notes.

The insolvency and administrative laws of France may not be as favorable to creditors, including investors in the Notes, as the insolvency laws of the jurisdictions with which you are familiar, and may limit your ability to enforce your rights under the Notes.

Vallourec S.A. is organized and exists under the laws of France. In the event of a bankruptcy, insolvency or similar event, proceedings could be initiated in France. The bankruptcy, insolvency, administrative and other laws of France may be materially different from, or in conflict with, those of the United States, including in the areas of rights of creditors, priority of governmental and other creditors, the ability to obtain post-commencement interest and duration of the proceedings.

In general, applicable fraudulent transfer and conveyance and equitable principles, insolvency laws and limitations on the enforceability of judgments obtained in courts in such jurisdictions could limit the enforceability of the Notes against Vallourec S.A.

In France, insolvency legislation tends to favor the continuation of a business and protection of employment over the payment of creditors. In the context of proceedings affecting creditors, including court-assisted proceedings (*mandat ad hoc* proceedings or conciliation proceedings (*procédure de conciliation*)), and court-administered proceedings (safeguard proceedings (*sauvegarde*, *sauvegarde accélérée* or *sauvegarde financière accélérée*), judicial reorganization proceedings (*redressement judiciaire*) or judicial liquidation proceedings (*liquidation judiciaire*)), the ability of holders of the Notes to enforce their rights under the Notes could be limited or suspended.

For more information regarding insolvency laws and enforceability issues as they relate to the Issuer, see "*Certain Insolvency Law Considerations*".

Investors may not be able to recover in civil proceedings for U.S. securities law violations.

Vallourec S.A. is an entity organized under the laws of France with its registered office and principal place of business in France. A majority of the directors and officers of Vallourec S.A. are neither residents nor citizens of the United States and all or a substantial portion of their assets are located outside the United States. Furthermore, a significant portion of the assets of Vallourec S.A. and its direct and indirect subsidiaries are located outside the United States. As a result, it may not be possible for investors to effect service of process upon such persons and entities, or to enforce against them judgments of U.S. courts predicated upon the civil liability provisions of U.S. federal or state securities laws within the United States. However, it may be possible for investors to effect service of process within France upon those persons or entities, provided that The Hague Convention on the Service Abroad of Judicial and Extrajudicial Documents in Civil or Commercial Matters of November 15, 1965 is complied with.

The United States and France are not parties to a treaty providing for the reciprocal recognition and enforcement of judgments, other than arbitral awards rendered in civil and commercial matters. Accordingly, a judgment rendered by any U.S. federal or state court based on civil liability, whether or not predicated solely upon U.S. federal or state securities laws, would not directly be recognized or enforceable in France.

A party in whose favor such judgment was rendered could initiate enforcement proceedings (*exequatur*) in France before the relevant civil court (*Tribunal de Grande Instance*) that has exclusive jurisdiction over such matter.

Enforcement in France of such U.S. judgment could be obtained following proper (that is, non-*ex parte*) proceedings if such U.S. judgment is enforceable in the United States and if the French civil court is satisfied that certain conditions have been met.

For further information, see "*Service of Process and Enforcement of Liabilities*".

Vallourec may not be able to fulfill its repurchase obligations in the event of a change of control, and certain events will not constitute a change of control.

The indenture governing the Notes will contain provisions relating to certain events constituting a "change of control." Upon the occurrence of a "Change of Control" as defined in the indenture governing the Notes, Vallourec will be required to offer to repurchase all outstanding Notes at a price equal to 101% of their principal amount, plus accrued and unpaid interest and additional amounts, if any, to the date of repurchase. If a Change of Control were to occur, there can be no assurance that Vallourec would have sufficient funds available at such time, or that Vallourec would have sufficient funds to pay the purchase price of the outstanding Notes or that the restrictions in Vallourec's other existing contractual obligations would allow Vallourec S.A. to make such required repurchases. A change of control may result in an event of default under, or acceleration of, other indebtedness of the Group. The repurchase of the Notes pursuant to such an offer could cause a default under such indebtedness, even if the change of control itself does not.

The ability of Vallourec S.A. to receive cash from its subsidiaries to allow it to pay cash to the holders of the Notes following the occurrence of a change of control may be limited by the Group's then-existing financial resources (see "*—Vallourec S.A. is a holding company that has few material assets and sources of revenue of its own and will depend on cash from its operating subsidiaries to make payments on the Notes*"). If an event constituting a change of control occurs at a time when Vallourec S.A.'s subsidiaries are prohibited from providing funds to Vallourec S.A. for the purpose of repurchasing the Notes, the consent of the lenders under such indebtedness to the purchase of the Notes may be sought or an attempt to refinance the borrowings that contain such prohibition may be made. If such a consent to repay such borrowings is not obtained, Vallourec S.A. will remain prohibited from repurchasing any Notes. In addition, Vallourec S.A. may require third-party financing to make an offer to repurchase the Notes upon a change of control but there can be no

assurance that Vallourec S.A. would be able to obtain such financing. Any failure by Vallourec S.A. to offer to purchase its Notes would constitute a default under the indenture governing the Notes.

The change of control provision contained in the indenture governing the Notes may not necessarily afford you protection in the event of certain important corporate events, including a reorganization, restructuring, merger or other similar transaction involving Vallourec S.A. that may adversely affect you, because such corporate events may not involve a shift in voting power or beneficial ownership. Except as described under "*Description of the Notes—Repurchase at the Option of Holders—Change of Control*", the Indenture will not contain provisions that would require Vallourec S.A. to offer to repurchase or redeem the Notes in the event of a reorganization, restructuring, merger, recapitalization or similar transaction.

The definition of "Change of Control" in the indenture governing the Notes will include a disposition of all or substantially all of the assets of Vallourec S.A. and its restricted subsidiaries, taken as a whole, to any person. Although there is a limited body of case law interpreting the phrase "all or substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances, there may be a degree of uncertainty as to whether a particular transaction would involve a disposition of "all or substantially all" of the assets of Vallourec S.A. and its restricted subsidiaries, taken as a whole. As a result, it may be unclear as to whether a change of control has occurred and whether Vallourec S.A. will be required to make an offer to repurchase the Notes.

The transfer of the Notes is restricted, which may adversely affect their liquidity and the price at which they may be sold.

The Notes have not been registered under the Securities Act or the securities laws of any jurisdiction and, unless so registered, may not be offered or sold except pursuant to an exemption from, or transaction not subject to, the registration requirements of the Securities Act and any other applicable laws. See "*Notice to Investors*". The Company has not agreed to or otherwise undertaken to register the Notes, and has no intention to do so.

The Notes will initially be held in book-entry form, and therefore you must rely on the procedures of the relevant clearing systems to exercise any rights and remedies.

Unless and until Notes are in definitive registered form, or Definitive Registered Notes (as defined in "*Description of the Notes*"), are issued in exchange for book-entry interests, owners of book-entry interests will not be considered owners or holders of the Notes. The common depositary for Euroclear and Clearstream (or its nominee) will be the sole holder of the global notes representing the Notes. After payment by the Paying Agent to Euroclear and Clearstream, Vallourec S.A. will have no responsibility or liability for the payment of interest, principal or other amounts to the owners of book-entry interests. Accordingly, if you own a book-entry interest, you must rely on the procedures of Euroclear or Clearstream, as applicable, and if you are not a participant in Euroclear or Clearstream, on the procedures of the participant through which you own your interest, to exercise any rights of a holder under the Indenture. See "*Book-Entry, Delivery and Form*".

Unlike the holders of the Notes themselves, owners of book-entry interests will not have the direct right to act upon the Issuer's solicitations for consents, requests for waivers or other actions from holders of the Notes. Instead, if you own a book-entry interest, you will be permitted to act only to the extent you have received appropriate proxies to do so from Euroclear or Clearstream. There can be no assurance that procedures implemented for the granting of such proxies will be sufficient to enable you to vote on any request actions on a timely basis.

Similarly, upon the occurrence of an Event of Default under the indenture governing the Notes, unless and until Definitive Registered Notes are issued in respect of all book-entry interests, if you own a book-entry interest, you will be restricted to acting through Euroclear or Clearstream. The Issuer cannot assure you that the procedures to be implemented through Euroclear or Clearstream will be adequate to ensure the timely exercise of rights under the Notes. See "*Book-Entry, Delivery and Form*".

You may face currency exchange risks by investing in the Notes.

The Notes are denominated and payable in euro. If you measure your investment returns by reference to a currency other than the currency in which your notes are denominated, investment in such notes entails foreign currency exchange-related risks due to, among other factors, possible significant changes in the value of the euro, as applicable, relative to the currency you use to measure your investment returns, caused by economic, political and other factors which affect exchange rates and over which Vallourec has no control. Depreciation of the euro, as applicable, against the currency by reference to which you measure your investment returns would cause a decrease in the effective yield of the Notes below their stated coupon rates and could result in a loss to you when the return on the Notes is translated into the currency by reference to which you measure your investment returns. There may be tax consequences for you as a result of any foreign currency exchange gains or losses resulting from your investment in the Notes. You should consult your tax advisor concerning the tax consequences to you of acquiring, holding and disposing of the Notes.

The effective yield on the Notes for a holder of the Notes may be diminished by the tax impact on that holder of the Notes of its investment in the Notes.

Payments of interest on the Notes, or profits realized by the holder of the Notes upon the sale or repayment of the Notes, may be subject to taxation in the holder's home jurisdiction or in other jurisdictions in which it is required to pay taxes. Certain French and U.S. tax matters relating to an investment in the Notes are summarized under "*Taxation*"; however, that section does not contain a comprehensive description of the tax impact of an investment in the Notes and the tax impact on an individual holder may differ from the impact described in that section. The Company advises all investors to contact their own tax advisors for advice on the tax impact of an investment in the Notes.

The EU Anti-Tax Avoidance Directive could restrict the deductibility of interest incurred in France, thus reducing the cash flow available to service the Group's indebtedness.

On July 12, 2016, the Council of the European Union adopted Council Directive 2016/1164/EU laying down rules against tax avoidance practices that directly affect the functioning of the internal market (the "ATAD"). The ATAD includes, in particular, a mechanism under which adjusted net financial expenses incurred by an EU company will be deductible from its taxable results in a given fiscal year only up to the higher of 30% of earnings before interest, tax, depreciation and amortization (EBITDA) or €3.0 million. The detailed implementation of such new rule in France remains largely unknown, including whether this rule will replace existing French limitation regimes or be added in full or in part to them. The ATAD should in principle enter into force in January 2019, but this remains uncertain at this stage. EU Member States that have, at the date of the entry into force of the ATAD, national targeted rules for preventing base erosion and profit shifting risk that are equally effective to the interest limitation rule set out by the ATAD may apply these national targeted rules until the adoption by the Organization for Economic Cooperation and Development (the "OECD") members of a minimum standard with regard to the four OECD Action Items against Base Erosion and Profit Shifting (the purpose of which is to limit base erosion involving interest deductions and other financial payments) or, at the latest, until January 1, 2024, to the extent they had expressly requested to benefit from this postponement to the European Commission by June 30, 2017, and subject to its acceptance. The French authorities used the possibility offered to EU Member States to ask for a deferral of application of the new interest deduction limitation rules resulting from the ATAD and, for this purpose, filed a request with the European Commission before the above mentioned deadline. As of the date of this offering memorandum, in the absence of any official notice on this subject, it is unclear whether the European Commission approved such a request.

Finally, on May 29, 2017, the Council of the European Union adopted Council Directive 2017/952/EU amending the provisions of the ATAD with respect to mismatches resulting from divergent national tax treatment of hybrid financial instruments or entities involving EU Member States to notably extend its scope to hybrid mismatches involving third countries, which would be applicable as from January 1, 2020 except for certain of its provisions which would be applicable as from January 1, 2022.

These rules may limit the Group's ability to deduct interest accrued on the Group's indebtedness incurred in France and, as a consequence, may increase the Group's tax burden, which could adversely affect the Group's business, financial condition and results of operations and reduce the cash flow available to service the Group's indebtedness.

The liquidity of the market for the Notes may be diminished if the proposed financial transactions tax or any similar tax were adopted.

On February 14, 2013, the European Commission published a proposal for a Directive for a common financial transactions tax (the "FTT") to be implemented under the enhanced cooperation procedure by Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia (the "Participating Member States"). Following the ECOFIN Council meeting of December 8, 2015, Estonia officially announced its withdrawal from the negotiations and, on March 16, 2016, completed the formalities required to leave the enhanced cooperation on FTT.

The proposed FTT has a very broad scope and could, if introduced in its current form, apply to certain dealings in the Notes (including secondary market transactions) in certain circumstances. It would call for the Participating Member States to impose a tax of generally at least 0.1% on all such transactions, generally determined by reference to the amount of consideration paid. Primary market transactions referred to in Article 5(c) of Regulation (EC) No 1287/2006 should, however, be exempt. The mechanism by which the tax would be applied and collected is not yet known, but if the proposed directive or any similar tax is adopted, transactions in the Notes would be subject to higher costs, and the liquidity of the market for the Notes may be diminished.

Under current proposals, the FTT could apply in certain circumstances to persons both within and outside of the Participating Member States. Generally, it would apply to certain dealings in the Notes where at least one party is a financial institution, and at least one party is established in a Participating Member State. A financial institution may be, or be deemed to be, "established" in a Participating Member State in a broad range of circumstances, including: (a) by transacting

with a person established in a Participating Member State; or (b) where the financial instrument which is subject to the dealings is issued in a Participating Member State.

The FTT proposal remains subject to negotiation between the Participating Member States. It may therefore be altered prior to any implementation, the timing of which remains unclear. Additional EU Member States may decide to participate and/or certain of the Participating Member States may decide to withdraw.

Prospective holders of Notes are advised to seek their own professional advice in relation to the consequences of the FTT associated with subscribing for, purchasing, holding and disposing of the Notes.

Credit ratings may not reflect all risks, are not recommendations to buy or hold securities, and may be subject to revision, suspension or withdrawal at any time.

One or more independent credit rating agencies may assign credit ratings to the Notes. The ratings may not reflect the potential impact of all risks related to the structure, market, additional risk factors discussed herein and other factors that may affect the value of the Notes. A credit rating is not a recommendation to buy, sell or hold securities and may be subject to revision, suspension or withdrawal by the rating agency at any time. No assurance can be given that a credit rating will remain constant for any given period of time or that a credit rating will not be lowered or withdrawn entirely by the credit rating agency if, in its judgment, circumstances in the future so warrant. A suspension, reduction or withdrawal at any time of the credit rating assigned to the Notes by one or more of the credit rating agencies may adversely affect the cost and terms and conditions of the Group's financings and could adversely affect the value and trading of the Notes.

Certain covenants will be suspended if the Notes receive investment grade ratings.

The Indenture will provide that, if at any time following the date of the Indenture, the Notes receive an investment grade rating (BBB− or higher from Standard & Poor's or a similar rating from Moody's if Standard & Poor's no longer rates the Notes) and no default or event of default has occurred and is continuing, then beginning that day and continuing until such time as the Notes are no longer rated investment grade by such ratings agency, certain covenants will cease to be applicable to the Notes. See "*Description of the Notes—Certain Covenants—Changes in Covenants When Notes Rated Investment Grade*".

At any time when these covenants are suspended, the Group will be able to, among other things, incur additional indebtedness, pay cash dividends and redeem subordinated indebtedness without restriction, each of which may conflict with the interests of holders of the Notes. There can be no assurance that the Notes will ever achieve an investment grade rating or that any such rating will be maintained.

USE OF PROCEEDS

Vallourec expects to receive gross proceeds from the offering of €400 million and net proceeds of €394 million. The Group intends to use the gross proceeds from the offering of the Notes, together with cash on hand, to refinance the August 2019 Bonds by redeeming them when they mature, and to pay certain fees and expenses. Until then, Vallourec will retain such proceeds in its general corporate treasury account and reduce existing and future short-term borrowings. The general corporate treasury account is invested in short-term money-market and similar instruments and is available to fund ongoing operating and investment requirements. See "*Capitalization*" and "*Description of Certain Indebtedness*".

The table below presents the sources and uses of the gross proceeds from the offering of the Notes.

Sources of Funds	Amount	Uses of Funds	Amount
	(in millions of euros)		(in millions of euros)
Notes offered hereby	400	August 2019 Bonds	400
Cash on hand	6	Estimated transaction fees and expenses	6
Total sources	406	**Total uses**	406

CAPITALIZATION

The following table shows, on a consolidated basis, Vallourec's cash and cash equivalents, total debt and total capitalization:

- on a historical basis as of December 31, 2017; and
- as adjusted to reflect the issuance of the Notes offered hereby and the application of the net proceeds therefrom to redeem the August 2019 Bonds at their maturity as described under "*Use of Proceeds*".

The information below should be read together with "*Use of Proceeds*", "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" and "*Description of Certain Indebtedness*". Other than as shown below, there has been no material change in Vallourec's total capitalization since December 31, 2017.

	As of December 31, 2017	
(in € million)	**Actual**	**As adjusted**
Cash and cash equivalents[1]	**1,021**	**1,015**
Revolving credit facilities[2][3]	—	—
Bilateral U.S. credit line[2][4]	67	67
Commercial paper	397	397
ACC/ACE financing[5]	185	185
Current portion of finance leases	33	33
Other short-term financial debt[6]	64	64
Short-term financial debt (including current portion of long-term financial debt)	**746**	**746**
August 2019 Bonds[7][8]	399	—
September 2024 Bonds[7]	498	498
August 2027 Bonds[7]	54	54
Long-term portion of finance leases	66	66
Other financial debt[9]	36	36
October 2022 Bonds [7]	542	542
October 2022 Convertible Bonds (OCEANEs)[7][10]	222	222
Notes offered hereby[7]	—	394
Long-term financial debt (excluding current portion)	**1,817**	**1,812**
Shareholder loan[11]	72	72
Total long-term debt (including shareholder loan)	**1,889**	**1,884**
Shareholders' equity, Group share[10]	2,426	2,426
Non-controlling interests	459	459
Total capitalization[12]	**5,520**	**5,515**

(1) The Group intends to use cash in the amount of €6 million to pay certain fees and expenses associated with the offering of the Notes.

(2) The Group's credit facilities provided total commitments of €2,040 million as of December 31, 2017. See "*Description of Certain Indebtedness*".

(3) The Group's revolving credit facilities consist of its amended and restated €1.1 billion credit line maturing February 2020 (the maturities for €1,034 million of which were extended to February 2021), its €450 million credit line maturing in February 2020, its amended and restated €400 million credit line maturing in July 2020 and its amended and restated €90 million bilateral credit line maturing in February 2021. See "*Description of Certain Indebtedness*".

(4) Consists of drawings under the U.S.$80 million bilateral credit line held by a U.S. subsidiary.

(5) Consists of short-term export financing in Brazil. See "*Description of Certain Indebtedness*".

(6) Principally consists of short-term bank debt.

(7) Reflects charges for unamortized issuance costs of (i) €1 million for the August 2019 Bonds, (ii) €2 million for the September 2024 Bonds, (iii) €1 million for the August 2027 Bonds, (iv) €2 million for the October 2022 Convertible Bonds (OCEANEs) and (v) €8 million for the October 2022 Bonds. The amount shown for the Notes offered hereby reflects estimated charges for unamortized issuance costs of €6 million.

(8) The Group intends to use the gross proceeds from the offering of the Notes, together with cash on hand, to refinance the August 2019 Bonds by redeeming them when they mature, and to pay certain fees and expenses. Until then, Vallourec will retain such proceeds in its general corporate treasury account and reduce existing and future short-term borrowings. The general corporate treasury account is invested in short-term money-market and similar instruments and is available to fund ongoing operating and investment requirements. The August 2019 Bonds will remain outstanding until their maturity on August 2, 2019. See "*Risk Factors—Risks Related to Financial Markets and Liquidity—The Group's debt exposes it to certain risks, and it may incur significantly more indebtedness, which could exacerbate these risks*".

(9) Other financial debt includes mainly loans granted to Brazilian subsidiaries.

(10) The October 2022 Convertible Bonds (OCEANEs) were issued in an aggregate principal amount of €250 million, of which €222 million was recorded in Vallourec's balance sheet as long-term debt and €26 million was recorded as equity. The allocation of the total amount between debt and equity is subject to change depending on subsequent analysis by the Group and its statutory auditors.

(11) The Shareholder Loan consists of a loan in two tranches in initial nominal amounts of BRL426.8 million and BRL132 million, respectively. See "*Description of Certain Indebtedness*".

(12) Total capitalization includes (i) short-term financial debt (including current portion of long-term financial debt); (ii) total long-term debt (including the Shareholder Loan); (iii) shareholders' equity, Group share; and (iv) non-controlling interests.

MARKETS AND INDUSTRY

Vallourec is a world leader in premium tubular solutions, primarily serving the energy markets, including the oil and gas sector and the power generation industry. Vallourec's expertise also extends to industrial sectors, such as the mechanicals, automotive and construction industries. The following discussion presents facts and trends pertaining to the oil, gas and petrochemicals market, the power generation market and the industrial markets which the Group serves, and is derived from several sources, including reports from the International Energy Agency ("IEA"), IHS Markit, Baker Hughes and others.

Market context in 2017

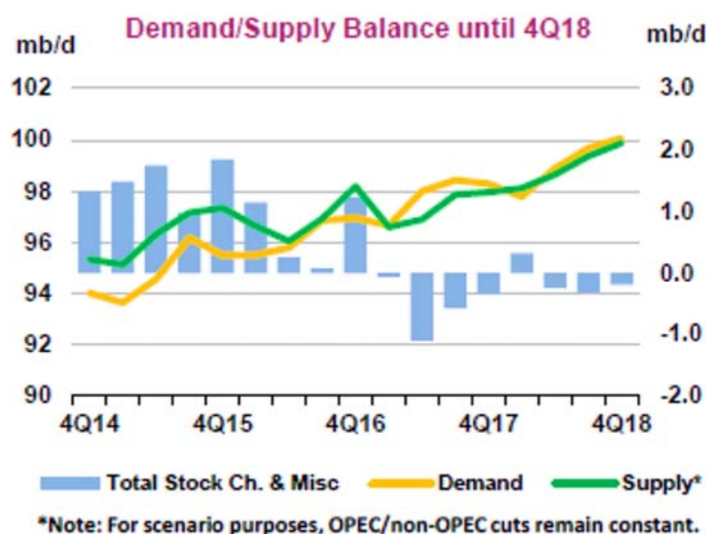
In 2017, the first tangible signs of a recovery materialized in the U.S. oil and gas market. The Group also registered an improvement in oil and gas operations in Brazil, while tender activity in other international oil and gas markets began to resume at a gradual pace. An improved macroeconomic context in Europe and Brazil supported the Group's industry and other activities. Power generation revenue retracted in 2017 as a result of a challenging market environment for both conventional and nuclear applications.

According to IHS, exploration and production capital expenditures for oil and gas projects grew approximately 7% between 2016 and 2017, driven primarily by investments in the United States. However, the timing and magnitude of any global market rebound is yet to be confirmed.

Oil, Gas and Petrochemicals

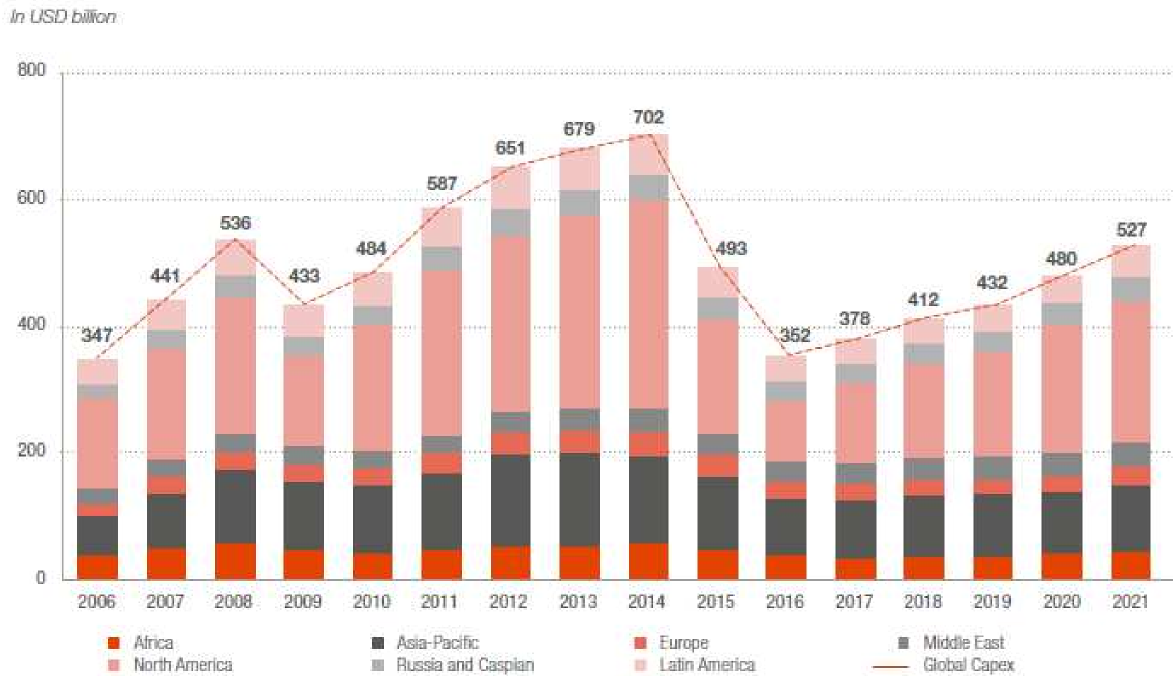
Demand for seamless tubes depends primarily on the level of capital expenditures on exoloration and production by participants in the oil and gas market, which is driven by the balance of supply and demand for oil and gas and current and expected oil and gas prices.

The graphic below shows the IEA's estimates (as of January 19, 2018) for the balance of supply and demand for oil and gas through the end of 2018, expressed in millions of barrels per day (mb/d):



Source: IEA Oil Market Report—January 19, 2018

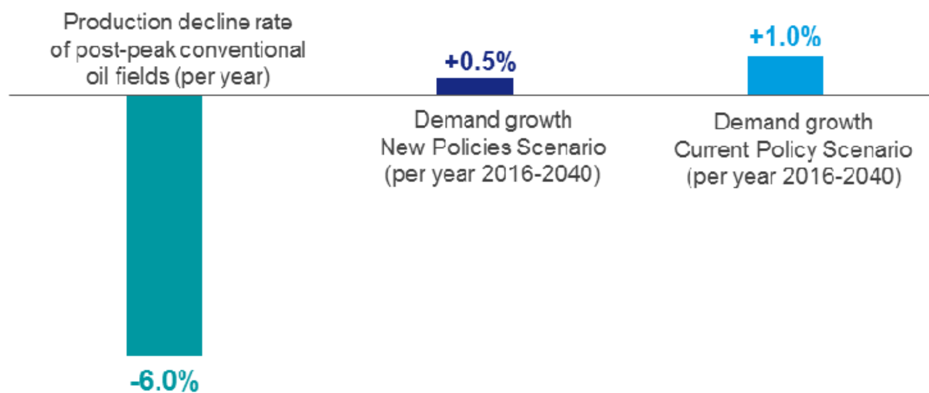
The graphic below shows the historical and anticipated level of capital expenditures on development and production by oil and gas market participants by region, according to IHS estimates as of November 2017:



Source: IHS—Global Upstream Spending, November 27, 2017— Global upstream E&P capex by region

In addition to supply and demand for oil and gas, field depletion is a key driver of demand for the Group's oil and gas products. Over time, oil fields begin to produce less and less oil, until their production rates decline to a point where their oil production is no longer profitable. The Group's customers must accordingly develop new exploration and production projects to replace lost volumes from older oil wells as their production volumes fall, thereby creating demand for the Group's oil and gas products.

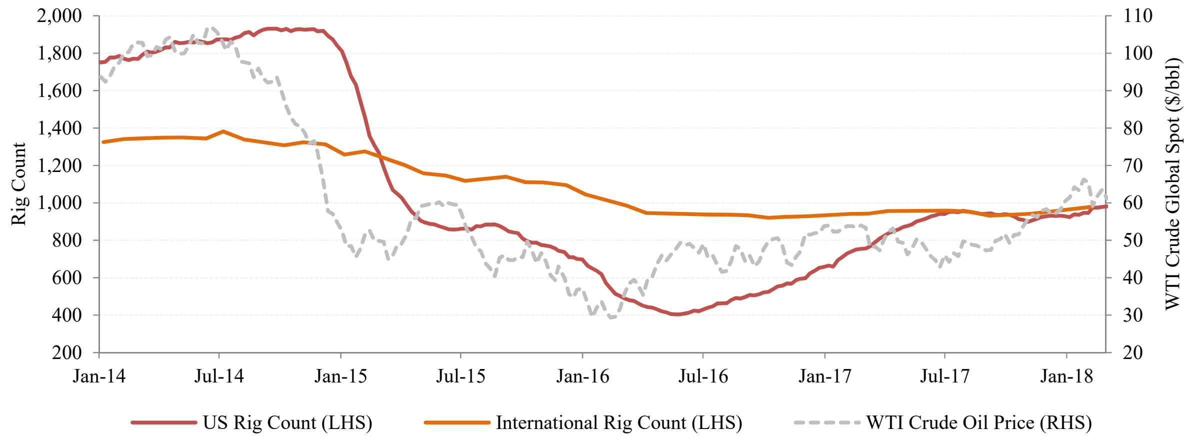
The graphic below shows projected new conventional production capacity required per year, according to the November 2017 report from the IEA:



Source: International Energy Agency, "World Energy Outlook"—November 2017

Post-peak decline rates averaging around 6% per year means that an additional estimated 2.5 mb/d of new production each year will be needed for conventional output to remain flat. Decline rates for tight oil are considerably higher.

In addition, Vallourec typically considers data relating to drilling rig count (which tends to be correlated to oil prices), as well as drilling productivity of the rigs in operation, as indicative of the state of the market. Rig counts in the United States have increased strongly recently compared with levels in May 2016. The graphic below shows the evolution of U.S. and international rig counts over the last three years, together with the change over time in WTI prices, according to Baker Hughes and Nasdaq data as of February 2018:

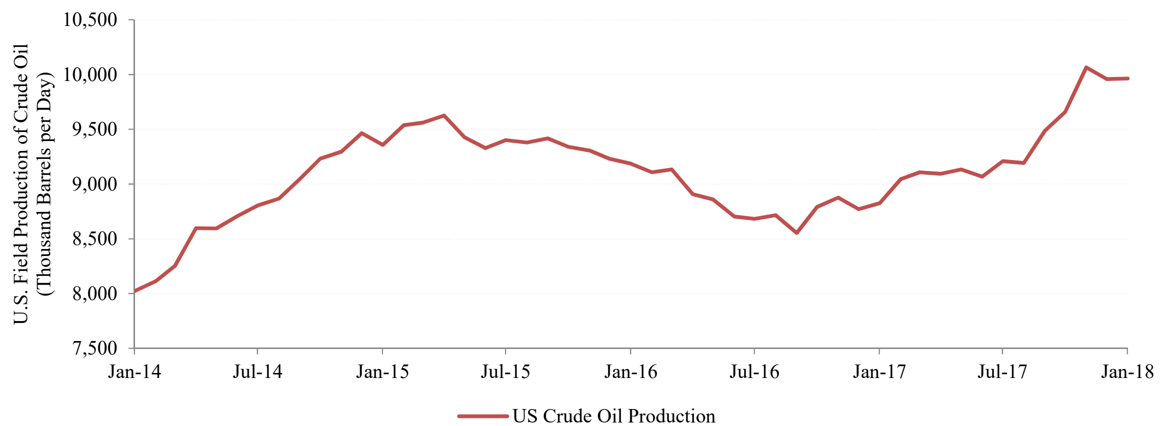


Source: Baker Hughes and Nasdaq—February 2018

See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations*" for further discussion on drilling rig count in recent periods.

The U.S. OCTG market has seen significant recovery in the past several months, with crude oil production bouncing back from mid-2016 lows.

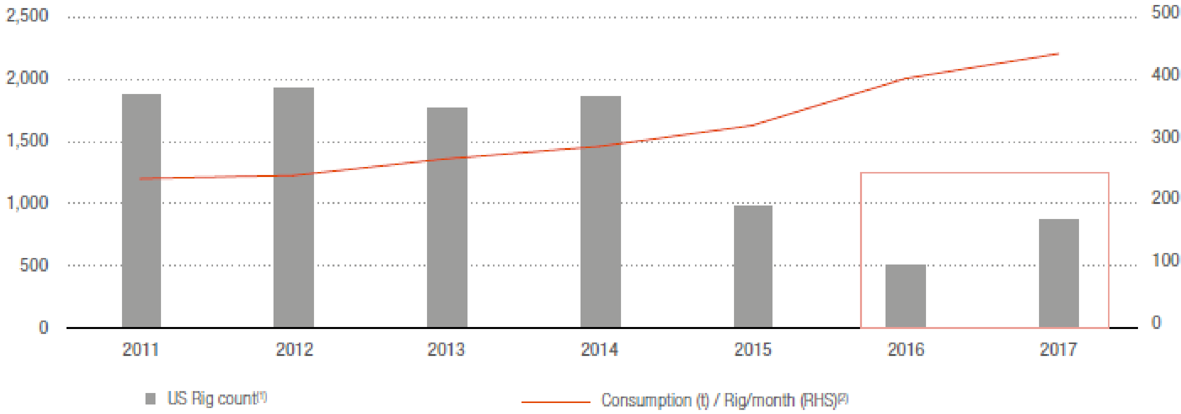
The graphic below shows the recent rebound in U.S. crude oil production, expressed in thousands of barrels per day:



Source: U.S. Energy Information Administration (March 2018)

In addition to active rig count, OCTG consumption in the United States is being driven by improved rig efficiencies. As shown in the graphic below which presents U.S. OCTG consumption trends per rig over the last several

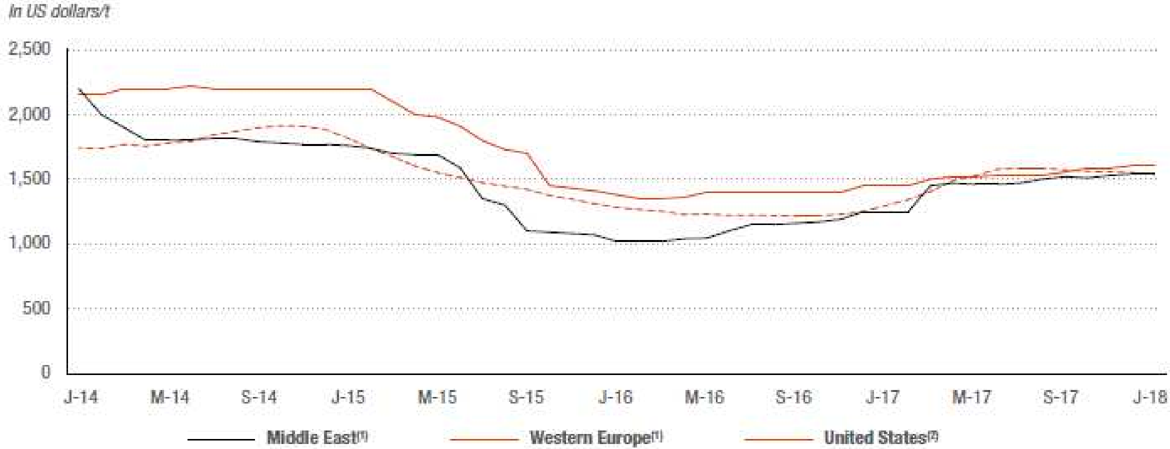
years according to data from Baker Hughes and Preston, OCTG consumption per rig has increased by more than 50% since 2014. Together with relatively low levels of inventory, this should support the Group's activities in North America.



Sources:

(1) Baker Hughes (January 2018)
(2) Preston U.S. OCTG consumption (January 2018)

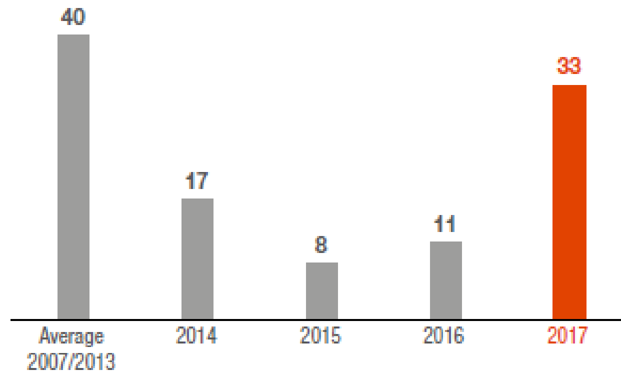
In this context, OCTG prices, while still competitive, have recovered from their lows in mid-2016, rising most sharply in the United States and showing incremental improvement internationally, according to January 2018 data from MBR and January 2018 data from PipeLogix, as shown in the graphic below:



Sources:

(1) MBR (OCTG casing L80 premium connection)—January 2018
(2) PipeLogix (average prices Seamless pipes)—January 2018

In the international market, international oil companies progressively increased approvals for projects and their capital expenditures stabilized. In 2017, 33 international oil and gas projects reached final investment decisions (“FID”), three time more than 2016. The graphic below shows the rebound of international FID projects since 2015 lows:



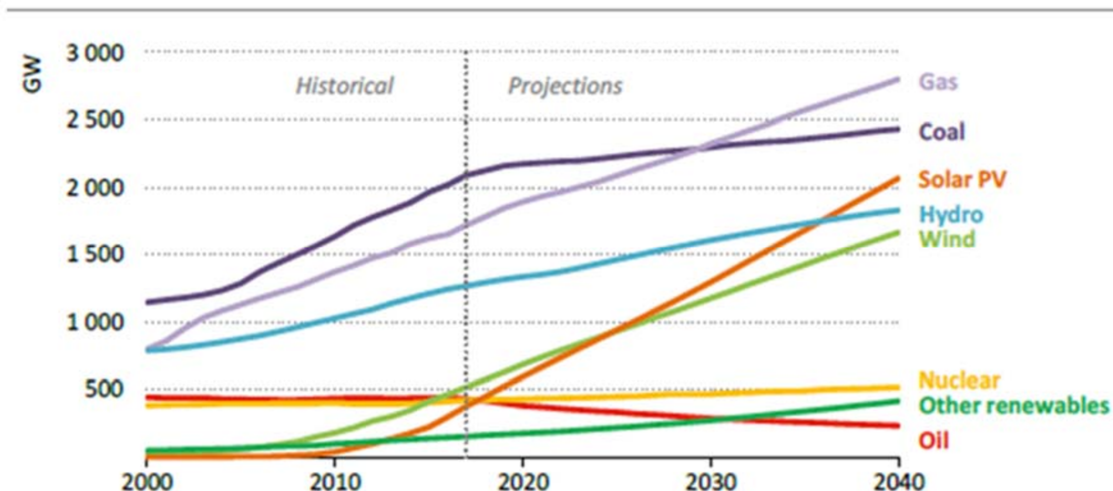
Source: Wood Mackenzie’s Pre-FID Upstream Project Tracker; Vallourec Corporate Strategy & Marketing

In Brazil, the oil and gas market is heavily dependent on Petrobras’s capital expenditure plan, which Petrobras periodically publishes and updates in its Strategic Plan. In its 2018-2022 Business and Management Plan, released on December 21, 2017, Petrobras announced that it expects to incur U.S.$60.3 billion in exploration and production capital expenditure over the years 2018-2022, of which 77% is expected to be incurred on production development, and 58% is to be deployed on pre-salt fields.

Power Generation

Demand for seamless tubes in the power generation market depends on the construction or maintenance of power plants and technological advancements in specific types of power generation and is driven by planned projects and capacity, as well as energy demand and national energy policies. In assessing the state of the power generation market, Vallourec typically considers anticipated capacity growth by energy type (such as coal-fired thermal plants or nuclear plants) according to the planned projects by its customers and by various countries, and according to data regarding capacity and energy consumption of different countries in different geographies.

The share of coal-fired power generation total capacity in the energy mix is expected to continue to decline, from 37% in 2016 to around 26% in 2040. The graphic below shows the anticipated global growth (expressed in gigawatts) in installed power generation capacity, as well as its anticipated breakdown by type, according to the IEA’s 2017 long-term outlook:



Source: IEA long term outlook 2017

Industrial Markets

Demand for industrial applications is dependent upon the growth or decline of specific sectors, such as automotive, construction or industrial manufacturing sectors. Such growth or decline is driven by numerous factors, but overall bears a broad correlation with GDP growth.

In Europe, the market environment for industry and other activities improved in 2017, resulting in an improved environment for Vallourec's mechanical engineering business. The graphic below illustrates the improvement of the Business Climate Index according to the German IFO Institute:

Source: IFO Institute – January 25, 2018

After two years of a deep recession, the Brazilian economy posted a growth rate of 0.7% in 2017 (according to the OECD, February 2018) with a rebound in the automotive and mechanical engineering sectors. The iron ore mine operated by the Group in Brazil benefited from higher iron ore prices in 2017.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

*The following discussion of Vallourec's financial condition and results of operations should be read together with Vallourec's consolidated financial statements and the notes thereto included elsewhere in this offering memorandum, as well as the information presented under "*Available Information*", "*Presentation of Financial Information*", and "*Offering Memorandum Summary—Summary Financial and Operating Data*".*

*The following discussion contains forward-looking statements that involve risks and uncertainties. Vallourec's actual results may differ materially from those expressed or implied in the forward-looking statements as a result of various factors, including those set forth in "*Forward-Looking Statements*", "*Risk Factors*" and elsewhere in this offering memorandum.*

Overview

Vallourec is a world leader in premium tubular solutions, primarily serving the energy markets, including the oil and gas sector and the power generation industry. Vallourec's expertise also extends to industrial sectors, such as the mechanicals, automotive and construction industries.

As a market leader, Vallourec is positioned to take advantage of favorable long-term trends in the oil and gas sector, which will require significant investment from oil and gas companies in the coming years in order to maintain supply levels as the market imbalances of recent years are progressively resolved. The market for Vallourec's products has rebounded in the United States, which has shown strong demand for oil and gas products thanks to an increased number of active rigs. Vallourec has also noted an improvement in oil and gas operations in Brazil. Overall, world oil demand appears to have stabilized. This has translated into improved financial performance for Vallourec in 2017, representing an initial recovery from two difficult years that were characterized by spending cuts on the part of customers in the oil and gas sector and a challenging macroeconomic environment.

Vallourec's performance is benefiting from its Transformation Plan, a major industrial reorganization and strategic initiatives adopted in 2016. Pursuant to the Transformation Plan, Vallourec has established two highly competitive production hubs in Brazil and China while optimizing its European footprint. In 2017, Vallourec established a new organizational structure around four regions and two central departments and rolled out new production channels, aimed at strengthening the Group's customer focus in each region in which it operates, optimizing the use of the Group's global resources and boosting its development.

In 2017, Vallourec's consolidated revenues were €3,750 million, an increase of 26.5% (15.2% at constant scope and exchange rates) from revenue of €2,965 million in 2016. In 2017, Vallourec's EBITDA was €2 million (an improvement from negative EBITDA of €219 million 2016) and its net loss, Group share, was €537 million (compared to €758 million in 2016). These results represent an improvement in the Group's results that reflects better performance, particularly in its U.S. and Brazilian operations, together with the successful implementation of its strategic initiatives and efforts to streamline its business.

As of December 31, 2017, Vallourec's total assets were €6,886 million, its net financial debt was €1,542 million and its shareholders' equity, Group share, was €2,426 million. In addition, as of December 31, 2017, Vallourec had total committed undrawn credit facilities of €2,040 million. As of December 31, 2017, on an as-adjusted basis after giving effect to the issuance of the Notes offered hereby and the application of the proceeds therefrom to redeem the August 2019 Bonds at their maturity, Vallourec would have had a combined total of cash and undrawn credit facilities of approximately €3 billion. Vallourec S.A. had a market capitalization of € 2,043 million as of market close on April 5, 2018.

Presentation of Financial Information

Key indicators

Vallourec uses a number of key indicators to evaluate its performance, liquidity and financial condition. The principal indicators used by Vallourec and discussed in this section are set forth below.

Sales volume

Group activity volumes are measured by reference to sales volume, which corresponds to the volume of tubes produced and shipped from the Group's rolling mills, expressed in metric tons of hot-rolled seamless tubes. Sales volume depends on the level of orders from the Group's customers in the various markets that it serves. Sales volume is a key factor that drives the Group's revenues, as discussed below.

Revenues

The Group's revenues depend to a substantial extent on sales volume, although revenues are also impacted by other factors such as prices, product mix and the impact of certain revenues that do not depend on the number of tons of tubes shipped (such as service offerings and sales of iron ore), as well as the impact of exchange rates (as discussed under "*—Exchange Rates*").

Industrial margin

Industrial margin is equal to revenues less cost of sales, before depreciation and amortization charges. Cost of sales deducted from industrial margin includes primarily the cost of raw materials, other manufacturing costs, personnel costs relating to production and certain other costs. Because industrial margin is calculated before deducting depreciation and amortization charges, it may not be comparable to similarly titled measures used by other companies.

EBITDA

EBITDA is the term used in the Group's English language consolidated financial statements to correspond to the *résultat brut d'exploitation* in the Group's French language consolidated financial statements. EBITDA is equal to industrial margin less SG&A costs (which includes R&D expenses but excludes depreciation and amortization), and plus or minus certain other income and expenses. EBITDA as presented by the Group may not be comparable to similarly titled measures used by other companies.

Operating profit / (loss)

Operating profit / (loss) is equal to EBITDA less (i) depreciation of industrial assets, (ii) other depreciation and amortization, (iii) impairment of assets and goodwill and (iv) asset disposals, restructuring costs and certain items considered by Vallourec to be non-recurring in nature.

Net income / (loss), Group share

Net income / (loss), Group share is equal to operating profit / (loss) net of (i) financial charges, (ii) income tax, (iii) share in net income / (loss) of associates and (iv) income / (loss) attributable to non-controlling interests.

Free cash flow

Free cash flow is a liquidity measure that is equal to net cash flow from operating activities less gross capital expenditures (acquisitions of property, plant and equipment and intangible assets). The Group uses free cash flow as a measure of liquidity for purposes of evaluating the amount of cash from operations available after funding capital expenditures. For the calculation of free cash flow for the past two fiscal years, see "*—Liquidity and Capital Resources—Free cash flow*".

Net financial debt

Net financial debt is equal to gross financial debt (bank loans and other borrowings, plus overdrafts and short-term borrowings) less cash and cash equivalents, and excludes the Shareholder Loan. Net financial debt is a measure that is not required by, or presented in accordance with, IFRS, and it is therefore a non-IFRS financial measure. For a reconciliation of net financial debt to gross financial debt, see "*—Liquidity and Capital Resources—Liquidity and consolidated indebtedness".*

Constant scope data

Data presented "at constant scope" is calculated by eliminating the effect of changes in the Group's scope (acquisitions, divestitures, mergers, etc.) by taking into account on January 1 of year N-1 the scope variations that occurred during the year N-1. See "*Section B – Consolidation scope*" of the Notes to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum for further information on the changes in the Group's scope of consolidation in 2016 and 2017.

Exchange rates

The Group's results of operations and financial condition are sensitive to volatility in foreign currencies (primarily the Brazilian real and the U.S. dollar) against the euro. The impact is produced in two ways, through the "translation effect" and the "transaction effect."

The translation effect is defined as the impact of the changing value of the financial statements of subsidiaries whose functional currency is not the euro on the Group's consolidated financial statements. The effect is positive when the currency rises against the euro and negative when it falls against the euro. Assets and liabilities of foreign subsidiaries, including goodwill, are translated at the official exchange rates on the reporting date. The income statements of foreign subsidiaries are translated at the average exchange rate for the period. The Group presents its revenues at "constant exchange rates" by neutralizing the impact of the translation effect on revenues, applying the prior year's average exchange rates to the current year's revenues. The translation effect can also impact shareholders' equity directly, due to the effect of changes in foreign currency exchange rates on the euro-equivalent values of balance sheet items of consolidated subsidiaries whose functional currency is not the euro.

The transaction effect is defined as the impact of exchange rates on transactions effected by a Group company in a currency other than its functional currency (for example, where a European or Brazilian company in the Group sells goods or services in U.S. dollars). It is positive when the functional currency declines and negative when it rises, with a delay resulting from hedges in place. Revenues presented at constant exchange rates are not adjusted for the transaction effect.

Transformation Plan

On February 1, 2016, Vallourec announced major strategic initiatives as part of its Transformation Plan to reshape its operational set-up, improve its competitiveness in the short and longer term and reinforce its financial strength to secure long-term profitable growth and sustained shareholder value creation. While the major strategic initiatives included in the Transformation Plan have largely been implemented, the Transformation Plan continues to impact the results of operations and financial condition of the Group, and the continued success of these initiatives is essential for the realization of the Group's objectives set forth under " –*Outlook*".

The Transformation Plan was implemented to achieve three major goals: a global industrial reorganization plan, reinforcement of the partnership between Vallourec and NSSMC and the strengthening of Vallourec's balance sheet, each of which is described in further detail below.

Industrial Reorganization

Europe

In line with its premium positioning, Vallourec has concentrated its European activities on the design and production of high added-value products and solutions, and will continue to focus on its R&D activities in France and Germany. To address overcapacity and competition from low-cost operators worldwide, Vallourec's European activities were rationalized by streamlining steel production and concentrating rolling activities in Germany and specialization of finishing activities in France, leading to the closure of (i) a threading line in Mülheim, Germany in early 2016 (ii) two rolling mills in France, consisting of one mill in Déville-lès-Rouen that was closed in September 2016 and one rolling mill in Saint-Saulve that was closed in January 2017, and (iii) a heat treatment line in Bellshill, Scotland in November 2016.

In addition, Vallourec finalized the disposal of Vallourec Heat Exchanger Tubes ("VHET") to American Industrial Acquisition Corporation on April 29, 2016. VHET specialized in producing titanium and stainless steel welded tubes for secondary systems in conventional and nuclear power plants as well as for the desalination, chemical and industrial and automotive markets.

Brazil

On October 1, 2016, in order to rationalize its Brazilian activities, and after obtaining authorizations from relevant competition authorities, Vallourec's 100% owned subsidiary VBR transferred virtually all of the assets and liabilities from its tubular business to Old VSB, a joint venture that operates the Jeceaba site, with a 56% stake held by Vallourec, a 40.4% stake held by NSSMC and a 3.6% stake held by Sumitomo Corp. At the same time, Old VSB changed its corporate form and adopted the name "Vallourec Soluções Tubulares do Brasil" ("VSB"), increasing its share capital through an issuance of shares to VBR (in consideration of the transfers made) and to NSSMC. VSB is now held 84.6% by Vallourec, with NSSMC holding 15% and Sumitomo Corp holding the remaining 0.4%, and is able to take advantage of the optimized operational performance of the Jeceaba state-of-the-art PQF®-type rolling mill and premium finishing installations. VSB does not include the Vallourec Mineração mine or Vallourec Florestal eucalyptus plantation. NSSMC agreed to maintain its supply agreement for 300,000 metric tons (at full capacity) of tubes manufactured at the Jeceaba site.

Vallourec believes that the creation of this combined entity enables it to generate significant industrial synergies, to optimize future investments and to realize administrative and tax synergies. In addition, the rationalization of Brazilian operations led to the closure in the first half of 2016 of one of the two blast furnaces in Belo Horizonte, while the second

blast furnace and the steel mill in Belo Horizonte will be closed in 2018. Steel production will be concentrated at the state-of-the-art steel mill in Jeceaba.

China

Prior to 2016, Vallourec held a 19.45% stake in TOP, a Chinese manufacturer of seamless tubes listed on the Hong Kong stock exchange. During the course of November and December 2016, the Group completed the acquisition of virtually all of the remaining TOP shares that it did not already own for a total amount of €158 million, giving it ownership of 99.0% of TOP's share capital.

TOP's industrial assets include a state-of-the-art PQF®-type rolling mill with a 550,000 metric ton capacity, qualified by leading oil and gas customers. Arising out of a successful five-year partnership with TOP, this acquisition enables Vallourec to develop an expanded offering of highly competitive solutions combining VAM® connections with TOP's highly competitive tubes, to maintain market share for the VAM® connection.

Reinforcement of the partnership between Vallourec and NSSMC

Since 1985, the development of the VAM® connection has been a joint activity of Vallourec and NSSMC. This cooperation has helped make the VAM® brand a global standard on the OCTG market.

The Transformation Plan enhanced this industrial partnership through measures to capitalize on each group's strengths to ensure the competitiveness of the VAM® connection and enable long-term technological leadership. These measures include:

- Improving R&D efficiency in order to accelerate the development and marketing of new VAM® connections, thereby reinforcing VAM®'s premium positioning worldwide.

- Rationalizing Brazilian operations through the successful combination on October 1, 2016 of Vallourec's two local companies, Old VSB and VBR (described above).

- NSSMC acting as a strategic investor for Vallourec, having subscribed in Vallourec's successful capital raise (described below).

Reinforcement of Vallourec's balance sheet

On May 3, 2016, Vallourec completed the issuance of 217,101,488 new ordinary shares through an offering through the distribution of transferable preferential subscription rights to its existing shareholders (the "Rights Issue") for gross proceeds of €480 million, and the issuance of mandatory convertible bonds (the "Bonds") to two of its strategic shareholders, Bpifrance and NSSMC, for gross proceeds of €514 million (the Bonds were subsequently converted to shares). Together, the issuances allowed Vallourec to raise net proceeds of €960 million in order to strengthen its balance sheet and to finance its transformation to ensure its growth in the long term. Following these issuances and the conversion of the Bonds, Bpifrance and NSSMC each held 15% of Vallourec's share capital.

For further details, see "*Agreements Relating to Strategic Initiatives*".

Accounting Impact of Transformation Plan Strategic Initiatives

Vallourec's acquisition of virtually all of the remaining shares of TOP and its acquisition of exclusive control of Old VSB by contribution of assets and liabilities held by VBR, its wholly owned subsidiary, took place in the fourth quarter of 2016.

On December 2, 2016, Vallourec held 99.0% of the capital of TOP after the acquisition of a majority stake of 50.6% in November and the success of a subsequent related tender offer. TOP was accounted for under the equity method (19.5%) in 2016 and the takeover was recorded in the Group balance sheet as of December 31, 2016.

On October 1, 2016, Vallourec finalized the transfer of the tubular business of VBR, a wholly owned subsidiary, to Old VSB, a 56%-owned joint venture. This transaction led to the takeover of Old VSB (renamed Vallourec Soluções Tubulares do Brasil and referred to herein as "VSB") by Vallourec, whose percentage stake increased to 84.6% from 56%, and includes the sale of minority interests to NSSMC and Sumitomo Corp., Vallourec's Japanese partners, amounting to 15.4% of VSB. VSB has been fully consolidated in Vallourec's financial statements since October 1, 2016, and the stakes of the Japanese partners are recognized as non-controlling interests. Prior to being fully consolidated in Vallourec's

financial statements, VSB was accounted for as a joint operation, for which Vallourec recorded assets, liabilities, income and expenses in its financial statements proportional to its 56% share in the joint operation.

The full consolidation of TOP and VSB resulted in, respectively, (i) an increase in total assets by €1,360 million and €313 million, (ii) an increase in total liabilities by €899 million and €118 million and (iii) an increase in goodwill of €36 million and €5 million. The accounting impacts of the transactions are described in further detail in Note 34 to the consolidated financial statements as of and for the year ended December 31, 2016, which includes a breakdown of such impacts by balance sheet line item.

Recent Developments

On April 5, 2018, Vallourec announced that it had signed new contracts for the supply of products and services to Petrobras. Within the framework of these three-year long term agreements,Vallourec will supply Petrobras' operations with premium seamless OCTG products and associated accessories, premium steel grades and connections using state-of-the-art technology and specialized services. The products and associated services will be used by Petrobras on its offshore oil and gas exploration and production wells, located at important reservoirs of the pre-salt basin. Petrobras production coming from the pre-salt area already represents more than 50% of Petrobras' total production.

Results of Operations

Year ended December 31, 2017 compared with year ended December 31, 2016

Key factors affecting results of operations in 2017

Oil and Gas

Average Brent, WTI and gas prices increased in 2017. Average Brent prices rose 24.1% and stood at U.S.$54.2/b in 2017 compared to U.S.$ 43.7/b in 2016 (according to data from Thomson Reuters in February 2018). Average WTI prices also rose by 16% to reach an average of U.S.$50.9/b in 2017 compared to an average of U.S.$43.9/b in 2016 (according to data from Nasdaq in January 2018). At the end of December 2017, the prices of gas (Henry Hub) reached U.S.$2.9/MBtu (U.S.$ per million British thermal units), while average prices rose 15.9% to reach U.S.$3.0/MBtu in 2017 compared to U.S.$2.6/MBtu in 2016 (according to data from Nasdaq in January 2018). In this context, OCTG prices, while still competitive, recovered from their lows in mid-2016, rising most sharply in the United States and showing incremental improvement internationally (according to data from MBR and PipeLogix in January 2018).

In the United States, in 2017, increased prices for WTI crude oil led to better rig activity. According to Baker Hughes, the average number of active rigs in 2017 stood at 875 units, compared with an average of 510 units in 2016 (an increase of 71.6%). At the end of 2017, the rig count increased 46.7% compared to the end of 2016. In addition to the active rig count, OCTG consumption in the United States is being driven by rig efficiencies, with consumption trends per rig rising steadily since 2015 (according to data from Baker Hughes and Preston US OCTG consumption in January 2018).

Between the end of 2016 and the end of 2017, the increased rig count resulted in higher levels of OCTG shipments. This momentum has enabled seamless pipe manufacturers to announce sales price increases. Distributor inventories are estimated by Preston in its Pipe and Tube Report as of September 2017 to have fallen from 10 months as of June 2016 to less than 2 months in March 2017 before reaching approximately 2.9 months as of December 2017, taking into account Preston's restatement of slow-moving inventories at the end of 2016.

In the Gulf of Mexico, the number of drilling platforms stood at 18 units at the end of 2017, according to Baker Hughes, down 4 units compared with the end of 2016.

In the EAMEA region, the business environment started to improve in 2017 with more projects. In the Middle East, the rig count stood at 378 units at December 31, 2017, broadly stable compared to 376 units at December 31, 2016. Demand from national oil companies ("NOCs") remained active, while international oil companies ("IOCs") tendering activity started to resume. In Africa, tendering activity regained some momentum in 2017, in an environment that remained competitive. Some projects were also launched in the North Sea. International oil companies progressively started to approve projects again in 2017, and their capital expenditures have stabilized. In 2017, 33 international oil and gas projects reached final investment decision approval, three times more than in 2016.

In Brazil, operations continue to be driven by Petrobras's capital expenditure plan. The five-year, 2018-2022 Business and Management Plan forecasts investments of U.S.$74.5 billion and continues to prioritize exploration and production projects with 81% of total capital expenditures dedicated to these projects with continued focus on the exploration of pre-salt fields, drilling in very deep waters (over 2,000 meters), far offshore and in highly corrosive environments.

In 2017, activity in the petrochemicals market gained momentum, especially in North America.

Power Generation

The conventional energy market has been impacted by regulations worldwide that promote the installation of more renewable capacity. Market activity around renewable energy is increasing, mostly for offshore windmills and biomass power plants, and yearly renewable power capacity additions are expected to outstrip all fossil-fueled capacity additions, with renewables to account for more than 60% of global capacity additions over the period till 2040.

These long-term trends in the conventional energy market impacted demand in 2017 through an improving product mix but decreasing volumes. Although India and China remain active, Chinese authorities have decided to reduce the number of projects, with the aim of limiting total coal-fired capacities to below 1,100 GW in 2020. In South Korea, coal power station programs were impacted by decisions taken by the new President and the market remains uncertain. In other regions, including Europe and North America, activity remains limited to maintenance works.

In the nuclear energy market, funding difficulties, issues related to increasing the safety of facilities, as well as the political reluctance of some states are slowing down the development of nuclear power. China, with targets of 58 GW of nuclear capacity installed in 2020, and 150 GW by 2030 (32 GW in 2017), is the most important market in terms of nuclear new build. In Europe, the United Kingdom has launched a nuclear program of 16 GW new nuclear capacities by 2030, and has signed a cooperation agreement with EDF on the Hinckley Point C project (to be commissioned in 2025 at the earliest). In addition to the new build business, Vallourec is also targeting tubular needs related to programs to extend the life time of existing reactors (France, Canada, South Korea…).

Renewables

The Group's business activity is increasing in this sector mostly in the realm of geothermal energy, and biomass power plants. Vallourec is also involved in different innovation projects including solar and hydrogen energy projects.

Industry and other

The market environment for Industry and other activities improved in Europe in 2017, particularly for Mechanical Engineering.

In Brazil, GDP increased 0.7% in 2017 (according to the OECD in February 2018), indicating that Brazil has moved out of recession after two years, although the country's political situation remains uncertain and unstable. This rebound affected the Automotive and Mechanical Engineering segments positively, and the Group also benefited from higher iron ore prices for the iron ore mine it operates in Brazil in 2017.

Raw Materials

Raw material prices impact the Group as a result of its use of scrap metal and iron ore. The Group's U.S.-based steel plant is equipped with an electric arc furnace fed with scrap metal. The Group's Brazilian steel plants combine both an electric furnace (using scrap metal in Jeceaba) and two blast furnaces (one in Barreiro and one in Jeceaba, both using iron ore).

Scrap metal prices increased significantly in 2017, particularly at the beginning of the year. In the United States, scrap metal prices in 2017 were on average U.S.$302.9/LT, a 32.4% increase compared to average prices of U.S.$228.8/LT in 2016, according to CRU Shredded Pittsburgh—USA. In Brazil, scrap metal prices in 2017 were on average U.S.$240/T, compared to an average price of U.S.$198/T in the fourth quarter of 2016.

In 2017, average iron ore prices on international markets were U.S.$71.3/T, a 24.8% increase compared to an average price of U.S.$57.1/T in 2016 (according to Platts SBB).

Currencies

The Group remains sensitive to volatility in foreign currencies, particularly the Brazilian real and the U.S. dollar, against the euro.

Key Events of 2017

In addition to the continued implementation of the Transformation Plan, described above under "—*Transformation Plan*", the following were key events for the Group in 2017:

- On January 18, 2017, Vallourec announced its new organization structured around four regions: North America, South America, Europe/Africa (EA), and the Middle East/Asia (MEA) and two Central Departments (Development & Innovation and Technology & Industry) which is now in place.

- On January 26, 2017, Vallourec finalized the divestiture of a majority shareholding in the Saint Saulve steel mill to Asco Industries. Ascoval S.A.S., 60% owned by Asco Industries and 40% by Vallourec, owns all the assets of the steel mill. The Saint Saulve steel mill will provide steel supply to the rolling facilities of Asco Industries' mills and to Vallourec for its special steel requirements.

- On September 21, 2017, Vallourec announced that it had signed a contract with Badr El Din Petroleum Company ("BAPETCO"), a joint venture between Shell and the Egyptian General Petroleum Corporation for the supply of OCTG tubular solutions for 60 to 70 gas wells that are part of an onshore project in the western desert of Egypt. Vallourec will use one of its new production routes established under its Transformation Plan to supply the joint venture with its premium solutions. The new contract highlights Vallourec's ability to offer its customers competitive solutions across the range of OCTG products.

- On September 27, 2017, Vallourec successfully placed €250 million aggregate principal amount of its October 2022 Bonds (OCEANEs) and on October 18, 2017 and October 26, 2018, it successfully issued €550 million aggregate principal amount of October 2022 Bonds. The net proceeds from the issuance of the October 2022 Convertible Bonds and the October 2022 Bonds have been used to repay certain short-term indebtedness and amounts drawn under Vallourec's revolving credit facilities. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Liquidity and consolidated indebtedness*".

- On December 11, 2017, Vallourec announced that following exclusive negotiations with American oil services group NOV, it had received a binding offer for the purchase of the "Drilling Products" business for a total cash amount of U.S.$63 million. The offer covers all of Vallourec's industrial activities related to Vallourec Drilling Products in North America, the Middle East, the Netherlands and France. French Drilling Product sites in Cosne sur Loire and Tarbes will undergo a separate divestment process simultaneously. The sale is expected to be completed in the first half of 2018, subject to regulatory consultation processes and approval of governance structures. See "*Business—Markets and Customers—Products for the oil and gas market—Drilling*" for a description of the Drilling Products business.

- On December 14, 2017, Vallourec announced it had finalized Value 17, a capital increase reserved for its employees worldwide. Close to 10,000 employees in 11 countries, representing 52% of eligible employees, subscribed for this tenth worldwide employee stock plan offered by the Group. As at December 31, 2017, employee shareholders made up 4.19% of Vallourec's shareholding structure.

Income statement—Comparison of fiscal year 2017 with fiscal year 2016

The following table summarizes certain of the Group's financial and operating data for the year ended December 31, 2016 and 2017:

Consolidated data

(in € million except percentages and sales volume amounts)	2016	2017	Change 2017/2016
Sales volume (*in thousands of metric tons*)	**1,281**	**2,256**	*+76.1%*
Revenue	**2,965**	**3,750**	*+26.5%*
Cost of sales[(a)]	(2,727)	(3,297)	*+20.9%*
Industrial margin	**238**	**453**	*+90.3%*
(*as a % of revenue*)	*8.0%*	*12.1%*	*+4.1 pts*
Selling, general and administrative costs[(a)]	(448)	(440)	*-1.8%*
(*as a % of revenue*)	15.1%	11.7%	*-3.4 pts*
Other	(9)	(11)	*N/A*
EBITDA	**(219)**	**2**	*+€221m*
(*as a % of revenue*)	*−7.4%*	*0.1%*	*+7.5 pts*
Depreciation of industrial assets	(283)	(297)	*+4.9%*
Amortization, restructuring and other	(176)	(123)	*N/A*
Impairment of assets	(71)	(65)	*N/A*
Operating income / (loss)	**(749)**	**(483)**	*+€266m*
Net income / (loss), Group share	**(758)**	**(537)**	*+€221m*

(a) Before depreciation and amortization.

Sales volume

The diversity of the Group's products and the absence of appropriate units of measurement, other than financial units, prevent the provision of meaningful information on sales volumes. However, the following table provides a summary of sales volume, which corresponds to the volumes produced and shipped from Vallourec rolling mills, expressed in metric tons of hot-rolled seamless tubes:

(in thousands of metric tons)	**2016**	**2017**	**Change 2017/2016**
Q1	251	475	*+89.2%*
Q2	321	538	*+67.6%*
Q3	333	588	*+76.6%*
Q4	376	655	*+74.2%*
Total	**1,281**	**2,256**	*+76.1%*

In 2017, volumes increased 76.1% compared with 2016, mainly as a result of the market rebound in the United States and sustained deliveries to national oil companies in the EAMEA region, along with scope impacts (integration of TOP and full consolidation of VSB).

Revenue

Consolidated revenue

Consolidated revenue was €3,750 million in 2017, an increase of 26.5% (15.2% at constant scope and exchange rates, adjusting for currency translation effects), due to a positive volume effect of +35.0% which was partially offset by a negative price/mix effect of -19.8%. This price/mix effect primarily results from orders recorded in 2016 at low prices in the EAMEA region and delivered in 2017.

Revenue by geographical market

The following table shows the change in consolidated revenue by geographic region in which products were sold for the years ended December 31, 2016 and 2017.

(in € million)	**Year ended December 31, 2016**	**Year ended December 31, 2017**	**Change 2017/2016 at current exchange rates**	**Change 2017/2016 at constant exchange rates**
France	91	105	15.3%	15.0%
Germany	280	279	-0.4%	-0.2%
Other EU countries[(a)]	276	210	23.9%	-22.9%
Total Europe	**647**	**594**	**-8.2%**	**-7.7%**
North America	**559**	**1,033**	**84.8%**	**88.5%**
Brazil	456	599	31.4%	20.2%
Other Central and South America	11	13	18.2%	18.3%
Total South America	**467**	**612**	**31.0%**	**20.2%**
China	257	451	75.5%	79.5%
Other Asia and Middle East	591	724	22.5%	21.1%
Total Asia and Middle East	**848**	**1,175**	**38.6%**	**38.8%**
CIS	27	30	11.1%	10.6%
Rest of the world	417	306	-26.6%	-25.5%
Total rest of the world	**444**	**336**	**-24.3%**	**-23.3%**
Total revenue	**2,965**	**3,750**	**26.5%**	**25.8%**

(a) Other European Union countries, excluding Germany and France.

Revenue was strongly up in North America, thanks to the recovery of the oil and gas business. It was also up in South America and in the Asia and Middle East region, mainly thanks to increased volumes. Revenue was nevertheless down in Europe and in the rest of the world, particularly due to deliveries at lower prices/mixes than those in 2016.

Revenue by activity

In 2017, consolidated revenues for the oil and gas and industry and other activities increased, while revenues for the power generation activity decreased. The following table shows the breakdown of the Group's revenue for the fiscal year ended by activity in 2016 and 2017:

(in € million except percentages)	2016	2017	% change at current exchange rates	% change at constant exchange rates
Oil and gas	1,791	2,299	28.4%	27.9%
Petrochemicals	129	268	107.8%	109.3%
Oil and gas, Petrochemicals	**1,920**	**2,567**	**33.7%**	**33.3%**
Power generation	**486**	**408**	**-16.0%**	**-15.2%**
Mechanicals	279	368	31.9%	30.5%
Automotive	101	144	42.6%	35.6%
Construction and other[1]	179	263	46.9%	43.6%
Industry and other	**559**	**775**	**38.6%**	**35.6%**
Total	**2,965**	**3,750**	**26.5%**	**25.8%**

(1) Including sales of iron ore.

Oil and gas, petrochemicals (68.5% of revenues)

Oil and gas revenues totaled €2,299 million in 2017, up 28.4% (14.7% at constant scope and exchange rates) year-on-year.

- In the United States, full year 2017 revenue increased significantly. The steep rise in OCTG volumes sold resulted primarily from the sustained increase in drilling activity. This positive trend enabled the Group to pass through price increases with full effect as from July 2017. Fourth quarter 2017 revenue was up year-on-year, supported by higher volumes and by the full impact of price increases.

- In the EAMEA region, full year 2017 revenue remained relatively flat compared to 2016. Volumes were significantly up, but were recorded at lower prices/mixes. The strong positive volume impact was due to the acquisition of TOP and the full consolidation of VSB effective at or near the end of 2016, and to higher deliveries notably in the Middle East. Although price increases have gradually been negotiated with customers with whom price concessions were the most severe during the trough, 2017 deliveries were impacted by the low prices of orders registered in 2016.

- In Brazil, full year 2017 revenue was up year-on-year, principally supported by higher sales to Petrobras in the first quarter of 2017 for the drilling of exploratory wells in the Libra field. As expected, revenue in the fourth quarter of 2017 was weaker than in the third quarter of 2017.

Petrochemicals revenues totaled €268 million in 2017, up 107.8% (76.0% at constant exchange rates) year-on-year, resulting from the integration of TOP, the pick-up of activity in North America along with a low comparison basis in 2016.

Power generation (10.9% of revenues)

In 2017, Power Generation revenue amounted to €408 million, a decrease of 16.0% year-on-year (16.3% at constant scope and exchange rates). Revenue declined principally as a result of a challenging market environment for both conventional and nuclear applications.

Industry and other (20.6% of revenues)

In 2017, industry and other revenue amounted to €775 million, up 38.6% year-on-year (30.4% at constant scope and exchange rates).

- In **Europe**, 2017 revenue was up principally due to higher volumes in mechanical engineering.

- In **Brazil**, Industry & Other revenue increased mainly due to higher prices and increased volumes in automotive and mechanical engineering. Revenue generated from the Group's mine was also up thanks to the increase in iron ore prices.

Revenue by quarter

The following table shows the breakdown of the Group's revenue by quarter in 2016 and 2017:

(revenue in € million)	1st quarter	2nd quarter	3rd quarter	4th quarter	Fiscal year
2016	671	763	693	838	2,965
2017	783	933	964	1,070	3,750

% change compared with the previous year	+16.7%	+22.3%	+39.1%	+27.7%	+26.5%
volume effect	*+36.3%*	*+18.3%*	*+38.7%*	*+45.4%*	*+35.0%*
translation effect	*+8.5%*	*+3.1%*	*-4.0%*	*-3.8%*	*+0.7%*
scope effect	*+9.7%*	*+13.5%*	*+13.7*	*+5.8*	*+10.4%*
other effects (price, mix, etc.)	*-37.8%*	*-12.6%*	*-9.3%*	*-19.7%*	*-19.8%*

The changes in scope that occurred at the end of 2016 (the integration of TOP and the full consolidation of VSB) had a positive impact on revenue in 2017. The increase in revenue was particularly significant in the second half of 2017 due to sharply higher volumes and the price increases that took effect in the United States.

EBITDA

EBITDA was positive €2 million in 2017, compared with EBITDA of negative €219 million in 2016, principally due to an increase in revenue, the improvement in industrial margin and lower SG&A costs.

The following table shows the changes in the principal components of EBITDA in 2016 and 2017:

(in € million)	**2016**	**2017**	**Change 2017/2016 (%)**
Revenue	2,965	3,750	26.5%
Cost of sales[(a)]	(2,727)	(3,297)	20.9%
Industrial margin	238	453	90.3%
% of revenue	*8.0%*	*12.1%*	+4.1%
Selling, general and administrative costs[(a)]	(448)	(440)	-1.8%
Other	(9)	(11)	N/A
EBITDA	(219)	2	+€221m
% of revenue	*−7.4%*	*0.1%*	*+7.5 pts*

(a) Before depreciation and amortization.

Industrial margin

In 2017, the industrial margin improved by €215 million due to (i) the increase in revenue, (ii) the savings generated under the Transformation Plan and the scope effect and (iii) net reversals of provisions in an amount of €81 million in 2017 (see Note 17 (*Provisions – current liabilities*) to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum).

The following table shows the breakdown of cost of sales (excluding depreciation and amortization) in 2016 and 2017:

(in € million)	**2016**	**2017**	**Change 2017/2016**
Direct cost of sales	157	223	42.0%
Cost of raw materials consumed	935	1,370	46.5%
Labor costs	747	837	12.0%
Other manufacturing costs[(a)]	892	908	1.8%
Change in non-raw material inventories	(4)	(41)	N/A
Total	**2,727**	**3,297**	20.9%

(a) "Other manufacturing costs" consist mainly of energy and consumable materials costs, subcontracting and maintenance costs and provisions.

Selling, general and administrative costs

SG&A costs (excluding depreciation and amortization) were down 1.8% to €440 million in 2017 compared to 2016 mainly due to cost savings that were partially offset by negative scope impacts and inflation. R&D costs decreased 21.7% in 2017 compared to 2016, to €47 million.

The following table shows the breakdown of SG&A costs (excluding depreciation and amortization) in 2016 and 2017:

(in € million)	**2016**	**2017**	**Change 2017/2016**
Research and development costs	60	47	-21.7%

Sales and marketing expenses	87	82	-5.7%
General and administrative expenses	301	311	+3.3%
Total	**448**	**440**	**-1.8%**

Labor costs

Labor costs are divided among cost of sales, SG&A costs and other operating expenses.

Total labor costs increased to €1,068 million in 2017, compared to €994 million in 2016. The increase was due mainly to changes in scope (the integration of TOP and full consolidation of VSB), inflation effects and an increase in average number of employees in North America accompanying the recovery of activity, partially offset by the rationalization of industrial production, particularly in Europe.

The following table shows the breakdown of labor costs in 2016 and 2017:

(in € million)	2016	2017	Change 2017/2016
Wages and salaries	763	820	+57
Employee profit sharing	19	22	+3
Expenses relating to share subscription and share purchase options and performance shares[(a)]	4	10	+6
Social security costs	208	216	+8
Total	**994**	**1,068**	**+74**

(a) Including a €6.6 million expense for all share subscription plans for 2017 (compared to positive €0.8 million for 2016).

Headcount has changed as follows in 2016 and 2017:

Headcount as of year-end of consolidated companies(*)	2016[(a)]	2017	Change 2017/2016
Managers	3,299	3,231	-68
Technical and supervisory staff	3,107	3,048	-59
Production staff	12,836	13,245	+409
Total	**19,242**	**19,524**	**+282**

(*) The workforces of companies recorded as joint ventures are included up to the percentage interest held.
(a) Changes in the Group's scope in 2016 had the following impact on headcount: (i) an increase of 1,514 employees in connection with the integration of TOP, (ii) an increase of 699 employees in connection with the consolidation of VSB (44% of whom were not previously included in the Group's headcount) and (iii) a decrease of 583 employees in connection with the sale of VHET.

Operating profit / (loss)

Operating loss was €483 million in 2017, compared with an operating loss of €749 million in 2016. This improvement of €266 million is primarily the result of higher EBITDA and lower asset impairment and restructuring charges than in 2016.

Depreciation of industrial assets

Depreciation of industrial assets amounted to €297 million in 2017, a slight increase compared with €283 million in 2016.

Amortization, restructuring and other, and asset impairment

Depreciation of non-industrial assets was €44 million in 2017, compared with €49 million in 2016.

Impairment charges were recorded in a total amount of €65 million in 2017, compared with €71 million in 2016.

These charges in 2017 essentially resulted from (i) the insolvency procedure regarding Ascoval, (ii) the disposal of non-strategic assets, notably Vallourec Drilling Products, and (iii) impairments related to the reduction in the number of projects for coal-fired plants in Asia. The following table shows the breakdown of asset impairment charges in 2016 and 2017:

(in € million)	2016	2017
Losses in value of intangible assets	—	—

Losses in value of property, plant and equipment	58	65
Losses in value of goodwill	—	—
Other asset impairment	13	—
Total	**71**	**65**

Financial income / (expense)

Net financial expense was €174 million in 2017 compared to €130 million in 2016 primarily as a result of:

- a €34 million increase in net financial charges, due in particular to the increase in average cost of debt and changes in scope (full consolidation of VSB) and a reduction in financial income; and
- lower net foreign exchange gains resulting from the increased premium/discount of hedging for intragroup loans in foreign currencies.

The following table shows the breakdown of financial income / (expense) in 2016 and 2017:

(in € million)	2016	2017	Change 2017/2016
Financial income	30	26	-13.3%
Interest expense	(125)	(155)	+24.0%
Net financial charges	**(95)**	**(129)**	**+35.8%**
Other financial income and expense	**(26)**	**(32)**	**+23.1%**
Other discounting expenses	**(9)**	**(12)**	**+33.3%**
Financial income / (expense)	**(130)**	**(174)**	**+32.8%**

Income tax expense

The Group recorded a net income tax gain of €100 million in 2017 compared to a net income tax gain of €80 million in 2016. The actual tax rate was 15%, compared with 9% in 2016, primarily due to the following:

- The impact of tax loss carryforwards and timing differences consisting mainly of the non-recognition of deferred tax assets (DTAs) in France, Germany and China. Nevertheless, the rate improvement is explained by the recognition of DTAs from previous fiscal years for Brazil, Saudi Arabia and TOP.
- Permanent differences consisting principally of the impact of non-controlling interests, free share allocations and the reintegration of financial expenses.
- Differences in taxation mainly reflecting the range of tax rates applied in each country (France 34.4%, Germany 31.6%, United States 35%, Brazil 34.0%, China 25.0% and Saudi Arabia 20%). As concerns the United States, the drop in income tax to 21% was considered to calculate deferred taxes.

Net income / (loss)

Net loss before deduction of non-controlling interests was €560 million in 2017, compared to a net loss of €808 million recorded in 2016. The share attributable to non-controlling interests was -€23 million in 2017, compared with net income attributable to non-controlling interests of -€50 million in 2016, principally due to the recovery of activities in the Americas.

Net loss, Group share, was €537 million in 2017, compared with a net loss, Group share, of €758 million in 2016. The Group's net loss per share was €1.2 in 2017, compared to a net loss per share of €2.3 per share in 2016 (in each case both basic and diluted).

Year ended December 31, 2016 compared with year ended December 31, 2015

Key factors affecting results of operations in 2016

Oil and Gas

On November 30, 2016, OPEC countries reached an agreement to reduce their oil production by 1.2 million b/d. In early December 2016, certain non-OPEC member countries, such as Russia, decided to participate in this effort and committed to reducing their oil production by 600,000 b/d.

This decision had a positive impact on the price of oil. On December 31, 2016, the price of Brent was U.S.$54.9/b compared to U.S.$36.6/b on December 31, 2015, according to data from Thomson Reuters, a 50% increase year-on-year. The average price of Brent in 2016 was U.S.$43.6/b compared to an average price of U.S.$52.2/b in 2015, or a 16.5% decrease. The drop in oil prices since late 2014 led oil operators to re-evaluate their budgets and investment priorities and to reduce their exploration and production expenditures.

In 2016, global exploration and production spending decreased to approximately U.S.$377 billion according to Barclays, a drop of 23% compared to 2015.

In the United States, the significant fall in the price of WTI since the end of 2014 led to a sharp decline in the number of active rigs in 2015 and in the first part of 2016, according to the IEA. After bottoming out at the end of May 2016 at 404 units, the active rig count began to increase, reaching 658 units at the end of 2016, compared to 698 units at the end of December 2015. In 2016, the average active rig count decreased by 48% compared to 2015 (an average of 510 active rigs in 2016 compared with an average of 977 active rigs in 2015).

The average number of oil rigs was 411 units in 2016 compared to 764 units in 2015 and, at the end of 2016, was down 67% since the oil production peak of 2014 (at which point there were 1,609 units). At the end of 2016, 79.8% of the rigs were for oil drilling, compared with 76.8% the previous year. Gas drilling dropped by 18.5% compared to drilling at the end of 2015, with 132 active rigs at the end of 2016. The gas price (Henry Hub) average in 2016 was U.S.$2.6/Mbtu (U.S.$ per million British thermal units), according to Thomson Reuters, which was stable compared with the average in 2015.

Restocking at distributors started in the third quarter of 2016 and continued in the fourth quarter of 2016. However, prices remained at low levels in the fourth quarter.

In the Gulf of Mexico, the number of drilling platforms stood at 22 units at the end of 2016, according to Baker Hughes, compared with 25 units at the end of 2015. In the rest of the world, the international active rig count was 929 units at the end of 2016, compared with 1,095 at the end of 2015 (with an average of 955 active rigs in 2016 compared to an average of 1,167 active rigs in 2015).

In Brazil, operations were driven by Petrobras's five-year 2017-2021 Business and Management Plan, which was published in September 2016. The plan reduced total planned capital expenditures to U.S.$74.1 billion, a 25% decrease compared to the previous version (the 2015-2019 Business and Management Plan).

In the EAMEA region, the average rig count in 2016 was down compared to 2015. According to Baker Hughes, in 2016, rig count averaged 96 units in Europe, 85 units in Africa and 390 units in the Middle East, compared to 117 units, 106 units and 406 units, respectively, in 2015. In Europe, the market environment continued to be challenging. In the Middle East, national oil companies continued to award tenders at competitive prices while the activity level of international oil companies remained low.

In 2016, the activity level in the petrochemicals market was low in the United States and in Europe and declined in Asia and the Middle East.

Power Generation

The market context for power generation in 2016 was broadly similar to that in 2017. See "*Markets and Industry—Power Generation*".

Industry and Other

In Europe, the market environment for industry and other activities (mechanical engineering, automotive, construction and other) was characterized by a continuing pressure on prices and fewer projects and long-term contracts.

The Brazilian economy continued to face challenging macroeconomic conditions, with a 3.6% fall in GDP in 2016. Iron ore prices remained low until the end of the third quarter of 2016, weighing on Vallourec's mine revenue. In the fourth quarter of 2016 through the beginning of 2017, iron ore prices trended upward.

Raw Materials

In Brazil, Vallourec produces its own iron ore, which it uses to power the Group's blast furnaces. In 2016, the average spot price for iron ore was U.S.$57.14/metric ton, up slightly compared to the average 2015 price (U.S.$55.66/metric ton), according to data from Platts.

In 2016, the price of scrap fell in Europe (a decrease of 12.3% in France, according to Scrap E40) and in the United States (a decrease of 3.6%, according to Shredded Scrap CRU data) compared to 2015.

Key Events of 2016

In addition to the announcement and implementation of the Transformation Plan, described above under "—*Transformation Plan*", the following were key events for the Group in 2016:

- On February 1, 2016, Vallourec announced that the appointment of three members of the Management Board, whose terms of office expired on March 15, 2016, was being renewed for a period of four years: Philippe Crouzet, Chairman of the Management Board, Jean-Pierre Michel, member of the Management Board and Chief Operating Officer, and Olivier Mallet, member of the Management Board and Chief Financial Officer. Jean-Pierre Michel retired from the Management Board on March 31, 2017.

- On March 30, 2016, Vallourec announced that it had entered into an agreement with a banking syndicate comprised of five international banks, Banco Santander, BNP Paribas, Crédit Agricole Corporate and Investment Bank, Natixis and Société Générale Corporate & Investment Banking, which agreed to provide the Group with a revolving credit line in the amount of €450 million maturing in February 2020, as well as extending a bilateral renewable line of credit with J.P. Morgan for a period of three years, through its American subsidiary Vallourec Star, LP, in the amount of €80 million.

- On March 30, 2016, Vallourec signed a contract with Abu Dhabi National Oil Company ("ADNOC") regarding the supply of tubes to its three operating companies (ADMA-OPCO, ADCO and ZADCO) for the period from 2016-2018. It is the largest OCTG contract (approximately 100,000 tons) entered into by Vallourec with the Emirate of Abu Dhabi. Vallourec supplies a full range of premium OCTG and standard API tubes for onshore and offshore oil wells, from the most traditional to the most complex. This contract also provides for the delivery of high torque VAM® connections, for extended-reach drilling, as well as corrosion-resistant steel alloys for acidic environments. Finally, supervision and inspection operations are handled by Vallourec experts.

- On May 27, 2016, Vallourec Tube-Alloy, a subsidiary wholly owned by Vallourec which is dedicated to the production and repair of accessories used inside oil wells, announced the opening of a new facility in Singapore, under the name "Vallourec Tube-Alloy Asia-Pacific". This new site supports the Group's OCTG activities by strengthening the geographical footprint of Vallourec Tube-Alloy, whose primary base consists of four production units in the United States.

- On November 8, 2016, Vallourec announced that it had finalized the strategic partnership in the field of offshore pipeline welding announced at the beginning of 2016, between its subsidiary Serimax and its longstanding customer Technip. Under this partnership, Technip purchased a 20% stake in Serimax. The strategic partnership includes exclusive arrangements with respect to both offshore pipeline-welding and related R&D programs. Serimax is rolling out its welding technology to all Technip spoolbases (which are principally used in the assembly of rigid subsea line pipes and for rolling them onto spools) and S-lay (a method of laying subsea line pipes) vessels. Serimax is an independent supplier of services and technologies and continues to provide solutions to its customers in the subsea and onshore line pipe markets, and in the tubular sub-assembly and assembly markets.

- On December 14, 2016, Vallourec announced it had finalized Value 16, a capital increase reserved for its employees worldwide. Close to 10,000 employees in 11 countries, representing 54% of eligible employees, subscribed for this ninth worldwide employee stock plan offered by the Group. As of December 31, 2016, employee shareholders made up 3.5% of Vallourec's shareholding structure.

Income statement—Comparison of fiscal year 2016 with fiscal year 2015

The following table summarizes certain of the Group's financial and operating data for the year ended December 31, 2015 and 2016:

Consolidated data

(in € million except percentages and sales volume amounts)	2015	2016	Change 2016/2015
Sales volume (*in thousands of metric tons*)	**1,411**	**1,281**	*−9.2%*
Revenue	**3,803**	**2,965**	*−22.0%*
Cost of sales[(a)]	(3,352)	(2,727)	*−18.6%*
Industrial margin	**451**	**238**	*−47.2%*
(*as a % of revenue*)	*11.9%*	*8.0%*	*−3.9 pts*
Selling, general and administrative costs[(a)]	(513)	(448)	*−12.7%*
(*as a % of revenue*)	13.5%	15.1%	*−1.6pts*
EBITDA	**(77)**	**(219)**	*N/A*
(*as a % of revenue*)	*−2.0%*	*−7.4%*	*−5.4 pts*
Depreciation of industrial assets	(303)	(283)	*−6.6%*
Amortization, restructuring and other	(162)	(176)	*N/A*
Impairment	(296)	(71)	*N/A*
Operating profit / (loss)	**(838)**	**(749)**	*−10.6%*
Net income / (loss), Group share	**(865)**	**(758)**	*−12.4%*

(a) Before depreciation and amortization.

Sales volume

The following table provides a summary of sales volume, which corresponds to the volumes produced and shipped from Vallourec rolling mills, expressed in metric tons of hot-rolled seamless tubes:

(in thousands of metric tons)	2015	2016	Change 2016/2015
Q1	412	251	*−39.1%*
Q2	362	321	*−11.3%*
Q3	317	333	*+5.0%*
Q4	320	376	*+17.5%*
Total	**1,411**	**1,281**	*−9.2%*

The 9.2% decrease in volumes in 2016 compared with 2015 is due mainly to the reduction in oil and gas volumes in the United States (despite an increase in the fourth quarter of 2016 compared with the previous year) and in South America, as well as a decrease in industry volumes in Europe and Brazil.

Revenue

<u>Consolidated revenue</u>

Consolidated revenue was €2,965 million in 2016, a decrease of 22.0% (21.2% at constant exchange rates, adjusting for the translation effect), due to a decline in volumes of 9.2%, especially in the oil and gas market in the United States and South America, and a decline in volumes in the industry market in Europe and Brazil, as well as negative price/mix effects of 12% resulting primarily from lower prices in the EAMEA and the United States.

Revenue by geographical market

The following table shows the change in consolidated revenue by geographic region in which products were sold in 2015 and 2016.

(in € million)	2015	2016	Change 2016/2015 at current exchange rates	Change 2016/2015 at constant exchange rates
France	114	91	−20.2%	−20.2%
Germany	316	279	−11.7%	−11.7%
Other EU countries[(a)]	419	276	−34.1%	−32.0%
Total Europe	**849**	**647**	**−23.8%**	**−22.7%**
North America	**1,096**	**559**	**−49.0%**	**−48.7%**
Brazil	555	456	−17.8%	−16.2%
Other Central and South America	41	11	−73.2%	−73.2%
Total South America	**596**	**467**	**−21.6%**	**−20.1%**
China	262	257	−2.3%	−0.8%
Other Asia and Middle East	590	591	+0.2%	−0.2%
Total Asia and Middle East	**852**	**848**	**−0.5%**	**−0.4%**
CIS	31	28	−9.7%	−9.7%
Rest of the world	379	417	+10.0%	+11.6%
Total rest of the world	**410**	**444**	**+8.3%**	**+10.0%**
Total revenue	**3,803**	**2,965**	**−22.0%**	**−21.2%**

(a) Other European Union countries, excluding Germany and France.

Revenue was down in almost all regions in 2016. The decrease was especially pronounced in the oil and gas market in North America, Europe and South America.

Revenue by activity

Consolidated revenue decreased in 2016 in all of the Group's activities, especially in oil and gas and petrochemicals. The following table shows the breakdown of the Group's revenue by activity in 2015 and 2016:

(in € million)	2015	2016	% change at current exchange rates	% change at constant exchange rates
Oil and gas	2,361	1,791	−24.1%	−23.3%
Petrochemicals	205	129	−37.1%	−37.1%
Oil and gas, Petrochemicals	**2,566**	**1,920**	**−25.2%**	**−24.4%**
Power generation	**559**	**486**	**−13.1%**	**−12.5%**
Mechanicals	363	279	−23.1%	−22.9%
Automotive	114	101	−11.4%	−11.4%
Construction and other[(1)]	201	179	−10.9%	−8.5%
Industry and other	**678**	**559**	**−17.6%**	**−16.6%**
Total	**3,803**	**2,965**	**−22.0%**	**−21.2%**

(1) Including sales of iron ore.

Oil and gas, petrochemicals (64.8% of revenues)

Oil and gas revenues totaled €1,791 million in 2016, down 24.1% (23.3% at constant exchange rates) year-on-year.

- In the United States, oil and gas revenue decreased significantly compared to 2015, due to lower prices, as well as lower volumes in the first half of 2016. After reaching a low point in the second quarter of 2016, the number of active rigs increased until the end of 2016, which gave rise to progressive restocking at distributors in the third and fourth quarters. Revenue for the fourth quarter of 2016 increased from previous quarters, but prices remained at the low levels observed in the first half of 2016.

- In the EAMEA region, oil and gas revenues were slightly down for 2016. The Group recorded slightly higher OCTG volumes compared to 2015 as a result of tenders awarded by national oil companies, but the improvement in volumes was more than offset by the low prices in the region. At the same time, international oil companies continued to reduce their capital expenditures.

- In Brazil, oil and gas revenue fell significantly compared to 2015, due to capital expenditure reductions by Petrobras. As planned, deliveries in the second of 2016 were largely concentrated in the third quarter of the year.

Petrochemicals revenues totaled €129 million in 2016, down 37.1% (37.1% at constant exchange rates) year-on-year, due to decreased deliveries as a result of adverse market conditions.

Power generation (16.4% of revenues)

Power generation revenues totaled €486 million in 2016, down 13.1% (12.5% at constant exchange rates) year-on-year. Excluding the results of VHET, which was divested in May 2016, power generation revenues declined slightly as the increase of conventional power generation revenues in 2016 due to deliveries for coal-fired power plants in China was offset by the significant revenue decline in the nuclear activity.

Industry and other (18.8% of revenues)

Industry and other revenues totaled €559 million in 2016, down 17.6% (16.6% at constant exchange rates) year-on-year.

- In Europe, revenues in the industry and other segment fell as a result of the decline in volumes and prices.

- In Brazil, revenues in the industry and other segment were slightly down in 2016. While automotive and mechanical engineering revenues rose slightly compared to 2015 as a result of a stronger second half of the year than in 2015, revenues from sales of iron ore declined in 2016 due to a decrease in iron ore prices.

Revenue by quarter

The following table shows the breakdown of the Group's revenue by quarter in 2015 and 2016:

(revenue in € million)	**1st quarter**	**2nd quarter**	**3rd quarter**	**4th quarter**	**Fiscal year**
2015	1,052	1,018	872	861	3,803
2016	671	763	693	838	2,965
% change compared with the previous year	−36.2%	−25.0%	−20.5%	−2.7%	−22.0%
volume effect	*−39.1%*	*−11.3%*	*+5.0%*	*+17.5%*	*−9.2%*
translation effect	*−3.1%*	*−3.6%*	*+0.1%*	*+4.7%*	*−0.8%*
other effects (price, mix, etc.)	*+6.0%*	*−10.1%*	*−25.6%*	*−24.9%*	*−12.0%*

The decline in revenue year-on-year was particularly significant in the first quarter, mainly because the results in the first quarter of 2015 was supported by a strong order book from the end of 2014 in the oil and gas market in the United States. In the fourth quarter of 2016, the Group benefited from the recovery of volumes in the United States.

EBITDA

EBITDA was negative €219 million in 2016, compared with EBITDA of negative €77 million in 2015, principally due to the decrease in volumes, partially offset by a decrease in the cost of raw materials, a decrease in variable costs and €78 million of gross savings related to the implementation of the Transformation Plan.

The following table shows the changes in the principal components of EBITDA in 2015 and 2016:

(in € million)	**2015**	**2016**	**Change 2016/2015 (%)**
Revenue	3,803	2,965	−22.0%
Cost of sales[(a)]	(3,352)	(2,727)	−18.6%
Industrial margin	451	238	−47.2%
% of revenue	*11.9%*	*8.0%*	−3.9%
Selling, general and administrative costs[(a)]	(513)	(448)	−12.7%
Other expenses	(15)	(9)	N/A
EBITDA	(77)	(219)	N/A
% of revenue	*−2.0%*	*−7.4%*	*−5.4 pts*

(a) Before depreciation and amortization.

Industrial margin

Despite a high level of mitigation of variable costs and a reduction in industrial fixed costs, the industrial margin was impacted by the reduction in volumes and, to a lesser extent, by inefficiencies associated with low loads in the Group's tube mills.

The following table shows the breakdown of cost of sales (excluding depreciation and amortization) in 2015 and 2016:

(in € million)	2015	2016	Change 2016/2015
Direct cost of sales	215	157	−27.0%
Cost of raw materials consumed	1,201	935	−22.1%
Labor costs	837	747	−10.8%
Other manufacturing costs[a]	957	892	−6.1%
Change in non-raw material inventories	143	(4)	N/A
Total	**3,353**	**2,727**	−18.6%

(a) "Other manufacturing costs" consist mainly of energy and consumable materials costs, subcontracting and maintenance costs and provisions.

Selling, general and administrative costs

SG&A costs (excluding depreciation and amortization) were down 12.7% to €448 million in 2016. This improvement was a result of the priority given to cost reduction under the Transformation Plan and was achieved despite unfavorable exchange rate and inflation effects impacting operations in Brazil. In addition, R&D costs decreased €22 million, to €60 million.

The following table shows the breakdown of SG&A costs (excluding depreciation and amortization) in 2015 and 2016:

(in € million)	2015	2016	Change 2016/2015
Research and development costs	82	60	−26.8%
Sales and marketing expenses	99	87	−12.1%
General and administrative expenses	332	301	−9.3%
Total	**513**	**448**	−12.7%

Labor costs

Labor costs are divided among cost of sales, SG&A costs and other operating expenses.

In 2016, total labor costs were €994 million, compared with €1,120 million in 2015. The decrease was due mainly to decreased headcount resulting from the implementation of the Transformation Plan. As of the end of 2016, the headcount of consolidated companies, excluding temporary workers, was stable when taking into account changes in the Group's scope of consolidated companies.

The following table shows the breakdown of labor costs in 2015 and 2016:

(in € million)	2015	2016	Change 2016/2015
Wages and salaries	796	763	−4.1%
Employee profit sharing	33	19	−42.4%
Expenses relating to share subscription and share purchase options and performance shares	1	4	+300.0%
Social security costs	289	208	−28.0%
Total	**1,120**	**994**	−11.2%

Headcount has changed as follows in 2015 and 2016:

Headcount as of year-end of consolidated companies(*)	2015	2016[a]	Change 2016/2015
Managers	3,358	3,299	−59
Technical and supervisory staff	3,334	3,107	−227
Production staff	12,615	12,836	+221

Total	**19,307**	**19,242**	**−65**

(*) The workforces of companies recorded as joint ventures are included up to the percentage interest held.
(a) Changes in the Group's scope in 2016 had the following impact on headcount: (i) an increase of 1,514 employees in connection with the integration of TOP, (ii) an increase of 699 employees in connection with taking control of VSB (44% of whom were not previously included) and (iii) a decrease of 583 employees in connection with the sale of VHET.

Operating profit / (loss)

Operating loss was €749 million in 2016, compared with an operating loss of €838 million in 2015. This improvement resulted primarily from lower asset impairment than in 2015, partially offset by a €142 million decrease in EBITDA.

Depreciation of industrial assets

Depreciation of industrial assets was down slightly to €283 million in 2016, compared with €303 million in 2015.

Amortization, reorganization and other

Depreciation of non-industrial assets was €49 million in 2016, compared with €44 million in 2015.

The impact of reorganization measures (net of expenses and provisions) was €111 million in 2016, primarily relating to the Transformation Plan, in particular the closure of production units in Europe and the industrial reorganization of Brazilian operations. This represented an increase of €10 million compared to 2015.

Gains and losses on disposals of non-current assets totaled €16 million in 2016, compared with €17 million in 2015.

Impairment

Impairment charges were recorded in a total amount of €71 million in 2016, resulting from the implementation of the Transformation Plan.

The following table shows the breakdown of asset impairment charges in 2015 and 2016:

(in € million)	2015	2016
Losses in value of intangible assets	—	—
Losses in value of property, plant and equipment	163	58
Losses in value of goodwill	36	—
Other asset impairment	97	13
Total	**296**	**71**

Financial income / (expense)

Net financial expense increased to €130 million in 2016 compared with €75 million in 2015 primarily as a result of:

- A €20 million decrease in net financial charges, due in particular to the decrease in average outstanding gross debt over the 2016 fiscal year, which more than offset a reduction in financial income; and
- Lower net foreign exchange gains resulting from increased hedging instruments for intragroup loans in foreign currencies.

The following table shows the breakdown of financial income / (expense) in 2015 and 2016:

(in € million)	2015	2016	Change 2016/2015
Financial income	37	30	−18.9%
Interest expense	(112)	(125)	+11.6%
Net financial charges	**(75)**	**(95)**	**+26.7%**
Other financial income and expense	**7**	**(26)**	**−471.4%**
Other discounting expenses	**(7)**	**(9)**	**+28.6%**
Financial income / (expense)	**(75)**	**(130)**	**+73.3%**

Income tax expense

The Group recorded a net income tax benefit of €80 million in 2016 compared with a net income tax benefit of €15 million in 2015. The actual tax rate was +9%, compared with +2% in 2015, primarily due to the following:

- The impact of tax loss carryforwards and temporary differences consisting mainly of the non-recognition of deferred tax assets in France, Germany and China.

- Permanent differences consisting principally of the impact of financial expenses, the profit/loss on minority interests, withholding taxes and the merger of Old VSB and VBR into VSB, as well as the impact of free share allocations.

Net income / (loss)

Net loss before deduction of non-controlling interests was €808 million in 2016, compared to a net loss of €898 million recorded in 2015. Net loss attributable to non-controlling interests was €50 million in 2016, compared with net income attributable to non-controlling interests of €33 million in 2015, principally due to the decrease in the Group's results in the Americas.

Net loss, Group share, was €758 million in 2016, compared with a net loss, Group share, of €865 million in 2015. The Group's net loss per share was €2.3 in 2016, compared with a net loss per share of €6.6 per share in 2015 (in each case both basic and diluted).

Liquidity and Capital Resources

Overview

In 2017, free cash flow was negative €423 million and included (i) a €61 million reduction in working capital requirements, notwithstanding the activity recovery, and (ii) strict discipline with respect to capital expenditures (€152 million in 2017 compared to €175 million in 2016).

Net financial debt increased from €1,287 million as of December 31, 2016 to €1,542 million as of December 31, 2017. As of December 31, 2017, gross financial debt totaled €2,563 million, including €1,817 million in medium- and long-term financial debt and €746 million in current financial debt. The Group had €1,021 million in cash and cash equivalents as of December 31, 2017 and €2,040 million in undrawn credit lines.

In 2016, due to the difficult operating environment, Vallourec generated free cash flow of negative €395 million for the year ended December 31, 2016, compared with positive free cash flow of €135 million for the year ended December 31, 2015. Net financial debt decreased from €1,519 million as of December 31, 2015 to €1,287 million as of December 31, 2016. As of December 31, 2016, gross financial debt totaled €2,574 million, including €1,121 million in medium- and long-term financial debt and €1,453 million in current financial debt.

The Group's equity, Group share, totaled €2,426 million as of December 31, 2017, a decrease of €858 million compared with €3,284 million as of December 31, 2016, primarily due to the Group's negative consolidated net income and to the impact of foreign currency translation reserves. The Group's equity, Group share, increased from €2,646 million as of December 31, 2015 to €3,284 million as of December 31, 2016, principally due to the €960 million capital increase that the Group completed in the second quarter of 2016 as part of the Transformation Plan, partially offset by the net loss incurred in 2016.

Comparative Cash Flows

The following table shows certain information on Vallourec's cash flows for the years ended December 31, 2016 and 2017, respectively.

(in € million)	**2016**	**2017**
Cash flow from operating activities	(399)	(332)
Change in operating working capital requirement	179	61
Net cash flow from operating activities (1)	**(220)**	**(271)**
Net cash flow from (used in) investment activities (2)	**(267)**	**(95)**
Net cash flow from (used in) financing activities (3)	**1,095**	**130**
Impact of changes in exchange rates (4)	44	(31)
Change in cash (1 + 2 + 3 + 4)	**652**	**(267)**

Net cash flow from operating activities

Net cash flow from operating activities was an outflow of €271 million for 2017, compared with an outflow of €220 million in 2016.

Cash flow from operating activities was an outflow of €332 million in 2017.

Notwithstanding the activity recovery, working capital requirements were further reduced by €61 million in 2017. After an increase in the first quarter of 2017 and a stabilization in the second and third quarters, it was reduced by €164 million in the fourth quarter. This performance illustrates better efficiencies in operational working capital management along with cash tax synergies in Brazil.

The table below breaks down the change in the Group's working capital requirement in 2017:

(Gross amounts, in thousands of euros)	December 31, 2016	Impact of changes in exchange rates	Change	Reclassification and other	December 31, 2017
Inventory	1,240,512	(92,756)	81,919	(45,838)	1,186,837
Trade receivables	579,168	(47,526)	85,992	(13,981)	603,653
Trade payables	(530,391)	38,567	(103,566)	13,768	(581,622)
Other receivables and payables	82,678	(3,549)	(148,045)	(1,961)	(70,877)
Gross working capital requirement (1)	1,371,967	**(105,264)**	**(83,700)**	**(48,012)**	**1,134,991**
Impact of hedging instruments (2)			23,145		
Total (1) + (2)			**(60,555)**		
Change in working capital requirement from statement of cash flows			**(60,555)**		

Net cash flow from operating activities was an outflow of €220 million in 2016, compared with an inflow of €403 million in 2015.

Cash flow from operating activities before changes in working capital requirements was an outflow of €399 million in 2016, principally due to the drop in EBITDA. This decrease was partially offset by the improvement to the Group's working capital requirement by €179 million in 2016, principally due to a sharp decline in inventory and trade receivables. The table below breaks down the change in the Group's working capital requirement in 2016:

(Gross amounts, in thousands of euros)	December 31, 2015	Impact of changes in exchange rates	Change	Reclassification and other	December 31, 2016
Inventory	1,234,047	54,031	(168,198)	120,632	1,240,512
Trade receivables	599,719	24,459	(123,403)	78,393	579,168
Trade payables	(523,476)	(8,235)	84,172	(82,852)	(530,391)
Other receivables and payables	7,306	28,826	5,281	41,265	82,678
Gross working capital requirement (1)	1,317,596	99,081	(202,148)	157,438	1,371,967
Impact of hedging instruments (2)			22,517		
Total (1) + (2)			**(179,631)**		
Change in working capital requirement from statement of cash flows			**179,631**		

Net cash flow from investment activities

Net cash used in investment activities was €95 million in 2017, compared with €267 million in 2016. The decrease is primarily explained by the fact that in 2016, TOP was acquired for €158 million in cash.

Net cash used in investment activities was €267 million in 2016, compared with cash used in investment activities of €279 million in 2015. The decrease is due principally to the decrease in cash outflows for acquisitions of property, plant and equipment and intangible assets, which totaled €168 million in 2016 compared with €255 million in 2015, which was primarily the result of greater selectivity in choosing projects and of the impact of changes in scope in the amount of €106 million.

See "*—Capital Expenditures*" below for a description of the principal investments in 2016 and 2017.

Net cash flow from financing activities

Net cash from financing activities was €130 million in 2017, compared with net cash flow of €1,095 million in the 2016. Net cash inflow in 2017 consisted primarily of €926 million in new loans, partially offset by loan repayments in the amount of €825 million.

Net cash flow from financing activities was €1,095 million in 2016, compared with negative €553 million in 2015. Net cash inflows in 2016 consisted primarily of €720 million in new loans and €980 million inflow from the Group's capital increase in May 2016, partially offset by loan repayments in the amount of €586 million.

Capital Expenditures

Investment decisions

Considered investment decisions are a central pillar of the Group's strategy and prioritize the following goals:

- keeping personnel and facilities safe and complying with legal obligations, in particular those relating to safety and the environment;
- developing Vallourec's activities through organic and external growth;
- optimizing production units' economic performance and enhancing the quality of Group products; and
- maintaining facilities and, where necessary, replacing obsolete facilities.

Investment decisions are made through a dedicated process that systematically includes an economic study and risk assessment to ensure that the selected projects will support long-term growth and deliver an acceptable return on investment.

In all its investment projects, Vallourec seeks to ensure that environmental impact and energy savings receive special focus.

Beginning in 2015, the Group began the process of authorizing investments by implementing the following framework:

- systematic preparation for each project of more than €1 million through three "Front End Loading" steps;
- qualification of each of the three steps by a qualification committee bringing together the Group's experts. During this process, the essential aspects of the projects (market assumptions, technical choices, budget, planning and risks), are systematically examined and fleshed out; and
- an authorization at each of the three steps by a committee including the Director of Management Control and the Director of Investments and Major Projects for projects of over €1 million. The members of the Management Board are part of this committee for projects of over €5 million. At committee meetings, projects compete with each other in terms of alignment with strategy, profitability and risk, while complying with the Group's budget limitations.

Principal investments during the 2016-2017 period

In recent years, industrial capital expenditure programs have been directed mainly toward streamlining production facilities, improving quality and process controls, adapting product lines to reflect customers' changing requirements, expanding premium product finishing capacity and reducing production costs.

Over Vallourec's past two fiscal years, investments have been made as follows:

Industrial capital expenditure excluding changes in scope (property, plant and equipment, intangible and biological assets)

(in € million)	2016	2017
Europe	95.6	85.2
North America	18.0	26.2
Central and South America	53.7[(a)]	32.9[(b)]
Asia	9.1	10.5
Other	0.1	0.2
Total industrial capital expenditure[(c)]	**176.5**[(c)]	**155.0**[(c)]
Capital expenditure payments during the year	175.4	151.5

(a) Includes €6.6 million for biological assets.
(b) Includes €6.2 million for biological assets.
(c) The difference between capital expenditure payments and the total of industrial capital expenditure corresponds to the variation of amounts payable on fixed assets.

The most significant investments carried out in 2016 and 2017 and planned for 2018 are described below:

2016:

The investment program was reduced compared to prior years down 35% from 2015, due to the ongoing decrease in the Group's activity. The programs initiated in previous years represented 65% of expenditure in 2016.

The main new investments in 2016 were as follows:

- planting 52 hectares of eucalyptus, to meet the needs of VSB, as well as the construction of new combustion ovens for the production of charcoal in Brazil;
- reconfiguring the flows for the Déville and Saint-Saulve tube mills to adhere to the European industrial reorganization plan;
- creating the first industrial line in Europe for the new Cleanwell® process for OCTG products; and
- numerous projects intended to improve productivity and costs in connection with the Valens Plan and the Transformation Plan, as well as the safety and general condition of equipment.

2017:

After two years of significant drops, capital expenditures decreased again in 2017, but more moderately, declining 14% compared to 2016, in order to take into account a still volatile and uncertain market environment. Programs initiated in previous years continued to account for 59% of expenditures in 2017.

The main new investments in 2017 were as follows:

- continued implementation in Europe of the new Cleanwell® process for OCTG products;
- completion of the new high-performance piercer for the Düsseldorf-Rath tube manufacturing plant; and
- improved safety of personnel and maintenance of facilities.

2018:

Investment expenditures in 2018 will be capped at approximately €200 million. The volume of investments planned for 2018 is considerably higher than preceding years and the main investments planned are as follows:

- strengthening of TOP facilities and continued reinforcement of VSB's facilities for OCTG and Line Pipe products, aimed at assisting the Group in its Transformation Plan;
- projects for the modernization of non-destructive testing facilities aimed at improving quality, cost, time frames and capacities;

- numerous maintenance and upgrade projects for facilities; and
- improving safety of personnel and facilities.

Free cash flow

2016-2017 period

In 2017, free cash flow totaled negative €423 million, compared with negative free cash flow of €395 million in 2016. Free cash flow is defined as net cash flow from operating activities minus gross capital expenditures. The following table shows the calculation of free cash flow in 2016 and 2017:

(in € million)	**2016**	**2017**
Cash flow from operating activities	(399)	(332)
Change in operating working capital requirement	179	61
Net cash flow from operating activities	**(220)**	**(271)**
Gross capital expenditures	(175)	(152)
Free cash flow	**(395)**	**(423)**

Liquidity and consolidated indebtedness

As of December 31, 2017, consolidated gross financial debt totaled €2,563 million, including €1,817 million in medium- and long-term financial debt and €746 million in current financial debt. As of the same date, the Group had €1,021 million in cash and cash equivalents. Net financial debt, calculated as gross financial debt minus cash and cash equivalents, and excluding the Shareholder Loan, was €1,542 million as of December 31, 2017.

As of December 31, 2016, consolidated gross financial debt totaled €2,574 million, including €1,121 million in medium- and long-term financial debt and €1,453 million in current financial debt. As of the same date, the Group had €1,287 million in cash and cash equivalents. Net financial debt was €1,287 million as of December 31, 2016.

The Group's net financial debt to equity ratio was 53.4% at the end of 2017 (47% based on the Group's loan covenant definition), compared to a ratio of 34.1% at the end of 2016 (35% based on the Group's loan covenant definition).

Most of the Group's long-term and medium-term bank financing is incurred in Europe at the level of Vallourec S.A., in the United States through Vallourec Star, LP and, to a lesser extent, at the level of its subsidiaries in Brazil. Bonds are issued only by Vallourec. As of December 31, 2017, Vallourec had undrawn available credit lines in the amount of €2,040 million, without any significant maturity dates before August 2019 excluding €396.8 million in outstanding commercial paper and various lines of financing for €68 million within Brazilian, American and Chinese subsidiaries. Including the impact of future maturities, the amount available under these credit lines is anticipated to be €2,040 million at the end of 2018, €2,018 million at the end of 2019 and €1,124 million at the end of 2020.

The following table shows a breakdown of the Group's principal financial indebtedness as of December 31, 2016 and December 31, 2017, respectively:

(in € million)	As of December 31, 2016	As of December 31, 2017
Bond issue maturing in February 2017[(a)]	650	—
Private placement—maturing in August 2019[(a)]	398	399
Private placement—maturing in August 2027[(a)]	54	54
Bond issue maturing in September 2024[(a)]	498	498
Non-convertible bond issue maturing in October 2022[(a)]	—	542
Convertible bond issue (OCEANEs) maturing in October 2022[(a)(b)]	—	222
Commercial paper	307	397
Revolving credit facilities	—	—
VSB BNDES loan	17	35
VSB Finance Lease—Brazil	94	72
Bilateral credit lines—U.S.	76	67
Vallourec Star finance lease	34	23
ACC ACE	276	185
Other[(c)]	170	69
Total gross financial indebtedness[(d)]	**2,574**	**2,563**

(a) Reflects charges for unamortized issuance costs.

(b) The October 2022 Convertible Bonds (OCEANEs) were issued in an aggregate principal amount of €250 million, of which €222 million was recorded in Vallourec's balance sheet as long-term debt and €26 million was recorded as equity. The allocation of the total amount between debt and equity is subject to change depending on subsequent analysis by the Group and its statutory auditors.

(c) Includes accrued interest on the Group's gross financial debt of €19 million and €33 million as of December 31, 2017 and December 31, 2016.

(d) Excludes the Shareholder Loan, which amounted to €72 million and €83 million as of December 31, 2017 and December 31, 2016, respectively.

The Group's principal bank credit agreements (the amended and restated €1.1 billion revolving credit line maturing in February 2020 (the maturities for €1,034 million of which were extended to February 2021), the €450 million credit facility maturing February 2020, the amended and restated €400 million revolving credit line maturing July 2020 and the amended and restated €90 million bilateral credit line maturing February 2021) include covenants that provide that Vallourec must maintain a ratio of consolidated net debt to consolidated equity that is (i) at no more than 75% for each 12-month period ending on December 31 on or prior to December 31, 2017 and (ii) at no more than 100% for each 12-month period ending on December 31 thereafter, in each case, calculated on December 31 of each year. The Group's consolidated net debt to equity ratio was 47% as of December 31, 2017, as calculated under these covenants. As defined in the credit agreements, the "banking covenant ratio" is the ratio of the Group's consolidated net debt to the Group's equity, restated for gains and losses on derivatives and for revaluations (foreign currency gains and losses of consolidated subsidiaries).

A change in control of Vallourec could trigger repayment of all or part of the debt under these credit lines, as decided by each participating bank. These credit agreements also contain cross-default provisions pursuant to which drawn credit lines will become immediately due and payable if the Group defaults on one of its other financial debts, or if a certain significant events occur that would have an impact on the Group's activity or financial condition and its ability to repay its debt.

See "*Description of Certain Indebtedness*" for a more detailed description of the principal terms of each credit instrument referred to above.

The following table shows the repayment schedule for the Group's medium- and long-term debt as of December 31, 2017:

(in € thousand)	> 1 year	> 2 years	> 3 years	> 4 years	5 or more years	Total
As of 12/31/2016	**53,996**	**421,612**	**23,023**	**14,663**	**607,354**	**1,120,648**
Finance leases	9,368	9,211	9,260	9,299	28,735	65,873
Other non-current financial debts	403,675	3,076	4,378	770,705	569,412	1,751,246
As of 12/31/2017	**413,043**	**12,287**	**13,638**	**780,004**	**598,147**	**1,817,119**

Equity

The Group's equity, Group share totaled €2,426 million as of December 31, 2017, a decrease of €858 million compared with €3,284 million as of December 31, 2016. This decrease was mainly the result of the Group's negative net income recorded in 2017 for an amount of €560 million and translation differences.

The Group's equity, Group share, totaled €3,284 million as of December 31, 2016, an increase of 24.1% compared with €2,646 million as of December 31, 2015. This increase was principally due to the capital increase that the Group completed in the second quarter of 2016 as part of the Transformation Plan, partially offset by the net loss incurred in 2016.

Off-balance Sheet Arrangements

In the normal course of business, Vallourec is a party to certain off-balance sheet arrangements, including guarantees, indemnification undertakings and certain financial instruments with off-balance sheet risk. Liabilities related to these arrangements are not reflected in the Group's consolidated balance sheet. For further information the Group's off-balance sheet arrangements, please refer to Note 22 to the Group's consolidated financial statements as of and for the years ended December 31, 2015, 2016 and 2017 included elsewhere in this offering memorandum.

Critical Accounting Policies

Estimates and judgments used in preparation of consolidated financial statements

In connection with the preparation of the consolidated financial statements, management exercises judgments and makes estimations that are based on assumptions. These judgments and estimations may have a significant impact on the Group's results of operations and financial condition. The principal areas requiring judgments and estimations are described below.

Goodwill

The Group measures goodwill as the surplus of:

- the fair value of the consideration transferred;
- the amount of any non-controlling interest in the acquiree (such interests are measured either at fair value—total goodwill—or book value—partial goodwill);
- in the case of a step acquisition, the fair value at the acquisition date of the acquirer's previously held interest in the acquiree; and
- the net fair value at the acquisition date of the identifiable assets acquired and liabilities assumed.

See Note 2.7 to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum.

Financial instruments

Financial instruments include financial assets and liabilities as well as derivatives. The presentation of financial instruments is defined by IFRS 7 and IAS 32. The measurement and recognition of financial instruments are governed by IAS 39 and IFRS 13. See Note 2.16 to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum.

Inventories and work in progress

Inventories are valued at the lesser of cost or net realizable value and provisions for impairment are recognized if necessary. Net realizable value is the estimated selling price in the ordinary course of business less estimated costs of completion and the estimated costs necessary to make the sale. See Note 2.10 to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum.

Provisions

A provision is recognized when, at the reporting date, the Group has a present obligation (legal or constructive) as a result of a past event and it is probable that an outflow of resources embodying future economic benefits will be required to settle the obligation.

Provisions are discounted to present values if the time value of money is material (for example, in the event of provisions for environmental risks or site clean-up costs). The increase in the provisions associated with the passage of time is recognized as a financial expense. See Note 2.12 to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum.

Intangible assets

Research costs are expensed and development costs are capitalized as intangible assets in accordance with IAS 38. See Note 2.8 to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum.

Impairment of property, plant and equipment and intangible assets

Under IAS 36 "Impairment of Assets," the value in use of property, plant and equipment and intangible assets is tested whenever there is an indication of impairment; such indications are reviewed at each reporting date. See Note 2.9 to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum.

Deferred taxes

The main bases used to calculate deferred taxes are:

- recurring: provisions for paid leave and the additional social security levy on businesses;
- non-recurring: cancellation of regulated provisions, employee profit sharing, non-tax deductible provisions and any restatements to ensure the consistency and comparability of the parent company or consolidated financial statements; and
- long-term recurring: non-tax deductible provisions for retirement commitments, non-tax deductible provisions for assets and remeasurements of assets acquired in connection with a business combination.

Deferred taxes are recognized using the liability method. See Note 5 to the Group's consolidated financial statements as of and for the year ended December 31, 2017 included elsewhere in this offering memorandum.

Changes in accounting principles

The IASB published IFRS 16 "Leases," which introduced a new accounting model for leases and will replace IAS 17 and related interpretations. The Group is currently assessing the potential impact of first-time adoption of these texts, which will become mandatory on January 1, 2019, and does not plan to opt for early application. The Group has not opted for early application of any standards or interpretations that will be mandatory for fiscal years beginning on or after January 1, 2018.

Outlook

The targets presented below are based on data, assumptions and estimates considered to be reasonable by the Group as of the date of this offering memorandum. These data, assumptions and estimates may evolve or be modified due to uncertainties relating, in particular, to economic, financial, competitive, tax or regulatory conditions as well as other factors. These forward-looking statements involve assessments about matters that are inherently uncertain and actual results may differ for a variety of reasons including those described in "*Forward-Looking Statements*" and "*Risk Factors*". The occurrence of one or more of the risks described in the "*Risk Factors*" section of this offering memorandum, could have an impact on the Group's activities, financial condition, results of operations or future prospects and threaten the Group's ability to achieve its targets. The Group therefore can give no assurances and can provide no guarantee that the targets presented below will be achieved.

Main assumptions

Based on the Group's 2017 results of operations and the principal market trends, the following assumptions have been used for the Group's outlook for 2018:

- in Europe, moderate inflation, excluding raw materials, which will increase compared to 2017. In Brazil, inflation is assumed to remain strong, but relatively stable compared to late 2017;
- an average annual increase in the price of raw materials and consumables, which is expected to remain volatile;

- for the translation of income and expenses and commercial transactions in currencies not yet hedged, exchange rates of the euro to the U.S. dollar and the euro to the Brazilian real at levels less favorable than 2017;
- an improving European and Brazilian macroeconomic environment in terms of GDP outlook;
- an environment that remains very competitive, including for "premium" products;
- no significant impact linked to the application beginning January 1, 2018 of IFRS 15 "Revenue from contracts with customers" and IFRS 9 replacing IAS 39 on financial instruments;
- benefits from the Group's cost reductions in accordance with the schedule of strategic initiatives; and
- the divestiture of Vallourec Drilling Products as the only significant change in scope of consolidation.

2018 outlook

For 2018, the Group's planning and internal allocation of resources is based on the following anticipated developments in the Group's main markets, which may turn out to be inaccurate.

In the United States, assuming no significant change in WTI price, Vallourec anticipates the average rig count to increase moderately while OCTG consumption per rig should continue to rise. If so, Vallourec should benefit from favorable market conditions in addition to the full year impact of volume and price increases achieved in the second half of 2017.

In Brazil, drilling activity is expected to remain stable, and Vallourec announced on April 5, 2018 that it had signed three-year long term agreements for the supply of products and services to Petrobras. See " – *Recent Developments.*"

In the rest of the world, an increasing tender activity for oil and gas projects is expected to result in higher bookings, with positive impacts on deliveries to materialize mostly as from 2019.

Power generation revenue is expected to be impacted by a diminishing number of conventional power plant projects, particularly in China and Korea.

Improved momentum in the industry markets in Europe and Brazil should be confirmed, although these markets remain very competitive.

Vallourec's business environment is also experiencing unusually high and unfavorable volatility in some consumable prices (e.g. electrodes) and in currencies, which, if maintained at current levels, are likely to have a negative effect on Vallourec's results.

Meanwhile, Vallourec will continue to steadily execute its Transformation Plan, which Vallourec expects to continue to generate significant savings, and to reinforce its competitiveness.

Medium-term outlook

Vallourec has established a target of realizing an EBITDA contribution of approximately €750 million between 2016 and 2020 from the strategic initiatives announced on February 1, 2016. This targeted EBITDA contribution should have three sources:

(1) the rationalization of the existing industrial footprint and the associated cost reductions following:
   - the closure of production lines in Europe and Brazil (the latter facilitated by the merger of Old VSB and VSR); and
   - productivity initiatives and administrative and sales cost reductions resulting from cost savings plans and the additional initiatives from the Transformation Plan;

(2) the full consolidation of VSB following the merger of Old VSB with VBR and the acquisition of TOP; and

(3) the allocation of more volumes to Vallourec's two most competitive production hubs, VSB and TOP.

The primary measures are in place. In 2016 and in 2017, Vallourec:

- optimized its European footprint with the closure of four industrial facilities (a threading line in Mülheim, Germany, the rolling mills in Saint-Saulve and Déville-lès-Rouen in France and a heat treatment line in Bellshill, Scotland) and the divestiture of Vallourec Heat Exchanger Tubes along with the rationalization of steel production;
- created two competitive production hubs in Brazil and China (with the merger of Old VSB and VBR and the acquisition of TOP); and
- generated significant cost savings.

In two years (2016-2017), approximately 50% of the €750 million target has thus been achieved.

Entering 2018, Vallourec expects the positive dynamics of the U.S. OCTG market to be confirmed. However, international oil companies have not yet launched many new projects, which has resulted in a slow recovery of volumes and prices on the international OCTG market. As stated above, Vallourec's performance will be dependent on the recovery in worldwide oil and gas activities, the timing of which remains uncertain in the current market

*The foregoing discussion includes forward-looking statements that are necessarily subject to uncertainty. The Group's ability to realize these targets may be affected by numerous factors, many of which are beyond the Group's control, including the factors described under "*Forward-Looking Statements*" in this offering memorandum. The occurrence or exacerbation of one or more of the risks described under "*Risk Factors*" could have a material impact on the ability of Vallourec to realize the targets described above. Vallourec makes no undertaking to update any of the foregoing targets except as required by applicable laws and regulations.*

BUSINESS

Vallourec is a world leader in premium tubular solutions serving the oil and gas, power generation and industrial markets. Within these markets, the Group specializes in complex solutions that require significant technological and industrial expertise.

For the oil and gas market (representing, together with petrochemicals, 68.5% of Vallourec's consolidated revenues in 2017), the Group offers a comprehensive range of products and services, including seamless tubes and premium connections for exploration and production, transport and processing, designed and developed specifically for operating in extreme conditions (high pressure, high temperature, offshore, etc.).

For the power generation market (representing 10.9% of Vallourec's consolidated revenues in 2017), Vallourec offers a premium range of tubes that are capable of withstanding the most severe operating conditions (high pressure, high temperature) and contribute to power plant designs that are intended to reduce carbon dioxide emissions.

For industrial markets (representing 20.6% of Vallourec's consolidated revenues, together with certain other revenues such as iron ore sales, in 2017), the Group offers a wide range of tubes for mechanical engineering applications (hydraulic cylinders, cranes, agricultural machinery, etc.) automotive industry (tubes and axles for both light- and heavy-weight vehicles), construction (bridges, stadiums, airport terminals, etc.) and various other industrial sectors.

Vallourec offers its products in many sizes and proportions (such as length, diameter and thickness), as well as varied composition grades (*i.e.*, high-grade and low-grade carbon-steel alloys, stainless steel and nickel alloys). Overall, the Group offers the most extensive range of seamless tubes in the world, up to 1,500 mm in external diameter, and a variety of more than 250 steel grades.

Vallourec has a global footprint, with a presence in more than 20 countries and a diversified geographical sales mix. In 2017, 27.6% of Vallourec's consolidated revenues were generated in North America, 15.8% in Europe, 31.3% in Asia and the Middle East, 16.3% in South America (primarily Brazil) and 9.0% in Africa and the rest of the world.

Competitive Strengths

A world leader in premium tubular solutions with focus on bespoke solutions for major clients

Vallourec is a world leader in the market for premium tubular solutions, which are high-performance solutions based on tubular products whose manufacture requires significant technological and industrial expertise, and Vallourec offers its clients a wide range of related services. The global premium tubes market has relatively few participants, and Vallourec's strong competitive advantages have consistently kept it among its leaders. Vallourec believes it is one of the few producers to offer a full range of services, from technical support to supply chain management and field services. As oil and gas exploration and development become more capital intensive and often require drilling deeper, further offshore or in locations more distant to existing infrastructure, Vallourec's customers will seek tubular solutions that are adapted to some of the harshest conditions. In addition, increased environmental regulations and the focus of local communities, the media and oil and gas company shareholders on environmental stewardship have led to an emphasis on higher standards of safety and quality. Vallourec believes customers therefore should be more inclined to choose premium tubular solutions that are tried and tested with a long history of reliability from a handful of suppliers, such as itself, who are able to support their customers around the world.

Vallourec has built a reputation among oil companies as a reliable supplier of tubular solutions for applications in the most demanding conditions. For instance, Vallourec's VAM® connections, which were invented and patented in 1965, provide tubes with connections that are resistant to pressure and compression and ensure a perfect seal. This technology has been recognized by oil companies as a major breakthrough and has contributed since the mid-1960s to Vallourec's reputation as a reference supplier for difficult applications. In order to make the use of this technology widespread, Vallourec decided to license it to Sumitomo Metals in 1976. VAM® connections have become the worldwide reference for secure connections in harsh environments. The continued development of the VAM® connections is today ensured through a joint R&D agreement between Vallourec and NSSMC. This cooperation has helped make the VAM® brand a global standard in the OCTG market that is found throughout the world and is used in the most ambitious and challenging projects. Most recently, Vallourec launched VAM® 21™, its highest performing and most reliable VAM® connection to date. VAM® 21™ is a threaded and coupled premium connection that boasts an innovative, advanced design that is compliant with stringent standards and affords new opportunities to improve well designs.

Vallourec offers customized solutions for specific clients or needs. For example, in 2012, Vallourec and Petrobras together launched a combined project team that succeeded in developing solutions to the specific challenges related to offshore drilling in pre-salt fields, which are extremely difficult environments in ultra-deep (over 2,000 meters) water and involving highly corrosive reservoirs located below a 3,000-meter layer of salt. Today, approximately 80% of the products

that Vallourec sells to Petrobras are bespoke designs resulting from this research that accommodate Petrobras's complex operations.

More generally, the era of easy oil and gas exploration and development has passed in most regions, and most new field developments are made in challenging environments such as deep water, high pressure, high or very cold temperatures, highlighting the necessity to develop and offer reliable and secure solutions while remaining competitive in the current cycle.

A diversified footprint across markets and geographies

Vallourec benefits from a diversified global footprint with exposure to all the key regions for oil and gas production, including Asia and the Middle East (31.3% of revenues in 2017), North America (27.6% of revenues in 2017), South America (16.3% of revenues in 2017), Europe (15.8% of revenues in 2017) and the rest of the world (9.0% of revenues in 2017).

In addition to this geographical diversification, Vallourec's products and services are used in an array of industries, including oil and gas (61.3% of revenues in 2017), petrochemicals (7.2% of revenues in 2017), power generation (10.9% of revenues in 2017) and mechanicals, automotive, construction and other industries (20.6% of revenues in 2017).

Vallourec also benefits from a diversified client base, with large global clients such as Total, Chevron, ExxonMobil, Shell, Aramco, Petrobras, Sonatrach, B&L Pipeco, Premier Pipe, Champions, Pyramid, TechnipFMC, Mercedes Benz, Dong Fang and Doosan, but no customer that accounts for more than 10% of the Group's consolidated revenue in 2017.

Finally, thanks to its optimized industrial footprint, Vallourec now has rolling mills in the key regions of North America, Brazil, Germany and China, along with local finishing units worldwide that are located close to its customers.

State-of-the-art integrated, fully invested and optimized industrial set-up

Vallourec has invested significantly in its production facilities in recent years in order to reinforce its premium position, improve flexibility and productivity and reduce production costs. Even in difficult market cycles, Vallourec has maintained the quality of its industrial facilities and global presence while lowering production costs. Following the completion of its industrial reorganization, Vallourec has optimized its operations in Brazil and China, with a focus on state-of-the-art, low-cost facilities to serve international oil and gas markets, and has streamlined its European operations, which include facilities in Germany and France that satisfy the strictest industry quality standards. Vallourec is also very well positioned in the U.S. oil and gas market, where it has two rolling mills equipped with the latest technology and heat treatment and threading units. Vallourec is thus able to provide premium solutions to customers in all major geographical markets, while benefitting from cost-effective production facilities adapted to each market.

As part of the Transformation Plan, Vallourec merged one of its Brazilian entities, Vallourec Tubos do Brasil ("VBR"), with Vallourec & Sumitomo Tubos do Brasil ("Old VSB"), a subsidiary of NSSMC, to form Vallourec Soluções Tubulares do Brasil ("VSB"). The merger has fostered industrial synergies by concentrating steel production at Vallourec's highly efficient Jeceaba premium mill while closing older blast furnaces. Moreover, the mill in Jeceaba is strategically located next to two of Vallourec's subsidiaries, which supply the mill with raw materials. Additionally, its location in the state of Minas Gerais allows Vallourec to transport its tubes via roads and rail networks to the major port cities of Rio de Janeiro, Santos and Vitoria. In China, Vallourec's acquisition of Tianda Oil Pipe ("TOP") in 2016 (a company in which it previously held a 19.7% interest) has given the Group full access to a highly efficient, state-of-the-art mill with finishing capabilities. For additional information on steps taken to optimize Vallourec's industrial footprint, see "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Transformation Plan*".

Vallourec believes that its industrial reorganization should contribute significantly to EBITDA going forward, even before taking into account the impact of any market recovery. Vallourec will also have the capacity to serve growing customer demand as the market recovers, without the need for major capital expenditure investments, providing the Group with the potential for significant operational leverage to generate additional EBITDA.

Extensive technological expertise and brand trust-recognition with major clients providing a competitive advantage

Innovation has always been at the heart of Vallourec's strategy and has contributed significantly to its leading market position. In order to maintain its premium standing, Vallourec has to respond to the radical and rapid evolution of its clients' needs by offering them tailored solutions that are simultaneously safe, reliable and environmentally friendly, while creating value.

The Group operates six dedicated research centers in France, Germany, the United States and Brazil that specialize in specific products, processes and technologies. Vallourec's R&D division employs over 500 researchers and technicians, and the Group has a dedicated Development & Innovation (D&I) department that was created in connection with the roll-out of its new organizational structure to boost its R&D efforts.

In addition to R&D, Vallourec seeks to continuously strengthen its industrial property portfolio with sustained patent filings. In 2017, Vallourec filed 28 new basic patents and pursued approximately 470 geographical extensions of existing patents. Vallourec will continue to protect its industrial and intellectual property through filings and registrations as well as litigation if necessary.

Vallourec also maintains close collaboration with key customers to answer their particular needs, including through various framework agreements with key oil companies, such as Total and Petrobras. To strengthen its proximity to its customers, Vallourec has developed a commercial excellence program that focuses on, among other things, the management of a network of key account managers who allow Vallourec to gain a detailed understanding of each customer's needs.

Proven ability to reduce costs and increase operating leverage

Vallourec has demonstrated its ability to adapt to challenging economic conditions through cost reduction, while strengthening its business by implementing plans that will ideally position the Group for the potential market recovery and allow it to continue to grow and expand its business.

Vallourec has a consistent history of reducing costs to adapt to changing market situations. Since the significant decline in international oil and gas prices in late 2014, Vallourec adopted two plans as part of its cost reduction efforts: the Valens Plan in February 2015 and the Transformation Plan in February 2016. As a result of these initiatives, Vallourec has achieved significant cost reductions and improved the management of its capital expenditures and working capital. In particular, it has generated €315 million of gross savings in two years (2016 and 2017), compared to its target to achieve €400 million of gross savings over five years (2016-2020). Its SG&A costs were reduced from €513 million in 2015 to €440 million in 2017. These cost reductions and reorganized operations have permitted the Group to improve its financial performance significantly, achieving, in two years, approximately half of the additional contribution to EBITDA targeted by the Group for 2020. Vallourec believes it is well-positioned to benefit from continued efficiencies and a recovering market to achieve the remainder of its objectives. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Outlook*".

Further, Vallourec has taken steps to adapt its working capital requirements and capital expenditures to its reduced activity levels. The Group's working capital requirements decreased by €61 million in 2017, while industrial capital expenditures declined to €152 million (compared to €268 million in 2015 and €175 million in 2016).

A solid liquidity position

Vallourec's financial flexibility is underpinned by its ability to adapt spending and working capital requirements, as well as a significant liquidity buffer. In particular:

- Vallourec has adapted its capital expenditures and working capital requirements to the market environment of recent years. The Group's capital expenditures declined from €268 million in 2015 to €152 million in 2017. Its working capital requirements in 2017 declined by €61 million despite a 26.5% increase in revenues, reflecting in part significant efficiencies in operating working capital management.
- The Group has a significant liquidity position, with €1,021 million in cash and cash equivalents and €2,040 million of committed and undrawn credit facilities as of December 31, 2017. Vallourec has significant headroom under its gearing ratio covenant, with a ratio of 47% as of December 31, 2017 compared to a maximum of 75% as of December 31, 2017 and a maximum of 100% as of December 31, 2018, December 31, 2019 and December 31, 2020.
- Vallourec successfully issued €550 million in October 2022 Bonds and €250 million in October 2022 Convertible Bonds in October 2017 to enhance its liquidity and extend its maturity profile. After the refinancing of the August 2019 Bonds with the proceeds of the offering of the Notes, the Group will have no bond maturities before 2022.

Vallourec believes this liquidity position provides the Group with significant flexibility to continue implementing its strategy to take advantage of a potential market recovery while covering all of its debt maturities.

Committed anchor investors supporting Vallourec's strategy

As part of the Group's capital increase in May 2016, NSSMC and Bpifrance (the French public investment bank) increased their stakes in Vallourec to 15% each. The increase in NSSMC's stake was part of an overall strengthening of its industrial partnership with the Group, including the reinforcement of a key R&D agreement that has made VAM® a market leader. This move cemented an industrial partnership that has lasted for more than 40 years. The investment of Bpifrance also illustrated the strategic importance of Vallourec to the economic landscape in France.

Strong and experienced management team

Vallourec's management team and Supervisory board members have significant experience in the industry. For example, the Chairman of Vallourec's Management Board, Philippe Crouzet, has over 30 years of experience in the manufacturing industry, having held various leadership positions in management, strategy and finance in the industry before being appointed to his current position in 2009. Olivier Mallet, Vallourec's Chief Financial Officer and member of the Management Board, has 23 years of experience as Director or Chief Financial Officer in various industries, including 15 years in heavy manufacturing and energy. Vallourec believes its highly experienced senior management team has the expertise to lead Vallourec through changing market cycles and continue the successful implementation of its Transformation Plan.

Vallourec's supervisory board is comprised of 13 members and includes current and former executives of Thalès, Pernod Ricard, Airbus, Bolloré, BP and Alstom, among others.

Strategy

Vallourec has been successful in its implementation of the Transformation Plan since it was announced in February 2016, strengthening the Group and enabling it to weather adverse market conditions through a focus on three key pillars: premium positioning, proximity to its customer base and reinforced competitiveness. Vallourec remains focused on these three pillars as it positions itself for long-term future profitability.

Focus on premium products and solutions

The Group intends to continue concentrating its activities on premium products and solutions that take full advantage of Vallourec's capacity for innovation and technological excellence, including the quality and reputation of Vallourec's VAM® line of connections. Vallourec focuses on providing solutions that allow its oil and gas customers to access increasingly complex deposits, such as in deep wells, corrosive environments, deviated and horizontal wells, high pressure / high temperature conditions and offshore drilling. Vallourec offers products adapted to uses such as shale gas drilling, arctic environment wells, deep water projects, extended reach applications and salt dome projects. Vallourec also believes it is one of the few producers to offer a full range of services, from technical support to supply chain management and field services. Vallourec has invested significantly in its production facilities in recent years to reinforce and maintain its premium position among its competitors, rendering further major capital expenditures unnecessary in the immediate future. The Group's OCTG products meet the high technical standards required to satisfy its customers' complex needs and are the basis for its established reputation as a quality supplier for its global customer base. In the power generation market, Vallourec's premium products contribute to the efficiency of power plants and the extension of their lifecycles. In the industrial sectors, Vallourec concentrates on reducing the weight of mechanical components, designing lighter structures and contributing to its customers' efficiency and cost effectiveness goals.

Vallourec believes its strategy of concentrating on premium products and solutions allows it to differentiate its offerings from more commoditized producers, providing the potential for larger order volumes and better margins. In addition, the development of premium OCTG products and solutions requires close collaboration with Vallourec's main customers, solidifying these relationships and providing the Group with valuable information that improves its ability to analyze and service their needs as they evolve.

Global coverage with local presence

Vallourec seeks to position itself as close as possible to its key customers in order to reduce its operating costs and effectively market its services. Vallourec evaluates its holdings in order to determine where its assets will be best placed to ensure its future success, and it seeks to operate a small number of efficient steel and rolling mills close to its largest markets while retaining local premium finishing capabilities throughout the world.

To complement its manufacturing facilities in Europe, the United States, Brazil and more recently China, Vallourec has developed local finishing lines (such as heat treatment and threading) as close as possible to its customers, in order to reduce lead time, integrate local content, establish customer proximity and leverage local leadership. For example, threading lines have been implemented in Nigeria and China (Changzhou) in order to meet the requirements of

the local market and to thread locally manufactured premium tubes. Heat treatment and threading lines have also been developed in Indonesia and Saudi Arabia.

Vallourec's Brazilian operations have been streamlined, including through the formation of VSB by merging Old VSB with VBR, which was completed on October 1, 2016. This optimization has allowed Vallourec to create a single production center in Brazil, simplifying its operations and generating significant industrial and cost synergies. Further, Vallourec's January 2017 sale to Asco Industries of a 60% majority stake in the Saint-Saulve steel mill and the closure of two rolling mills in France allowed the Group to continue rationalizing its manufacturing activities and adjusting its production capacity to a level appropriate for current market demand.

In China, Vallourec's December 2016 acquisition of full control of TOP positions Vallourec to export from a highly competitive hub to other regions, including the Middle East, other regions in Asia or Africa.

Bolster Vallourec's competitiveness through increased operational efficiency

Vallourec intends to maintain its cost flexibility and optimize the efficiency of its worldwide operations in order to remain as competitive as possible with other market participants. Vallourec believes that, following the implementation of the Transformation Plan and its strategic initiatives, it has an advantage over its competitors, resulting from having made the necessary adjustments during the market downturn to profit sustainably as the markets recover. By pursuing cost reductions to improve the value chain for its oil and gas customers, Vallourec believes it will position itself as a preferred industry partner for these companies.

History and Development of the Group

The Vallourec Group is over 100 years old, with some Group companies having been established in the last decade of the 19th century. Vallourec originated in two regions of France, both with long manufacturing traditions, where the Group still has a significant presence: the Nord region, around Valenciennes and Maubeuge, and the Burgundy region, around Montbard, on the Côte d'Or. Since the end of the 1990s and the creation of the joint venture between Vallourec and Mannesmannröhren-Werke AG ("Mannesmann"), the Group has also been widely established in the Düsseldorf region in North Rhine-Westphalia in Germany and in the region of Belo Horizonte in the state of Minas Gerais in Brazil. In the first decade of the new millennium Vallourec developed a robust position in North America and entered into the Asian markets. By further establishing a presence in Africa and the Middle East, Vallourec has become a truly international group, operating close to its customers worldwide.

- ***1886-1930: Invention of the Seamless Steel Tube Rolling Process.*** In 1886, the Mannesmann brothers, located in Germany, filed a patent on an invention that revolutionized the tube industry: a rolling mill with an oblique cylinder piercer that enabled them to produce seamless steel tubes.

  In the late 19th century, in France, tube manufacturers began to adopt the seamless tube manufacturing process that had been perfected by the Mannesmann brothers in Germany. Société Métallurgique de Montbard was created in 1899 to take over Société Française de Fabrication des Corps Creux, which had operated a plant in Montbard since 1895. Listed on the Paris Stock Exchange since its founding in 1899, it was renamed Société Métallurgique de Montbard-Aulnoye in 1907. It was renamed again, to Louvroil-Montbard-Aulnoye, in 1937 after the takeover of Louvroil et Recquignies, a company resulting from a merger between Société Française pour la Fabrication des Tubes de Louvroil, founded in 1890, and Société des Forges de Recquignies, established in 1907.

- ***1930: Birth of Vallourec.*** An economic crisis prompted French tube manufacturers to join forces, and the Vallourec name was born, given to the management company for tube plants in Valenciennes, Denain, Louvroil and Recquignies.

- ***1957: Listing of Vallourec on the Paris Stock Exchange.*** Société des Tubes de Valenciennes and Société Louvroil-Montbard-Aulnoye merged, resulting in a group that became the second-biggest manufacturer of steel tubes in France and was listed on the Paris Stock Exchange under the name Vallourec.

- ***1965: Launch of the VAM® Connection.*** Vallourec created the VAM® connection (named for Vallourec and Alexandre Madrelle, the engineer who developed it), a major innovation that revolutionized the oil and gas industry. As a result of its unique mechanical features, the connection ensures complete sealing of strings inside an oil and gas well.

- ***1976: Industrial Partnership with Sumitomo.*** Growth in the oil markets prompted Vallourec to build industrial partnerships in order to meet customer demand worldwide. In 1976, Vallourec signed a licensing agreement with the Japanese group Sumitomo (the third largest producer of steel tubes worldwide) and created a joint venture with Sumitomo in 1984 to produce and market VAM® connections on the other side of the Atlantic. These agreements were the beginning of an ongoing collaboration.

- ***1997: Creation of the Joint Venture Vallourec & Mannesman Tubes.*** Created in 1890, shortly after the Mannesmann brothers' revolutionary discovery of the seamless steel tube rolling process, Mannesman quickly became a world benchmark for steel tube production. The formation of Vallourec & Mannesmann Tubes, a joint subsidiary of Vallourec (55%) and Mannesman (45%), allowed the two companies to offer their customers the widest range of tube sizes in the world.

- ***2000: Development in Brazil.*** Vallourec & Mannesmann Tubes acquired the Brazilian subsidiary Mannesmannröhren-Werke, now known as Vallourec Soluções Tubulares Brasil (VSB).

- ***2002: Strengthening the Group's Presence in the United States.*** Having originally established itself in the United States (the reference market for tubes for OCTG equipment) in 1984, Vallourec significantly strengthened its presence in the United States through the acquisition of the seamless steel tube operations of North Star Steel Company, which includes an electric steel mill and a tube mill in Youngstown, Ohio, along with a heat treatment and threading unit in Houston, Texas. Now called Vallourec Star, LP, this limited partnership is 80.5% controlled by Vallourec Tubes and 19.5% controlled by Sumitomo Corporation.

- ***2005: Acquisition by Vallourec of Complete Control of Vallourec & Mannesman Tubes.*** Vallourec gained complete ownership of Vallourec & Mannesmann Tubes through the acquisition of the 45% stake held by Mannesman for €545 million. This transaction gave Vallourec full control over implementing the strategy of the joint venture.

- ***2005-2006: Strengthening the Drilling Tube Business.*** Vallourec acquired the assets of the Omsco Division of ShawCor in the United States in Houston, Texas. This acquisition enabled Vallourec to become the second-largest drilling tube manufacturer for the oil and gas market in the world. Vallourec strengthened this position in 2006 with the acquisition of Société de Matériel de Forage International in France. These operations were combined under the name Vallourec Drilling Products.

- ***2006-2011: Expansion in China.*** In 2006, as part of an effort to generate growth in its tube production for the power generation market, Vallourec established a subsidiary, Vallourec Changzhou Co., Ltd, in Changzhou, China, specializing in the cold-finishing of large-diameter seamless alloy steel tubes produced in Germany for power plants.

  In the same year, Vallourec created VAM Changzhou Oil & Gas Premium Equipments to operate a mill in Changzhou for threading tubing to equip oil and gas wells, with production beginning in mid-2007.

  In an effort to further strengthen its presence in the Chinese market, in 2011 the Group acquired 19.45% of TOP. Under the terms of a cooperation agreement with TOP, VAM Changzhou Oil & Gas Premium Equipments threads premium tubes manufactured locally by TOP for the Chinese premium OCTG market.

- ***2008: Acquisitions in the United States.*** To strengthen its position in the market for products with high added value, Vallourec acquired Atlas Bradford® Premium Threading & Services, TCA® and Tube-Alloy™ from Grant Prideco. These entities are specialized, respectively, in the production of premium connections, the heat treatment of high-grade alloy steel tubular products and the production and repair of accessories used inside oil and gas wells, as well as complex threading operations. In 2009, Atlas Bradford® Premium Threading & Services and TCA® merged with VAM USA LLC and Vallourec Star, LP, respectively.

- ***2009-2010: New Tube Production Capacities for Nuclear Power Plants.*** Valinox Nucléaire, a Vallourec subsidiary specialized in the manufacture of steam generator tubes, invested in new production capacities in Montbard (Côte d'Or, France) to meet the growing needs of the nuclear energy market. Valinox Nucléaire also invested in a new production unit in Guangzhou, in southeast China, to increase production capacity to meet the needs of the growing Chinese nuclear power market.

- ***2009-2010: Development in the Middle East.*** In 2009, Vallourec acquired DPAL FZCO, a drill pipe supplier established in Dubai. This acquisition allowed Vallourec Drilling Products to increase its presence in the Middle East and to supply products and services to the Group's local and international customers. In 2010, the Group acquired the Abu Dhabi-based Protocols, the biggest drill pipe accessories producer in the Middle East, enabling it to offer comprehensive solutions for the whole drill string in the Middle East.

- ***2010: Consolidation of the Premium Solutions Offer.*** Vallourec acquired Serimax, the world leader in welding solutions for offshore line pipes. This acquisition supplemented Vallourec's business in the area of offshore line pipes and enabled the Group to offer its customers a new set of integrated solutions.

- ***2011: Strengthening of the Group's Industrial Presence in Brazil and the Middle East.*** In 2011, the new integrated joint industrial site for Old VSB was commissioned at Jeceaba, in the state of Minas Gerais in Brazil. This premium industrial site includes a steel mill, a tube mill, and a group of heat treatment, threading and finishing lines.

  In the same year, Vallourec acquired Saudi Seamless Pipes Factory Company Ltd, the leading processing and finishing company for seamless OCTG tubes in Saudi Arabia. Through the acquisition, Vallourec became the leading player in the OCTG market as a result of its local access to integrated heat treatment and threading facilities, which it supplemented with a new threading line of VAM® connections.

- ***2012: Participating in the Development of Unconventional Hydrocarbons in the United States.*** Vallourec began operating a new premium small-diameter tube mill in Youngstown, Ohio that enabled it to produce a full range of products and services necessary for the production of all hydrocarbons, in particular shale oil and gas.

- ***2013: Vallourec, the Single Brand for All Group Companies.*** Since the formation of the joint venture Vallourec & Mannesmann Tubes, numerous Group entities operated under the V&M brand. In 2013, in an effort to strengthen its market leadership and support its growth strategy, Vallourec combined all of its entities under the same name, Vallourec, attesting to the successful consolidation of the numerous companies acquired by the Group worldwide.

- ***2014: Vallourec Signs Several Major Contracts in Africa.*** Having established a presence in Angola since 2007 through one of its service centers, Vallourec opened a sales office and, in 2009, a premium tube threading plant in Nigeria. This presence led Vallourec to sign three major contracts in Africa in 2014 for the supply of subsea line pipes and premium tubular solutions for use in highly complex deepwater offshore projects in Ghana, Nigeria and Angola.

- ***2015: Vallourec Deploys Valens, its Two-year Competitiveness Plan.*** At the beginning of 2015, Vallourec launched the Valens Plan, a two-year competitiveness plan aimed at cost reduction and cash flow optimization. In parallel, Vallourec launched a rationalization process for its European steel tube production units.

- ***2016: Vallourec Accelerates its Transformation and Announces Major Strategic Initiatives.*** On February 1, 2016, the Group announced major strategic initiatives as part of its Transformation Plan, aiming at transforming its operational set-up, improving its competitiveness in the short and longer term and reinforcing its financial structure to secure long-term profitable growth and create value for its shareholders. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Transformation Plan*". As part of the Transformation Plan, Vallourec is continuously streamlining its industrial footprint in Europe and Brazil. Further, on May 3, 2016, Vallourec completed a rights offering for net proceeds of €960 million in order to strengthen its balance sheet and to finance its transformation to ensure its growth in the long term. In addition, in November and December 2016, Vallourec completed the acquisition of virtually all of the remaining shares of TOP that it did not already own for €158 million, in line with the Transformation Plan. The acquisition has enabled Vallourec to develop an expanded offering of highly competitive solutions combining VAM® connections with TOP's highly competitive tubes, to maintain market share for the VAM® connection.

- ***2016: Vallourec Opens New Plant in Singapore.*** On May 27, 2016, Vallourec Tube-Alloy, a wholly-owned Vallourec subsidiary specialized in the production and repair of accessories for oil and gas wells, announced the opening of its new plant in Singapore, to be known as Vallourec Tube-Alloy Asia-Pacific. This new site will support the Group's OCTG activities by expanding the geographic

footprint of Vallourec Tube-Alloy, which previously was mainly centered on four production facilities in the United States.

In 2017, the Group continued to take proactive measures to improve its business and to increase its competitiveness. Highlights of the Group's activities in 2017 include the following:

- On January 18, 2017, Vallourec announced a new planned organizational structure of the Group, which is designed to allow it to take full advantage of the Transformation Plan. The objective of the new organizational structure is to strengthen the Group's local presence and its proximity to customers, optimize the overall use of its resources and boost its development. This new structure, which took effect on April 3, 2017, is organized around four Regions, North America, South America, Europe/Africa ("EA") and Middle East/Asia ("MEA"), and two Central Departments, the Development and Innovation Department (D&I) and the Technology and Industry Department (T&I).

- On January 26, 2017, Vallourec and Asco Industries announced the purchase by Asco Industries of a 60% majority stake in the Saint-Saulve steel mill, with Vallourec retaining a 40% share. The two shareholders in Ascoval, a new entity created to hold the steel mill assets, will be supplied by the Saint-Saulve steel mill in the amount of 275,000 metric tons, beginning at the end of 2017. This volume ensures that the steel mill can function sustainably and be competitive.

- On September 21, 2017, Vallourec announced that it had signed a contract with Badr El Din Petroleum Company ("BAPETCO"), a joint venture between Shell and the Egyptian General Petroleum Corporation for the supply of OCTG tubular solutions for 60 to 70 gas wells that are part of an onshore project in the western desert of Egypt. Vallourec will use one of its new production routes established under its Transformation Plan to supply the joint venture with its premium solutions. The new contract highlights Vallourec's ability to offer its customers competitive solutions across the range of OCTG products.

- On September 27, 2017, Vallourec successfully placed €250 million aggregate principal amount of its October 2022 Convertible Bonds (OCEANEs) and on October 18, 2017 and October 26, 2018, it successfully issued an aggregate of €550 million principal amount of October 2022 Bonds. The proceeds from the issuance of the October 2022 Convertible Bonds and the October 2022 Bonds were used to repay certain short-term indebtedness and amounts drawn under Vallourec's revolving credit facilities. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Liquidity and consolidated indebtedness*".

- On December 11, 2017, Vallourec announced that following exclusive negotiations with American oil services group NOV, it had received a binding offer for the purchase of the "Drilling Products" business for a total cash amount of U.S.$63 million. The offer covers all of Vallourec's industrial activities related to Vallourec Drilling Products in North America, the Middle East, the Netherlands and France. French Drilling Product sites in Cosne sur Loire and Tarbes will undergo a separate divestment process simultaneously. The sale is expected to be completed in the first half of 2018, subject to regulatory consultation processes and approval of governance structures. See "*Business—Markets and Customers—Products for the oil and gas market—Drilling*" for a description of the Drilling Products business.

Description of the Group's Activities

The Group is a world leader in premium tubular solutions—high-performance solutions based on tubular products whose manufacture requires significant technological and industrial expertise—in addition to related specialized services that provide customers with a complete range of innovative solutions to meet their most demanding requirements. The Group has a large portfolio of tubular products that is diversified, unique and has high added value, including:

- the most extensive range of seamless tubes in the world, up to 1,500 mm in external diameter, with a variety of more than 250 steel grades;

- specialty tubes; and

- connections and accessories.

Markets and Customers

The Group offers products in many sizes and proportions (*i.e.*, length, diameter and thickness), as well as various composition grades (*i.e.*, high-grade and low-grade carbon-steel alloys, stainless steel and nickel alloys), providing its customers with a wide range of tubular products.

The table below shows the breakdown of the Group's revenue by market in 2015, 2016 and 2017:

(in € million except percentages)	2015	% of revenue	2016	% of revenue	2017	% of revenue
Oil and gas	2,361	62.1%	1,791	60.4%	2,299	61.3%
Petrochemicals	205	5.4%	129	4.4%	268	7.2%
Oil and gas, petrochemicals	**2,566**	**67.5%**	**1,920**	**64.8%**	**2,567**	**68.5%**
Power generation	**559**	**14.7%**	**486**	**16.4%**	**408**	**10.9%**
Mechanicals	363	9.6%	279	9.4%	368	9.8%
Automotive	114	3.0%	101	3.4%	144	3.8%
Construction and other[1]	201	5.3%	179	6.0%	263	7.0%
Industry and other	**678**	**17.8%**	**559**	**18.8%**	**775**	**20.6%**
Total	**3,803**	**100.0%**	**2,965**	**100.0%**	**3,750**	**100%**

(1) Including sales of iron ore.

For an analysis of changes in the Group's revenues by market, see "*Management's Discussion and Analysis of Financial Condition and Results of Operations*".

Products for the oil and gas market

Vallourec offers a line of premium tubular solutions to the oil and gas industry that are adapted to the most extreme and complex environments, such as:

- deep wells;
- corrosive environments;
- deviated and horizontal wells;
- high pressure / high temperature (HP/HT); and
- offshore drilling.

In addition, the Group's products and services cover the entire production chain, from exploration, development and production to transport and processing:

- *OCTG:* Vallourec OCTG products (casing and tubing) are seamless threaded tubes that can be found in many oil and gas wells throughout the world. The tubes are generally connected using premium threaded VAM® connections, which are trademarked by Vallourec.
- *Drilling:* Vallourec offers all types of drilling equipment, including drill pipes, downhole tools and accessories. On December 11, 2017, Vallourec announced that it had received a binding offer from NOV for the purchase of its "Drilling Products" business. The sale is expected to be completed in the first half of 2018. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Year ended December 31, 2017 compared with year ended December 31, 2016—Key events of 2017*".
- *Transport and Processing:* Gas and oil are transported from wells to the processing sites, whether offshore or onshore, using Vallourec tubes and accessories. The Group's stainless steel, super duplex welded tubes for umbilical applications connect seabed equipment to the control station at the surface.

Oil Country Tubular Goods ("OCTG")

For the production phases of the oil and gas supply chain, the Group offers OCTG products, which are threaded tubes designed for oil and gas well equipment. The OCTG products produced by the Group include casing, which consists of tubes that are assembled using sealed connections to form a column supporting the walls of an oil or gas well. The Group

also offers tubing, consisting of steel tubes, smaller in diameter, assembled using leak-tight connections to form a production column used to lift the fluids produced at the bottom of the well up to the surface.

OCTG premium tubes are connected to one another using sealed connections based on VAM® technology, described in more detail below, which have technical characteristics that enable them to withstand the forces that OCTG products are subjected to under extreme conditions.

OCTG activities are being developed in the EAMEA region, as well as in North America and South America. The activities in each region include steel production, tube rolling, and heat treatment and threading facilities.

Drilling

The Group offers a complete range of tubular drilling products and related services to support all types of activities for the oil and gas drilling market. This range includes an exclusive modular set of drill pipes and drill pipes corresponding to the norms of API, heavyweight drill pipes, drill collars, non-magnetic drill collars, and drilling accessories, including safety valves and other drilling accessories. The Group also provides after-sale products and customer services for the maintenance and repair of drilling equipment at certain of its locations worldwide.

On December 11, 2017, Vallourec announced that it had received a binding offer from NOV for the purchase of its "Drilling Products" business. The sale is expected to be completed in the first half of 2018. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Year ended December 31, 2017 compared with year ended December 31, 2016—Key events of 2017*".

VAM® connections

VAM® connections, used for oil and gas activities, are premium threaded connections invented and patented by Vallourec. They provide tubes with connections that are resistant to pressure and compression and ensure a perfect seal.

Vallourec develops VAM® connections jointly with NSSMC. This cooperation has helped make the VAM® brand a global standard in the OCTG market. The launch of the VAM® 21™, a premium threaded connection which meets the most stringent industry specifications (International Standardization Organization ("ISO") CAL IV) and a new Cleanwell Dry® dropfree dry lubrication solution reflect the benefits of this dynamic partnership. The cooperation between Vallourec and NSSMC has been reinforced as part of the Transformation Plan's strategic initiatives, announced on February 1, 2016. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Transformation Plan*" and "*Agreements Relating to Strategic Initiatives*".

Vallourec filed the first VAM® patent in 1965. Since then, the Group has developed more than thirty VAM® product lines, covering all applications and enabling the Group to adapt to highly diverse environments, including:

- VAM® 21™: available in diameters of 5 to 14 inches (approximately 10 to 30 centimeters), this innovative connection, which is as resistant to challenging conditions as the tube itself, was the first to offer performance meeting the CAL-IV standard, defined in the most recent changes to ISO standard 13679 and API RP 5C5, which are two technical specifications required by oil and gas customers for their harshest-condition applications. New versions are constantly being added to respond to specific needs, such as versions with high torque capacity or versions with thick tubes. This connection has been used successfully on the most demanding offshore projects from the Gulf of Mexico to the coast of West Africa, in a large range of sizes (for tubing and casing applications) and grades of steel.

- VAM® HTTC: designed for strongly deviated wells with long horizontal sections, the VAM® HTTC (High Torque Threaded and Coupled) connection for casing and tubing resists extreme torques and compressions when the column is installed and maintains a perfect seal during production phases. Available in various dimensions, the VAM® HTTC connection is a high value-added product that makes the most complex horizontal drilling both possible and secure.

- VAM® SG and VAM® EDGE SF: the Group is very involved with non-conventional oil and gas deposits in the United States and has developed connections to address these highly specific needs. VAM® SG is a premium connection for wells with average length horizontal sections (2,000 to 5,000 feet). The VAM® EDGE SF connection, qualified in 2013, is a high-end connection suited for longer horizontal sections (up to 10,000 feet). Its technical characteristics are perfectly tailored to this type of drilling, in particular boasting better resistance to tension and to high torque, as well as gas tightness in compliance with the highest ISO standards.

- VAM® BOLT is a premium integral connection for large-diameter casing. Its mechanical integrity and seal make it especially well-suited to high-pressure, high-temperature deepwater wells, which are common in the Gulf of Mexico, off the Brazilian coast and in the Gulf of Guinea, as well as in North Africa and the Asia Pacific region.

- In addition, Vallourec has grown its high-performance integral connection offerings. With an expanded performance range and validated under the toughest standards, the VAM® SLIJ-II and VAM® HTF-NR can be found in many of the most difficult wells.

- In 2017, the Group pursued an ambitious research program on Cleanwell®, a dry coating applied to VAM® connections, which provides grease-free lubrication and protects the threading from corrosion during transport and storage. The second generation of Cleanwell® technology, first introduced to the market in 2016, was successfully deployed in 2017 as part of an offshore project in the North Sea.

To make the VAM® range the leader in premium joints, Vallourec consolidated coordination of the R&D departments involved with this product line under Vallourec Oil & Gas France, and set up a worldwide network of licensees. To further this ambitious research program on OCTG connections, in 2016 the Group completed a major project to increase testing capacity in France, the United States and Brazil.

The Group also continued to develop its site services network, which provides worldwide coverage from service centers based in Scotland, the United States, Mexico, Singapore, China, Angola, Nigeria and the Middle East. Since 2008, Vallourec has also produced petroleum accessories related to the VAM® joint through its subsidiary Vallourec Tube-Alloy, LLC (USA). This expertise is deployed in Mexico, Brazil, France, Singapore and Indonesia to provide, as a complement to its network of licensed partners, global coverage for accessory requirements to meet customer needs for the VAM® joint.

Development of high-performance steels for OCTGs

To combat corrosion in oil and gas wells, the Group has undertaken major research programs to create high-tensile carbon steels resistant to hydrogen sulfide corrosion. A program is also underway to develop corrosion-resistant alloys and chrome alloys for the most challenging corrosive conditions. These developments require significant testing resources, which the Group has doubled over the last three years.

Tubes and accessories for transport of oil and gas

The Group's product line for transport includes the following:

- rigid subsea line pipes including production and injection lines, flowlines (which are pipes that rest on the seabed for the transport of production or injection fluids) and risers (which bring fluids up from the wellhead to the surface and then connect them to processing units);

- onshore rigid line pipes;

- specialized tubes for umbilicals, which are structures comprising tubes, cables and/or optical fibers that are used to connect seabed equipment to a control station at the surface for applications in the offshore oil industry, through its subsidiary Vallourec Umbilicals (France), which manufactures and sells super duplex welded steel tubes for umbilicals; and

- process tubes.

Tubes for the processing of industrial fluids and hydrocarbons

The Group offers a wide range of carbon steel and steal alloy tubes, as well as hollow bars (semi-finished tubes for later processing into a product that meets the needs of a specific market) and connections adapted to the needs of each project.

In particular, for petrochemicals, the Group is a supplier of seamless tubes for refineries, petrochemical facilities, floating liquefied natural gas ("LNG") plants, and floating production, storage and offloading units.

Services for the oil and gas market

To respond to the needs of its customers, including operators, engineering firms and distributors, in terms of efficiency, cost and integrity, Vallourec has expanded its offering of services to include innovative solutions tailored to specific project needs, such as on-site offshore and onshore welding, coating, bending, and complex project management. As a result, Vallourec offers a number of services to its customers through Vallourec Global Solutions, which assists customers and provides them with the benefit of Vallourec's know-how throughout the lifetime of the facility. These services include:

- the Field Service offering, which includes more than 160 technicians and engineers in 17 locations throughout the world, available 24 hours per day at the well site to assist customers in lowering tubes, inspecting connections and supervising assembly. In connection with this offering, the Group has entered into partnerships with more than 200 licensees to repair Vallourec products and thread tubes with VAM® connections for all oil accessories;

- inventory management, in which Vallourec's logistics engineers can manage, at the customer's request, tubular product inventory and coordinate the preparation of tubes to be sent to the platform;

- advisory services in which Vallourec provides guidance including with respect to well design. Vallourec experts recommend the best tailored tubing and casing (in terms of sizing and steel grade) to customers and the connections that best respond to well requirements; and

- training sessions in which "Tubular Essentials" are provided by the Group's experts to teach operators best practices for optimal use of tubes and connections, handling and inventory management.

The Group also offers services tailored to specific customers' needs including tube inspection, maintenance and repair, on-site services, preparation for drilling operations and well coordination and supply, based on Petrobras's drilling plan. For example, Vallourec has developed projects in which it managed execution of all of the tube production, coating, welding and manufacture of the line pipe to be installed in the water.

In addition, the Group offers specific integrated solutions for the subsea line pipe market, including welding, coating, insulation, logistics and service agreements that may be specifically entered into depending on the customer's needs, such as for an ultra-deep offshore project off the coast of Ghana. In partnership with a thermal insulation specialist, Vallourec provides line pipes using "pipe-in-pipe" technology, through which the line pipe is covered with an insulating, high-performance material and then inserted into another tube. This technology keeps oil and gas at the proper temperature to ensure that it flows properly during transport from the wellhead to the production platform.

In addition, the Group offers tube coating and welding services on site, primarily through the following subsidiaries:

- Serimax (France), a global leader in integrated welding solutions for offshore line pipes, with an international presence consisting of service units close to project sites. Serimax relies on its new welding research centers in order to develop joint research programs with its customers and to respond to projects' increasing technical requirements.

- Serimax Field Joint Coating (UK), which carries out coating activities on the end-to-end welded section of line pipes both onshore and offshore on installation vessels, complementing the welding solutions offered by Serimax.

Products and services for the power generation market

Vallourec's tube portfolio for the power generation market is one of the largest in the world. For conventional thermal power plants, new generation ultra-supercritical coal plants, or nuclear power plants, Vallourec responds to all the needs of power producers.

The Group offers its customers seamless tubes for boilers and steam generators and welded tubes for heat exchangers, in all sizes and all grades, from carbon steel to high alloy steel, as well as titanium, stainless steel and nickel alloy. The tubes cover all the carbon steel grades required in power plants and the entire size range, from small diameters for boiler tubes to very large diameters for steam pipes.

Vallourec's products respond to the challenges of power producers, and the Group's services support their performance, from logistics to risk assessment and customer-specific training.

Products and services for the industry market

Products offered to customers in the industry market are designed for highly varied uses in the mechanicals, automotive and construction sectors. The Group produces tubes, hollow bars and sections (circular, square, rectangular or octagonal sections for a vast array of applications), in all sizes and grades of steel. Its offerings respond to the needs of the most varied and demanding industrial applications with special grades of steel.

Vallourec's premium tubular solutions are found in a great deal of infrastructure construction: bridges, stadiums, airports and other ambitious architectural projects. The mechanicals industry uses Vallourec's tubes and rings to manufacture cranes and agricultural machinery. Automotive manufacturers equip their heavy-weight and light-weight vehicles with the Group's tubes and axles. The energy sector also relies on the Group to build offshore jack-up platforms. Finally, Vallourec also participates in various innovation projects concerning renewable energies, such as solar or hydrogen energy.

Geographic regions

The Group's products are sold to customers throughout the world, principally in North America (27.6% of the Group's revenue in 2017), Asia and the Middle East (31.3% in 2017) and Europe (15.8% in 2017), although the Group's European revenues were comparatively lower in 2017 than they have been historically, reflecting lower pricing levels.

The table below shows the breakdown of the Group's revenue by geographic region in 2015, 2016 and 2017:

(in € million except percentages)	**2015**	**% of revenue**	**2016**	**% of revenue**	**2017**	**% of revenue**
France	114	3.0%	91	3.1%	105	2.8%
Germany	316	8.3%	280	9.4%	279	7.4%
Other EU countries[(a)]	419	11.0%	276	9.3%	210	5.6%
Total Europe	**849**	**22.3%**	**647**	**21.8%**	**594**	**15.8%**
North America	**1,096**	**28.8%**	**559**	**18.9%**	**1,033**	**27.6%**
Brazil	555	14.6%	456	15.4%	599	16.0%
Other Central and South America	41	1.1%	11	0.3%	13	0.3%
Total South America	**596**	**15.7%**	**467**	**15.7%**	**612**	**16.3%**
China	262	6.9%	257	8.6%	451	12.0%
Other Asia and Middle East	590	15.5%	591	20.0%	724	19.3%
Total Asia and Middle East	**852**	**22.4%**	**848**	**28.6%**	**1,175**	**31.3%**
CIS	31	0.8%	27	0.9%	30	0.8%
Rest of the world	379	10.0%	417	14.1%	306	8.2%
Total rest of the world	**410**	**10.8%**	**444**	**15.0%**	**336**	**9.0%**
Total revenue	**3,803**	**100.0%**	**2,965**	**100.0%**	**3,750**	**100.0%**

(a) Other European Union countries, excluding Germany and France.

For an analysis of the variation in the Group's revenue by geographic region, see "*Management's Discussion and Analysis of Financial Condition and Results of Operations*".

Principal customers

The Group's most important customers include the following:

- in the oil and gas market, international oil companies (such as Total, Chevron, ExxonMobil and Shell), national companies (such as Aramco, ADNOC, Petrobras and Sonatrach) independent private sector oil companies, American distributors (such as B&L Pipeco, Premier Pipe, Champions and Pyramid) and engineering and construction companies (such as EMAS, Petrofac and TechnipFMC);

- in the power generation market, European and Asian suppliers of boilers and equipment (such as Dong Fang, Doosan, MHSP and Areva); and

- in the industry market, European and international distributors (such as ThyssenKrupp, Hoberg & Driesch, Van Leeuwen and Buhlmann).

In certain geographical markets, in particular in the United States and in Germany, the Group's principal clients are distributors. In the rest of the world, the Group's customers are end-users.

In 2017, the Group's 10 largest customers represented 28% of consolidated revenue, and the five largest customers represented 20% of consolidated revenue. No single customer represented more than 10% of the Group's consolidated revenue in 2017.

Competition

The information regarding the Group's competitive position is set forth below according the various markets in which Vallourec participates. It is based on the Group's internal analyses and constitutes the Group's own estimates. See "*Risk Factors—Risks Relating to Vallourec and Its Business Environment—The Group faces intense competition in the markets in which it operates*".

Oil and gas

Vallourec operates in three markets: threaded seamless tubes for the equipment of oil and gas wells used for exploration and production (OCTG), drill pipe and offshore and onshore line pipe for oil and gas transportation:

- In the OCTG market, Vallourec is among the world's leading suppliers of premium products in terms of volumes delivered:
    - In the market for premium connections that satisfy demanding technical performance criteria, the VAM® ranges produced in cooperation with NSSMC, are the world leader.
    - The Group's main competitors in the OCTG market are Tenaris, NSSMC, JFE, US Steel Tubulars, TMK, TPCO and Voest Alpine Tubulars.
- In drill pipes, Vallourec is one of the largest producers in the world by volume, after NOV in the United States. Most of its other competitors are Chinese and American companies.
- Vallourec is one of the major market participants in the offshore line pipe market for seamless tubes, with Tenaris and NSSMC.
- The Group has a strong position in the market for deep water (over 500 meters) projects, which require high-tech products.
- Vallourec also has a presence on the onshore line pipe segment, through its subsidiary Serimax.
- Vallourec has also positioned itself as the world leader in welding solutions for both offshore and onshore line pipes.
- Vallourec offers a premium line of welded super duplex steel tubes that can be fitted into umbilicals at offshore oil and gas fields. The first tubes were successfully assembled in 2016 for a project in the North Sea (part of the Glenlivet project in Scotland). In 2017, tubes were delivered for a large project on the coat of Angola (part of project Block 15/06 Angola).

Petrochemicals

Vallourec is a significant supplier for seamless tubes for refineries, petrochemical facilities, floating LNG plants and production, storage and offloading units. Its main competitors are Tenaris, ArcelorMittal, NSSMC and certain Chinese groups.

Power generation

Vallourec is a global leader in this segment, offering a large range of tubes, product sizes and steel grades (including patented grades) in the world. The Group is a supplier for several applications including:

- seamless carbon and alloy steel tubes, mainly for thermal power plants: screen panels, header pipes, economizers, evaporators, superheaters, reheaters and piping. Its main competitors are Baosteel, Changbao and Hengyang; and
- the technically demanding markets for nickel-alloy seamless tubes for steam generators at nuclear power plants, where Vallourec's market share significantly outdistances those of its two main competitors, NSSMC and Sandvik.

Mechanicals

Vallourec is one of the leaders in Europe in seamless tubes for mechanicals applications. This market is characterized by:

- a wide range of applications, including tubes for hydraulic cylinders, construction and civil engineering cranes, industrial building frames, public facilities and oil rigs; and
- numerous technical alternatives, including welded tubes (particularly from Tata Steel), drilled steel bars, cold-drawn tubes, forged and formed tubes.

Automotive

Through its subsidiary Vallourec Bearing Tubes, Vallourec is a leader in the European market for ball-bearing rings manufactured from seamless tubes. The Group supplies products for a range of applications, in particular those in the automotive industry. Its main competitors are Ovako and Maxhütte.

In Brazil, VSB is the market-leader for seamless hot-rolled, cold-formed, forged or drawn tube manufacturing. VSB products have numerous industrial applications for the various market segments, such as light and heavy vehicles, two-wheel vehicles, construction sites and agricultural machinery, primarily for suspension shafts, steering columns, drive shafts and ball bearings.

Construction

On the European market, Vallourec is a leader in construction tubes. It provides solutions for bold architectural projects, infrastructure such as bridges, stadiums, museums, etc.

In Brazil, VSB also offers standard or formed seamless tubes for the construction of bridges, stadiums, airports, transmission lines and other infrastructures.

Facilities and Geographical Presence

The Group’s teams and premium solutions are located where its customers are. The Group has more than 50 production units throughout the world. The Group’s facilities include:

- five steel mills: two in Europe in which the Group holds a minority stake (40% in Ascoval in France and 20% in HKM in Germany), one in the United States and two in Brazil (while the Group will maintain its steel mill in Jeceaba, its steel mill in Belo Horizonte will be shut down in 2018, in addition to one blast furnace at Belo Horizonte already shut down in the first half of 2016 and another blast furnace at the same site that will be shut down in 2018);
- 15 tube mills in Europe, the United States, Brazil and Asia;
- six R&D centers;
- 34 finishing units;
- numerous sales offices and service centers located near the Group’s customers; and
- a group of forest assets and an iron mine in Brazil.

Following the implementation of the Transformation Plan beginning in 2016, the Group has benefited from rolling tube production capacities of approximately 3 million metric tons, relatively balanced across its four operating regions:

- Europe: approximately 25% of the Group’s total capacity;
- North America: approximately 25% of the Group’s total capacity;
- Brazil: approximately 30% of the Group’s total capacity; and
- China: approximately 20% of the Group’s total capacity.

Raw Materials and Supply Chain

The Group's purchases for production activities can be broken down as follows:

- Raw materials (ferrous alloys, electrodes, refractories, scrap steel, etc.);
- Pre-Material (roundbars, flat products, etc.);
- Manufacturing consumables and supplies (mechanical and electrical supplies, cutting tools, lubricants, thread protectors, etc.);
- Maintenance (services and spare parts); and
- Energy (electricity, natural gas, etc.).

Purchases consumed for production during 2016 and 2017 included the following:

	Year ended December 31,	
(in € thousand)	**2016**	**2017**
Scrap metal and ferrous alloys	236,568	409,470
Rounds/billets	470,726	605,383
Flat parts	11,817	4,227
Tubes	102,314	91,786
Miscellaneous[(a)]	243,272	501,957
Total[(b)]	**1,064,697**	**1,612,823**

(a) Including change in inventories.
(b) Including €935 million and €1,369 million of raw materials classified in cost of raw materials consumed in 2016 and 2017, respectively. The balance is composed of miscellaneous purchases (energy, consumables, etc.) classified in other industrial costs.

The purchase of rounds and billets represented 38% and 44% of the Group's purchases for production in 2017 and 2016, respectively, and the purchase of tubes represented 6% and 10% of the Group's purchases for production in 2017 and 2016, respectively.

Other purchases include the following purchases:

- Non-production:
  - External services (engineering, temporary labor, waste treatment, industrial cleaning, etc.);
  - IT (software, hardware, network, professional services, etc.); and
  - Logistics (sea, air, road, rail, warehousing, etc.).
- Solutions:
  - Major equipment, infrastructure and investments; and
  - Customer-specific solutions.

Sourcing policy

The Group has implemented a structured, consistent purchasing strategy providing a balance between central management and local guidance:

- use and continued improvement of effective purchasing processes to optimize the Group's performance in terms of quality, cost, and delivery times;
- together with the Group's internal customers, selection of the best suppliers on the basis of business line needs, purchasing strategies by area, supplier risk analysis and criteria approved before calls for tender are launched;

- a solid contractual approach common to all Vallourec entities that takes local characteristics into account to limit risks, ensure compliance with global directives and improve visibility;

- sharing a common approach and monitoring suppliers to improve the Group's performance in terms of quality, cost and delivery times, as well as social and environmental responsibility; and

- identifying and minimizing the supplier risks borne by the Group under its ongoing responsible purchasing policy.

The purchasing function is centralized regionally or globally according to purchasing family, as applicable. Supply is primarily managed locally and gradually merged into the regional shared services centers.

Group Organizational Structure

In 2017, the Group adapted its organizational structure in order to take full advantage of the Transformation Plan. The objective of the new organizational structure is to strengthen the Group's local presence and its proximity to customers, optimize the overall use of its resources and stimulate growth.

The operational divisions were eliminated and replaced by a new structure organized around:

- four regions (each, a "Region"): North America, South America, Europe/Africa ("EA") and Middle East/Asia ("MEA"). The Regions are responsible for all of the sales and industrial operations located within their geographic scope; and

- two Central Departments:

    - the Technology and Industry Department (T&I), which is responsible for defining the Group's industrial strategy, with the objective of continued improvement in cost reduction. It is responsible for technology and will manage Group procurement as well as central planning, and

    - the Development and Innovation Department (D&I), which is responsible for defining and implementing the Group's product line development strategy. It is also responsible for innovation and R&D.

This new organizational structure took effect on April 3, 2017.

On December 11, 2017, Vallourec announced that it had received a binding offer from NOV for the purchase of the "Drilling Products" business for a total cash amount of U.S.$63 million. The sale is expected to be completed in the first half of 2018, subject to regulatory consultation processes and approval of governance structures. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Year ended December 31, 2017 compared with year ended December 31, 2016—Key events of 2017*". The Drilling Products division, which was one of the eight operating divisions that the Group was previously organized around before the new organizational structure described above took effect, will continue to be a division separate from the four regions and two central departments identified above until its disposal is completed.

Central Departments

Technology and Industry Department (T&I)

The Technology and Industry Department (T&I) includes the various business lines of the Industrial Division in charge of the Group's strategy and performance with respect to safety, quality, customer service, know-how and performance in key technologies, production cost optimization, procurement and logistics. T&I is in charge of the Group's industrial strategy and determines changes in its industrial system with the Regions. T&I manages the investment portfolio and makes sure investments are carried out properly from a technical standpoint, within the prescribed time limits and economics conditions.

The T&I organization is structured as eight "business" departments which interact with one another and coordinate the activity of the Regions defined in the industrial plan:

- the ***Safety/Quality Department*** defines the policy, objectives and methodologies of the Group in terms of improving safety performance (accident frequency rate), the quality perceived by the customer (number and processing of claims), approval/certifications and regulatory requirements;

- the ***Lean Management Department*** coordinates the establishment of competitiveness plans for the Regions through the "CAP20" Group initiative, prepares and deploys the Group's operational excellence guidelines, relying on lean management methodologies. It is also in charge of the Group's industrial equipment maintenance policy, and the associated improvement processes;

- the ***Industrial Layout/Master Planning Department*** conducts strategic studies with the Regions that are associated with the Group's industrial plan, along with the transformation studies of the industrial system;

- the ***CAPEX/Projects/Engineering Department*** manages the investment portfolio under the strategic plan and the annual budget process, and is in charge of the process of qualifying and authorizing investment projects. It is also in charge of project and engineering management methods for the Group as a whole, as well as for the development of know-how concerning automated technologies. It participates in the operations of major investment or M&A projects;

- the ***Sourcing Department*** is in charge of all of the Group's purchasing. It defines and coordinates purchase policies, and the operational teams based in each Region that report to it from a hierarchical standpoint;

- the ***Supply Chain Department*** is operationally in charge of preparing the medium-term production and of determining allocations of orders and management of production capacities at the Group level (sales & operation planning). It defines the policies, objectives and methodologies for improving delivery performance (punctuality, lead times) and logistics (service, costs);

- the ***Technology and Performance Upstream Department*** is in charge of monitoring and improvement of the technical performance of production tools, and of their technological development (research and development processes) in the areas of steel manufacturing, rolling, heat treatment and non-destructive testing. It is also in charge of the industrialization methods and plan for tubular products, and for promoting digital industry ("Industry 4.0") among the Regions and their industrial sites;

- the ***Technology and Performance Downstream Department*** is in charge of monitoring and improvement of the technical performance of production tools, and of their technological development (research and development processes) in the areas of tube finishing, threading and "Dopefree" (Cleanwell®) technologies applied to VAM® connections. It is in charge of the industrialization of VAM® products for all of the Group's threading sites.

Development and Innovation Department (D&I)

The Development and Innovation Department (D&I) comprises the Group's various Product Line Departments and the various businesses serving to develop them: marketing, sales, technical promotion and innovation, research and development and industrial property.

D&I is in charge of the strategy of developing product lines and defines the Group's objectives within the regions for developing new markets, optimizing product portfolio, customer portfolio and in particular major accounts, research and development, innovation to expand Vallourec's cornerstones for differentiating itself and creating value in customer solutions (including digital).

D&I manages the product development and services portfolio and ensures they are put on the market within the time limits and at the targeted performance levels to succeed in creating the expected value.

The D&I department is structured around eight product lines which interact with the regions and coordinate development activity across Vallourec. The product line directors are supported by the Innovation and Research and Development Departments. An action plan is defined by each product line and supported by several cross-company roadmaps which cover the various areas of commercial excellence and excellence in innovation.

The Product Line Departments cover all of the Group's markets:

- ***OCTG (Oil Country Tubular Goods)*** which comprises the casing and production tubes used to construct onshore or offshore oil or gas production wells. This segment includes the VAM® range of joints, as well as the entire VAM® system, which includes: teams of construction engineers capable of assisting our customers with their rigs 24/7 (VAM® Field Services International); the network of approximately 200 VAM® licensees, audited annually, who provide maintenance and repair services for VAM® joints worldwide as close as possible to the operating areas; the VAM® Global Solutions engineer teams

providing assistance in well design, product training, and assistance in supply chain optimization for our customers until the service contracts have been implemented;

- ***Accessories*** comprise all products, mainly oil and gas, that are designed and manufactured by Vallourec, integrated into the production strings and necessary for optimizing production of oil or gas wells;

- the ***Line Pipe Project*** linked to EPCI (Engineering, Procurement and Construction, and Installation) markets comprises the tubes, expertise and integrated solutions used to connect all of the offshore and onshore facilities of an oil field from the wellhead to the platform or production vessel, as well as the tubes needed to connect these production facilities to the onshore refining and treatment facilities;

- the ***Line Pipe Process*** comprises the tubular products in which the hydrocarbons are transported or transformed, both in offshore operations (Floating Production Storage and Offloading (FPSO) and Floating Liquefied Natural Gas (FLNG)) and onshore (Liquefied Natural Gas (LNG), refining, petrochemical);

- ***Industry*** comprises a wide variety of industrial applications: agricultural machinery, cylinders, cranes, construction (offshore, bridges, stadiums, etc.), mechanical industries;

- the ***Conventional Thermal Power Plant Market*** using carbon or gas in a combined cycle comprises all of the tubes provided for the construction of boilers, exchangers and tubes for the circulation of steam up to the turbines;

- the ***Thermal Power Plant Market*** using nuclear energy concerns tubes of steam generators for the primary circuit, as well as the tubes for supplying steam to the turbines; and

- ***Renewables*** comprises all of the applications for which we market our products (geothermal, biomass, etc.) and/or for which we are seeking development opportunities (in addition to the previous applications, this concerns solar, biofuels and hydrogen).

The functions supporting the Product Line Departments include:

- the ***Marketing Strategy Department***, which is in charge of anticipating the development of our markets to help the Group's product lines adapt their offers and evaluate opportunities to diversify;

- the ***Key Accounts Department***, which is in charge of optimizing the commercial development of the Group's key accounts for all of the regions and all of the product lines;

- the ***Research and Development Department***, which includes all of the Group's resources and laboratories in France, Germany, Brazil and the United States. It is in charge of developing the high-performing products and processes needed to develop Vallourec's customer offerings within the prescribed time limits and budgets. It takes steps to capitalize on the Group's know-how in research and development of internal skills. It also develops partnerships with companies or universities that are able to provide us additional expertise and participates in numerous Joint Industry Programs (JIPs) to develop adapted solutions with our customers;

- the ***Innovation Department***, which is in charge of accelerating the diversification of Vallourec's by helping product lines to expand proposed value to services, thanks to the evaluation of new business models, particularly in relation to Digital. It is in charge of identifying the growth catalysts that can be envisaged beyond the heart of the Group's current business; and

- the ***Industrial Property Department***, which is in charge of technical oversight, the filing of patents, and defending the industrial property of the Group. In 2017, the Group thus filed 28 patents and won all of its oppositions.

Regional Divisions

<u>Europe/Africa Region</u>

As the historical and technological stronghold of the Group, the Europe/Africa Region serves all of Vallourec's markets from its production and service units. Its industrial activity includes rolling mills, heat treatment plants, finishing and specialties units.

The objectives of this industrial activity are:

- to ensure premium performance to achieve customer satisfaction; and
- to provide its customers and the other Regions with a wide range of products at competitive cost to allow the growth of the Group's global activities in its various markets.

The business notably relies on the complementarity between Vallourec Tubes France – France (a wholly-owned subsidiary), which operates heat treatment plants in Déville-lès-Rouen (Seine-Maritime), Saint-Saulve (Nord) and a forge in Aulnoye-Aymeries (Nord), and Vallourec Deutschland GmbH (100%), with four tube mills in Mülheim, Düsseldorf-Rath and Düsseldorf-Reisholz (North Rhine-Westphalia). These tube mills are equipped with continuous-process, plug and pilger rolling mills and Erhardt presses, allowing them to manufacture, with the Aulnoye-Aymeries (Nord) forge and the Montbard (Côte d'Or) rolling mill, products with one of the world's widest range of diameters, thicknesses and grades of steel.

All of the European rolling mills are primarily supplied in raw materials by the steel mill of Saint-Saulve (Nord), for highly allied steel, Huckingen, belonging to Hüttenwerke Krupp Mannesmann (HKM) in which Vallourec Tubes holds a 20% stake, and Bous, belonging to the GMH Group (Georgsmarienhütte).

Since 2016, pursuant to the Transformation Plan, the Group has continued efforts to rationalize this region's production capacities to adapt to the structural decline in markets accessible from Western Europe. See "*Management's Discussion and Analysis of Financial Condition and Results of Operations—Transformation Plan*".

OCTG

The industrial and commercial activities of OCTG Europe/Africa are carried out through the following subsidiaries:

- ***Vallourec Oil and Gas France*** (VOGFR) (France) which produces standard joints and the full VAM® range of products. It has a production unit in Aulnoye-Aymeries (France) which includes several oil and gas tube threading lines that allow all of the dimensions and connections of the VAM® product line to be made as well as a line to apply the multifunctional Cleanwell® coating on certain products, which was especially designed for VAM® connections as a substitute for storage and assembly greases;
- ***Vallourec Oil & Gas UK Ltd*** (United Kingdom); this company combines facilities specializing in threading, in Clydesdale Bellshill (Scotland) and service bases in Scotland and Norway to satisfy, in particular, the market needs of the North Sea;
- ***Vallourec Nigeria Ltd*** (Nigeria) this company operates a tube threading plant in the Onne free-trade zone at Port Harcourt (Rivers State, Nigeria). It has been in operation since December 2009 and supplies the local market.

Onshore Line Pipe Project

The Onshore Line Pipe Project business is dedicated to the transportation needs of the oil and gas market, with a dual strategic position in the exploration and production sectors (upstream oil) and in downstream activities. It groups together all the products and services used by engineering and oil companies, from the wellhead to the petrochemical refineries and gas treatment plants.

The Onshore Line Pipe Project activities are exercised through Vallourec Tubes France and Vallourec Deutschland GmbH through strong synergies with the Group's Services subsidiaries, such as Serimax – France (80%) for welding, and with Serimax Field Joint Coating – United Kingdom (a 60% subsidiary of Serimax) for coating.

Powergen/ST&P

The role of Powergen/ST&P is to market seamless tubes produced in the Europe/Africa Region used in the construction of new power plants and the restoration and maintenance of existing plants, mainly coal and gas, that are provided by Upstream (European plants) and Powergen. It also completes its offer with the appropriate services.

The Powergen/ST&P industrial and commercial activities are exercised through Vallourec Tubes France and Vallourec Deutschland GmbH.

Industry

The Group markets hollow sections, tubes and bars manufactured in its European industrial units for mechanical markets (cranes, hydraulic cylinders, agricultural machines, OCTG mechanical parts...), automotive markets (bearing tubes, bars to be drawn...) and construction (bridges, stadiums, offshore jack-up platforms, airport terminals, exhibition halls...) Vallourec Tubes France, Vallourec Deutschland GmbH and Vallourec Bearing Tubes carry out industrial and sales activity for Industry.

Specialty Activities

- ***Vallourec Bearing Tubes*** (France), a historic European leader in seamless tubes and rings for the manufacture of bearings. In addition to this bearing tube activity, Vallourec Bearing Tubes produces and supplies made-to-measure tubes for Mechanicals and tubular hollow bars for the oil and gas markets. Vallourec Bearing Tubes has two production units: one in Montbard (Côte-d'Or) with a hot rolling mill and thermal treatment, and one in La Charité-sur-Loire (Nièvre) for the cold production of XXL rings.

- ***Vallourec Fittings*** (France) located in Maubeuge, specializes in "weld fittings", primarily for the oil and gas and process markets.

- ***Vallourec Umbilicals*** (France), located in Venarey-lès-Laumes (Côte-d'Or, France), manufactures welded stainless steel super duplex tubes for umbilicals for the offshore oil and gas market.

<u>*Middle East/Asia*</u>

OCTG

The activities of OCTG Middle East/Asia are carried out through the following subsidiaries:

- ***VAM Changzhou Oil & Gas Premium Equipments Co., Ltd*** (China) was created in September 2006 for the operation of a premium connection threading plant for oil and gas well equipment;

- ***Vallourec Oil & Gas (China) Co., Ltd*** was established in April 2010. The company sells Vallourec premium OCTG products on the Chinese domestic market, along with Tianda Oil Pipe Company Limited (TOP) "API" product exports, and provides technical support and quality control services;

- ***Vallourec Asia Pacific Corp. Pte Ltd*** (Singapore) operates in the OCTG tubes and accessories market in the Asia-Pacific region;

- ***PT Citra Tubindo TBK*** (Indonesia) has carried out heat treatment on tubes and threading of API, NS® and VAM® joints since 1985;

- ***Vallourec Saudi Arabia Ltd*** (Saudi Arabia) was formed in November 2011 when the Group acquired Saudi Seamless Pipes Factory Company Limited, the leading processing and finishing company for seamless OCTG tubes in Saudi Arabia (located in Dammam), from the Zamil group. This acquisition brought Vallourec heat treatment and premium threading facilities; and

- ***Tianda Oil Pipe Company Limited (TOP)*** (China) operates a PQF® seamless tube continuous rolling mill which produces seamless tubes for the oil and gas market. On April 1, 2011, Vallourec acquired a 19.5% stake in TOP, a Chinese seamless tube manufacturer listed on the Hong Kong Stock Exchange, via a reserved capital increase. On November 14, 2016, Vallourec finalized the purchase of the domestic shares of TOP, for 50.6% of its capital, then purchased 29.0% of the remaining capital on the Hong Kong Stock Exchange through a tender offer that concluded on December 2, 2016, then went on to purchase shares from individual shareholders during 2017. TOP has been manufacturing OCTG tubes for the oil

and gas market since 1993, and in January 2010 began operating a new PQF® seamless tube continuous rolling mill with an annual production capacity of 500,000 metric tons. TOP was a member of the Anhui Tianda Enterprise Co. Limited group, based in the Anhui province (China). VAM Changzhou Oil & Gas Premium Equipments China Co., Ltd. threads premium tubes manufactured locally by TOP. This acquisition allows Vallourec to develop an expanded offer of highly competitive solutions which combine the VAM® connections with TOP's highly competitive tubes to support market share for the VAM® connection. The total amount of the transactions amounted to €158 million. See ''*Management's Discussion and Analysis of Financial Condition and Results of Operations—Transformation Plan*'' and ''*Agreements Relating to Strategic Initiatives*".

Powergen/ST&P

Powergen's activities are notably exercised through Vallourec China, formerly known as Vallourec Changzhou Co., Ltd. (China).

Vallourec (Changzhou) Co., Ltd was created in 2005 in order to increase the Group's machining capacity for large-diameter hot-rolled tubes produced in Europe for the Chinese Power Generation market. The plant at Changzhou, in the province of Jiangsu, began production in July 2006. On September 13, 2012, a new hot-forging and heat treatment unit was inaugurated thereby enabling manufacturing operations for seamless large-diameter pipes to be integrated locally.

Specialty Tubes ("Specialty Products")

The Specialty Products activity brings together companies specialized in the manufacture and processing of seamless tubes in stainless steel and special alloys, primarily for the nuclear energy markets.

The Specialty Products Division principally involves the following companies:

- ***Valinox Nucléaire*** (France) specializes in Nuclear Island Tubes. The production unit in Montbard (Côte-d'Or, France) is the original site of Valinox Nucléaire; and

- ***Valinox Nucléaire Tubes Guangzhou Co., Ltd*** (China) which specializes in nuclear island tubes and was formed in November 2010 in Guangdong Province, China, and opened on June 6, 2013.

<u>North America</u>

Oil and Gas

The activities in North America are carried out through the following subsidiaries:

- ***Vallourec Star, LP*** (United States) is an integrated manufacturer of seamless tubes for the oil and gas industry. Its facilities include an electric steel mill, two rolling mills equipped with the latest technology and heat treatment and threading units. It dedicates 80% of its production range to the OCTG market. Sumitomo Corporation is a partner, with a 19.5% stake in Vallourec Star, LP. The company's production units are located in Youngstown (Ohio), Houston (Texas) and Muskogee (Oklahoma);

- ***VAM USA LLC*** (United States) is well known in North America as a leading supplier of OCTG premium joints and the provision of services. The VAM® and Atlas Bradford® brands complement Vallourec's product offerings, providing significant expertise in the field of flush connections for the industry's most demanding applications. The Group directly or indirectly holds 51% of VAM USA LLC, in partnership with NSSMC which holds a 34% stake and Sumitomo Corporation which holds a 15% stake;

- ***Vallourec Oil & Gas Mexico SA de CV*** (Mexico) which specializes in premium VAM® connections and provides the Mexican oil and gas industry with the complete range of VAM® products;

- ***Vallourec Canada Inc.*** (Canada) which has production units in St. John's (Newfoundland), as well as sales offices in Calgary (Alberta); and

- ***Vallourec Tube-Alloy, LLC*** (United States), which produces and repairs accessories used inside oil and gas wells. It specializes in complex threading operations and in machining bespoke parts for both oil operators and component manufacturers. Its production units are located in Broussard and Houma, Louisiana, Houston, Texas, and Casper, Wyoming.

South America

Brazil

In 2017, Brazil continued to roll out its industrial transformation program, launched on October 1, 2016 with the creation of a new subsidiary following the merger of the assets and activities of Old VSB and VBR. The newly established company, Vallourec Soluções Tubulares do Brasil S.A. (VSB), was created to strengthen the industrial base in Brazil and provide synergies to optimize the competitiveness of its production. In parallel with the Brazil and Latin America markets, VSB's activities are increasingly concentrated on exports.

The South American activities are carried out through the following companies:

- ***Vallourec Soluções Tubulares do Brasil S.A***. (VSB) in which the Group holds 84.6% partnership with Nippon Steel Sumitomo Metal Corporation (NSSMC) which holds 14% and Sumitomo Corporation which holds 0.4% was created as a result of the 2016 merger and bring together the Jeceaba, Barreiro (Minas Gerais state) and Serro (Espirito Santo state) industrial sites:

    - the **Barreiro** site has been located in the Belo Horizonte district for more than 60 years and occupies an area of more than 300 hectares. This integrated unit combines all production equipment, from its steel mill (which includes a blast furnace) to hot-rolling mills and tube finishing lines. The Barreiro site in particular provides tubular products for very deep water projects, notably the pre-salt fields. Since 2015, the site has housed the Vallourec Research Connections Center Brazil (VRCC Brazil), which runs tests to ensure that all new threaded connections comply with industry standards, and guarantees the level of performance needed for difficult pre-salt environments. In March 2016, Barreiro shut down one of its two blast furnaces, with a view to adjusting its production capacity to new market demand;

    - the **Jeceaba** industrial site is located 120 kilometers south of Belo Horizonte. It consists of a premium tube mill and also includes a pelletization unit whose pellets are intended for use of the Barreiro and Jeceaba blast furnaces and the local Brazilian market, a steel mill (with a blast furnace and electrical furnace), a cutting edge rolling mill and finishing lines. The Jeceaba site performs all types of API and premium threading types, in particular the VAM® product range.

    VSB also participates as an industrial supplier of all Vallourec entities, primarily for the international OCTG markets. Semi-finished products are exported to Vallourec's finishing plants throughout the world.

    The seamless tubes of VSB are intended for the following applications:

    - the Oil and Gas market, delivering seamless steel tubes for oil exploration (casing, tubing, and drill pipes) and for the transport of oil (production lines, tubes for line pipes) using premium VAM® connections. The tubes offer not only resistance to high pressures and high temperatures, but also resistance to corrosion by carbon dioxide and sulfates;

    - the Industry market (e.g., Petrochemicals, Power Generation, Mechanical) that is mainly served by distributors working closely with VSB to guarantee a certain quality and technical assistance;

    - the Automotive industry (light vehicles, trucks and agricultural equipment), with precision parts like tubes for diesel injectors, bearing rings and forged parts such as transmission shafts and axles; and

    - the Civil Engineering and Construction sector which utilizes tubes for infrastructure and industrial foundations, structural tubes for commercial assets, capital goods, ancillary machines and materials.

- ***Vallourec Tubos do Brasil S.A. (VBR)*** became a Brazilian holding company on October 1, 2016 and comprises the following subsidiaries:

    - ***Vallourec Florestal Ltda***. plants and operates eucalyptus forests for the production of charcoal from wood. Charcoal is one of the principal necessary components in the production of liquid crude iron by blast furnaces. Vallourec Florestal Ltda. owns 230,000 hectares of agricultural land in the north of the State of Minas Gerais and currently has 113,000 hectares of eucalyptus forest. The production process can be broken down into the following activities: forest planting,

forest harvesting, charcoal production, and delivery on a just-in-time basis for the blast furnaces of VSB;

- ***Vallourec Mineração Ltda*** has been extracting iron ore at its Pau Branco mine since the early 1980s. The mine is located in the city of Brumadinho in the State of Minas Gerais, 30 kilometers south of Belo Horizonte. Its annual production capacity is 4 million metric tons of iron ore. The mine supplies the blast furnaces and the pellet plant of its affiliated companies. It also sells its production on the market;

- ***Tubos Soldados Atlântico Ltda. (TSA)*** specializes in anti-corrosion coatings (triple-layer polypropylene, or 3LPP) applied to welded and seamless tubes;

- ***Vallourec Transportes & Serviços Ltda.*** offers tube inspection and repair services, premium accessories for the oil and gas market, as well as a vast array of operational assistance services for the same sector.

Uruguay

- ***Vallourec Uruguay S.A*** was formed on July 13, 2017 to market the tubes produced by the Group for OCTG and process applications in South America.

Activity of the holding companies

Valllourec S.A. is a holding company that:

- manages its shareholdings. Its income is mainly financial, including dividends, interest on long-term loans to subsidiaries and investment income from cash and cash equivalents. It also bears the cost of its debt;

- owns its trademark and the Group image, of which it entrusted management to Vallourec Tubes in 2014; and

- has no industrial activity.

Vallourec Tubes, the direct subsidiary of Vallourec S.A. is a sub-holding company that manages its shareholdings and has no industrial activities. Its income is mainly financial, including dividends, interest on long-term loans to subsidiaries, provisions for subsidiaries and investment income from cash and cash equivalents.

Sales and marketing companies

In the United States, Vallourec USA Corporation (United States) markets all of the tubular goods produced by Vallourec Tubes' various subsidiaries. It also carries a stock of tubes intended for U.S. oil and gas distributors, which usually thread the tubes themselves according to the end-customer's requirements. Its offices are located in Houston, Texas, and Pittsburgh, Pennsylvania.

In addition, sales and marketing companies reporting to Vallourec Tubes are established in:

- Canada;

- the United Kingdom;

- China;

- Russia;

- Dubai;

- Singapore;

- Italy; and

- Sweden.

Innovation, Research and Development

A key factor for competition and growth, innovation has always been at the heart of Vallourec's strategy, and has largely contributed to its leading position in premium tubular solutions. In a very competitive global environment, the Group intends to continue to discover and anticipate the technological challenges faced by its customers. It must respond to the radical and rapid evolution of their needs by offering them tailored solutions which are simultaneously safe, reliable and environmentally friendly, and that create value, in line with its premium position.

Organization of innovation and research and development

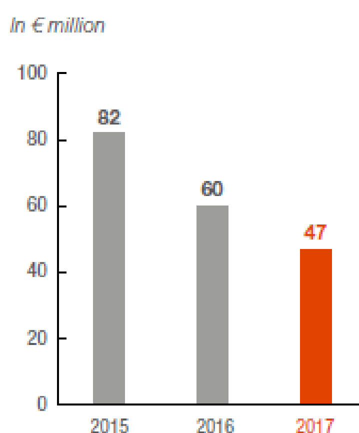
Information and key figures

Research and innovation are at the heart of the Group's business focus. Innovation is a key priority for the Group in maintaining its technological leadership and anticipating its customers' needs.

The cornerstones of the Group's research are:

- manufacturing processes;
- new products and improving the performance of existing products; and
- services and solutions.

In 2017, R&D expenses totaled €47 million. The following chart shows the R&D expense amount during the last three years (in millions of euros). The level of expenses changed in the last two years due to a lower number of qualification tests requested by our oil and gas customers. The Group maintained its significant efforts with respect to the development of new products and tubular solutions.



Since April 2017, Vallourec's expertise in Research and Development (R&D), Marketing and Innovation are coordinated by the new D&I department which also includes the Product Lines. See " *–Group Organization Structure–Development and Innovation Department (D&I)*". As a result of this structure, the R&D and Innovation teams work in close proximity to the markets and customers. A total of approximately 500 researchers and technicians were involved in research and development across the Group in 2017. The Group faces the following key technological challenges:

- for the oil and gas market, the Group has to respond to the increasing complexity of oil and gas reservoirs and transport (onshore and offshore);
- for the power generation market, the Group has to contribute to renewable energy developments and improve the efficiency, flexibility and life of plants; and
- for the industry market, the Group has to reduce the weight of mechanical engines by designing lighter structures and increasing the useful load of existing designs.

Research centers and expertise: a global presence

Valourec has six research centers throughout the world specializing in specific products, processes or technologies.

In France, at Aulnoye:

- the long-established "Vallourec Research Center France" specializes in metallurgy, non-destructive testing, corrosion resistance, surface treatments, digital product and process simulations, particularly for oil and gas and Mechanicals applications. It also provides technical assistance to the Group's plants and divisions; and

- the Vallourec Research Center Connections develops and validates the VAM® line of threaded connections, and then assists with their commercial production throughout the Group's worldwide network of licensees. With a strengthened testing capacity as a result of investments made since 2015, the center enables, in particular, the full-scale testing of tube performance and VAM® connections by subjecting them to numerous operational stresses (make-and-break operations, combined loads simulation at various temperatures). Its aim is to continue Vallourec's history of delivering the strength and reliability expected by oil and gas operators, as the Group has done for more than 50 years.

In Düsseldorf and Riesa, Germany:

- the "Vallourec Research Center Germany" is dedicated to designing and developing steel tubes for power plants, mechanical infrastructure and oil and gas pipelines. Its fields of competence are mainly steel design, creep strength and resistance to oxidation or corrosion occurring at high temperature (above 400°C). It also houses a welding lab and provides technical assistance to the Group's plants and divisions; and

- the "Vallourec Research Center Technology" is in charge of research on hot-forming for seamless steel tube production. This long established center has made several innovations in Vallourec's core processes. It operates alongside the "Vallourec Competence Center Riesa", a laboratory containing state-of-the-art equipment, which allows Vallourec to increase the pace of innovations in process methodologies and equipment. Its versatile piercing, rolling and forging facilities aim to extend the current limits of steel and alloy hot-forming within the Group.

In Belo Horizonte, Brazil, the "Vallourec Research Center Brazil" houses teams of experts and test laboratories that adapt the Group's solutions to the specific needs of its Brazilian customers, and develop new solutions. A new "Vallourec Competence Center Rio" is located in the Industrial Park of the University of Rio de Janeiro in close proximity to CENPES, the Petrobras research center and academic laboratories. It participates in technical partnerships which use current and future mature technologies. In addition, Vallourec Florestal, which operates the Group's eucalyptus forest in Brazil, conducts research work on forestry, transformation of wood into charcoal and the preservation of the environment.

In Houston, Texas, in the United States, the "Vallourec Competence Center USA" works on specific developments of the VAM® connection for the American market. Design and testing capacities have increased continuously during the past five years, allowing the introduction of new connections for shale gas (VAM® SG, VAM® EDGE SF) and for deep offshore wells (VAM® 21, VAM® HP).

In total, three testing stations worldwide conduct full-scale tests on aspects of VAM® connections under the most arduous usage conditions.

The Group also performs R&D activities in other regions of the world, in particular in Indonesia, through its subsidiary P.T. Citra Tubindo, as well as in Japan and in Spain with its longstanding partners NSSMC and Tubacex.

A collaborative approach to innovation with customers and markets

Innovation is at the source of numerous advances which allow Vallourec's customers to push technological limits forward, tap into unused or unexplored resources and improve the performance of their facilities. As innovation is a process of ongoing dialogue with customers, the Group works in close collaboration with customers to develop solutions which meet their operational needs.

Working with Petrobras, the Group develops innovative tubular solutions for exploration and production in hard-to-access oil and gas deposits (such as ultra-deepwater rigs, pre-salt fields, corrosive environments with hydrogen

sulfide or carbon dioxide). The Group has evaluated that approximately 80% of the products developed with Petrobras to operate complex fields did not exist in 2009.

Working with Total, the Group develops connections that deliver unmatched performance in difficult high pressure / high temperature (HP/HT) type wells or tubes for umbilicals.

Working with TechnipFMC, SubSea7 and Saipem, the Group works on optimization solutions (high-grade pipes and welding) that facilitate the transportation of oil and gas in increasingly deep environments.

With General Electric (GE) Power and Doosan, the Group develops high-performance products and solutions for ultra-supercritical power plants. With European power producers (RWE, UNIPER, EDF) the Group develops solutions to allow it to use different fuels in the existing plants (coal and biomass, waste).

The Group is also developing R&D programs in all countries where it is established, in association with institutions with leading positions in their field, in particular with NSSMC, with which Vallourec has developed a collaboration supporting VAM® connections for the oil and gas market for more than thirty years. The launch of the VAM® 21™, a new premium threaded connection which meets the most stringent industry specifications (ISO CAL IV), and a new dropfree dry lubrication solution reflect the productivity of this dynamic partnership. In 2017, VAM® 21 was used for the first time with the new Cleanwell® coating in the North Sea and along the Egyptian coasts. These successful projects affirm the value that Cleanwell® provides to the Group's customers by allowing them to have quicker operations on oil platforms, without waste and using a product that preserves the environment.

The partnership with NSSMC was strengthened in connection with the major strategic initiatives announced on February 1, 2016. NSSMC and Vallourec Mannesmann Oil & Gas France (which has since become Vallourec Oil & Gas France) have an existing Research and Development agreement entered into on April 1, 2007 (the "R&D Agreement") in connection with their industrial collaboration. Under the R&D Agreement, the parties undertook to inform one another of any new ideas, techniques or products that they wished to put in place with respect to the research and development of VAM® connections, so that a committee could determine what R&D programs establish. The committee is charged with assigning the parties their respective tasks in connection with these research programs. The parties also undertook to disclose to one another all information that could be useful for the development of these programs, as well as to mutually provide each other with access to the research infrastructure charged with carrying the programs out. The Group and NSSMC decided to reinforce this arrangement by entering into an addendum to the R&D Agreement, dated February 1, 2016, to improve the organizational efficiency and implementation of their joint R&D program for the development of VAM® connections, in particular through a Technical, Industrialization, and Services Committee and through better organization of their collaboration on each significant R&D program. For a description of these agreements, see "*Agreements Relating to Strategic Initiatives*".

The Group also participates in essential research work with numerous university laboratories worldwide.

A culture of shared innovation

The Group's innovation strategy is to differentiate itself with its premium product range, while developing new solutions linked to the use of its products as well as new markets. In line with this strategy, D&I is strengthening the innovation expertise and capacities of the Group's teams, both by developing deeper knowledge and sharing it on its markets, and by establishing dynamic and efficient innovation methods.

Innovation methods and culture

In order to optimize the generation and selection of ideas that will be the innovations of tomorrow, D&I organizes training sessions to better understand customers' needs and generate ideas.

These training sessions and workshops enable the Group to deploy and share a language of innovation, to reinforce and disseminate market knowledge to the teams contributing to innovation and to successfully use Vallourec-specific creativity tools. All departments that take part in innovation-focused activities participate in the workshops, including the R&D and Marketing, as well as Sales and Commercial Production. Some workshops are conducted in collaboration with customers. This process, based on collaboration and collective intelligence, sharing of knowledge and experiences, and generation of ideas in groups allows for the achievement of effective results while strengthening the Group's culture of innovation.

At the same time, with respect to projects already in development, D&I helps project teams to effectively apply Vallourec's project management methods to ensure that products are brought to market as rapidly as possible.

Furthermore, the Group launched initiatives in 2016 to strengthen collaboration with start-ups, schools, and manufacturers through open innovation efforts. These initiatives were expanded with the open innovation challenge organized in September 2017 on the topic of intelligent tubes. The partnerships launched with the start-ups selected through these initiatives allow Vallourec to incorporate the most recent and innovative technologies, accelerate growth projects and deepen discussions between teams.

In addition, the divisional project portfolio is reviewed regularly to verify its value, identify synergies and define priority projects and next steps. Finally experts, process communities, project teams and R&D teams develop and participate in online collaborative spaces and employ tools that allow them to share information across the Group.

The "Expert Career" program

Vallourec has established the "Expert Career" program to enhance the value of technical expertise and individual career paths within the Group's key sectors. This program allows engineers and scientists to be offered new career opportunities in the areas of technology and R&D. Links between management responsibilities and technical expertise are established under the coordination of the Human Resources Department, facilitating the same level of Group recognition for employees despite differences in expertise.

Innovation Challenge

The first Vallourec Innovation Challenge carried out by the Innovation Department in 2016 encouraged all the Group's departments and divisions to contribute to innovation. The Innovation Challenge was carried out using the Group's front-end innovation methodology, for a period of three months. More than 30 teams took part, producing engaging and innovative proposals to reduce our customers' costs. The two winning ideas, selected by employees and an official jury, will be pursued. All ideas put forward are reviewed and developed in order to be decided upon later by management.

The Open Innovation Challenge launched in September 2017 was focused on "intelligent tubes." More than 40 start-ups and companies from all around the world presented their offers. Development is currently underway with the companies that were selected for having the best proposals.

High-tech manufacturing processes

Forest and blast furnaces

In Brazil, Vallourec employs eucalyptus forests to produce charcoal to fuel its blast furnaces. The Group is pursuing its efforts to improve its performance in this area. The main thrust of its research includes: scientific tree selection, improving forest nutrition programs and industrializing the continuous charcoal-making process.

Steel production

The development and production of steels with a high level of chrome (over 13%) using continuous-casting processes forms the basis of the Group's range of high-tech solutions, and is the purpose of much of its steel production work. Research on the cleanliness of steel is a cornerstone of research on the manufacture of premium products and innovations made in continuous casting processes allow the Group to improve the capacity and quality of its steel and strengthen the Group's self-sufficiency in terms of premium steel supply.

Hot-process seamless tube production

The hot-process production of seamless steel tubes, invented in 1886 by the Mannesmann brothers, is one of Vallourec's fundamental technologies and the Group constantly improves it through its research.

The Group has developed other processes, including the Premium Forged Pipes (PFP®) patented process to produce very wide, thick tubes, in particular for the mechanical and energy sectors. This process has been used industrially in Europe since 2008, and in China since 2012.

The Group has initiated further development to create the most state-of-the-art hot-rolling processes.

Non-destructive testing

The Group develops non-destructive controls, allowing the Group to test the integrity of its materials and structures to eliminate degradation at various stages of the materials' lives, to ensure the reliability of the Group's products. Its innovations in this sector are major differentiating factors for its business.

Heat treatment

The Group heat-treats a large share of its premium products to facilitate exceptional levels of performance. The heat treatment process is continually being improved in order to meet the needs of the Group's customers, specifically in terms of respect for the environment, distortion or breaking residence, corrosion residence and tube weldability.

Process communities

Process communities within the Group allow it to achieve rapid and ongoing progress through the sharing of best practices and available technologies for the main processes of the Group: production and continuous casting of steel, heating rounds, hot rolling, forging, heat treatment, non-destructive testing, threading and tube finishing (coating, marking, machining, etc.). Benchmarks are regularly reviewed to ensure that Vallourec's practices and technologies remain compliant with best practices and best available techniques. The Group continually improves its processes through significant internal efforts in R&D.

Standards applicable to the Group's projects

Standards applied by the Group

The Group complies with regulations, standards and certifications in the countries in which it markets its products. These standards vary by geographic region, by product and by its use. The Group also carries out a monitoring process to ensure that its products comply with applicable regulations, standards and certifications.

The Group is subject to two types of standards: the mandatory standards set by law, and the non-mandatory standards that the Group voluntarily chooses to apply in response to customer demand.

Mandatory standards generally require certification by laboratories and/or independent organizations, and are provided by the government. Their principal purpose is to protect user health and safety by demonstrating that the product complies with regulatory requirements. They relate principally to the properties of fire resistance and slip resistance and to limits on toxic emissions. Non-mandatory standards are required by the Group's customers, who include compliance with these standards in their specifications for the products they purchase from the Group.

Standards organizations and the standards applied in different geographical regions

Standards organizations define the technical characteristics and performance required of a product, as well as the tests to be used. At the international level, the main organization that promulgates standards applicable to the Group is the ISO. ISO standards, which are established based on principles of the World Trade Organization, are voluntary, but compliance is often required by the Group's customers.

The Group relies on the Vallourec Management System, the fundamental objective of which is to improve the Group's performance in the fields of quality, health, safety, the environment and logistics, which are grouped under a program known as Index and run by one of the Management Board members. This system ensures that the requirements for managing quality (ISO 9001, ISO/TS 16949, API and ASME), health and safety (OHSAS 18001), the environment (ISO 14001) and energy (ISO 50001) are taken into account.

Industrial Property

The strengthening of the Group's organization in the area of industrial property continued with the monitoring of major R&D projects and sessions to heighten industrial property awareness among R&D teams, in France and abroad and the development of expertise in the Group's new areas of innovation.

The Group's patent filing activity remained sustained in 2017. The Group filed 28 new basic patents and pursued approximately 470 geographical extensions of patents. Individual patent protection has been maintained at a high and stable level with more than 4,500 patents worldwide and sustained defense of Group patents under dispute. The budget dedicated by the Group to protecting inventions via patents remained stable in 2017 as compared to 2016.

In 2017, Vallourec also continued its efforts to protect its trademarks, through registrations, renewals, and opposition procedures.

Property, Plant and Equipment

As of December 31, 2017, the Group operated approximately 50 production facilities, most of which were owned on a freehold basis. These plants are located mainly in France, Germany, Brazil, China and the United States, reflecting

Vallourec's international presence (see "—*Facilities and Geographical Presence*"). The Group considers these plants an essential resource for conducting its various activities and a primary concern in its manufacturing resource planning.

The Group's property, plant and equipment (including assets held under finance leases) and biological assets held by consolidated companies had a net carrying amount of €3,048 million at the end of 2017 (€3,706 million at the end of 2016 and €3,316 million at the end of 2015). The Group's property, plant and equipment primarily consist of property assets (mainly factory buildings and administrative offices) and industrial equipment (mainly steel-making and tube manufacturing facilities).

Environmental Matters

Operational facilities and environmental regulation

The Group's French facilities are subject to environmental protection regulations under a classified facilities system that imposes certain obligations according to the type of activity conducted at the site and the environmental hazards and issues concerned. The Group's facilities comply with the following requirements:

- 11 of its facilities are subject to certain regulatory authorizations that require them to be operated in accordance with specific requirements issued via prefectural order, following the submission of an operating license application, consultations with various organizations and a public enquiry; as of December 31, 2017, all of these facilities held valid prefectural orders; and

- four of its facilities are subject to a registration regime, according to which they must be operated in compliance with standard operating obligations.

Vallourec's facilities in other countries are subject to comparable local regulations, requiring specific permits in various areas of environmental concern, including those relating to water, air, waste and noise. All of the Group's foreign facilities have the permits required for their operation, which are regularly renewed pursuant to local regulations.

In addition, the Group has conducted studies at certain operational sites with regard to soil pollution. The results of these studies and further information regarding the status of soil pollution at the Group's sites, as well as information on other environmental constraints that may impact the Group's use of its tangible assets, can be found in Chapter 4 of the 2017 Registration Document, incorporated by reference herein.

Environmental situation at former industrial sites

Following its closure, the Anzin plant in northern France was sold to the Valenciennes urban community on November 17, 2004. The Group compiled a number of soil studies regarding the site at that time, and groundwater decontamination work required by the relevant regulatory authorities was carried out. The quality of the groundwater at the site continues to be monitored using piezometric sensors.

All of the other sites sold by the Group have undergone complete environmental reviews prior to their sale.

For further information regarding environmental risks facing the Group, see "*Risk Factors*".

Litigation and Other Matters

In the normal course of its business, the Group is involved in legal proceedings and may be subject to inspections or inquiries by tax or customs authorities, and other national and supranational authorities, in particular in Brazil. See Note 17 to the Audited Financial Statements. The Group recognizes a provision whenever a tangible risk is identified and a reliable estimate of the cost arising from the risk can be made. However, Vallourec can give no assurance that such a provision will be sufficient to cover the impact of any risk.

In connection with investigations by Brazilian authorities relating to procedures involving Petrobras and targeting its tube suppliers, V&M do Brasil S.A. (an affiliate of Vallourec) was cited in the decision of a federal judge dated May 19, 2016. This decision provided for authorities to visit the facilities of certain tube suppliers for purposes of collecting evidence. V&M do Brasil S.A. was not one of the suppliers that was visited and the police investigation was concluded on February 9, 2017. Vallourec has offered its cooperation with judicial authorities in connection with the pursuit of these investigations. No provision has been recognized in relation to this matter.

To the Group's knowledge, it is not, as of the date of this offering memorandum, party to or the target of any material ongoing, threatened or pending litigation nor is it the subject or target of any government or regulatory proceeding

or investigation that has or could have a material adverse effect on its business. However, there can be no assurance that such litigation, proceedings or investigations will not arise in the future and materially impact the Group's business.

AGREEMENTS RELATING TO STRATEGIC INITIATIVES

The Group announced on February 1, 2016 the Transformation Plan, consisting of strategic initiatives aiming at transforming Vallourec's operational set-up, improving its competitiveness in the short and longer term and reinforcing its financial strength to secure long-term profitable growth and sustained shareholder value creation. The implementation of these strategic initiatives involved, in particular, the signing of several agreements strengthening the relationship between the Group and NSSMC and included the Group's successful capital increase.

The main transactions that were part of these strategic initiatives are the following:

- The formation of VSB through the contribution of substantially all the assets and liabilities of VBR (a wholly-owned subsidiary of the Group) to Old VSB, a company held by the Group (56%), by NSSMC and NSTB (40.4%) and by Sumitomo Corporation (3.6%), in connection with the restructuring transactions regarding Old VSB. Following the completion of the restructuring on October 1, 2016, VSB is held by the Group (84.6%), by NSSMC and NSTB (15%) and by Sumitomo Corporation (0.4%);

- The signing of industrial agreements aimed at reinforcing the relationship between the Group and NSSMC, in particular through the signing of a supply agreement in Brazil and of an addendum to the existing R&D agreement between the two groups;

- The purchase by the Group of an additional 50.61% interest in TOP, a seamless pipe manufacturer, which was already held 19.45% by the Group, followed by a mandatory tender offer to acquire all remaining TOP shares; and

- The signing of subscription agreements and shareholder's agreements with NSSMC and Bpifrance as part of the increase to 15% each of their interests in the share capital of Vallourec, on a diluted basis, in connection with the Group's successful €960 million capital increase.

Joint Venture Agreement Relating to Brazil Entered into with NSSMC

Since 2007, Vallourec Tubes and NSSMC have been parties to a joint venture agreement that governs their relationship with respect to Old VSB. As part of Old VSB's restructuring, and in order to take into account the new shareholding structure that would result from such restructuring, Vallourec Tubes, VBR, NSSMC, NSTB, Sumitomo Corporation and Old VSB entered into a new joint venture agreement (which amended and restated the 2007 joint venture agreement) on February 1, 2016.

This joint venture agreement, which entered into full force and effect as from the closing of the restructuring transactions under the framework agreement, has an initial term of thirty years as from its effective date, subject to further renewal.

It includes, in particular:

- provisions governing the functioning of the corporate bodies of the company, as well as veto rights granted to NSSMC in connection with certain important decisions to be approved by the board of directors or the shareholders' meeting of Old VSB (e.g., capital expenditures in excess of a certain annual amount, sale of certain material equipment, permanent cessation, or cessation for a certain period of time of operations at the Jeceaba facility, merger or spin-off of Old VSB or capital increases);

- customary mutual rights of first offer, tag-along rights and drag-along rights;

- call and put options on Old VSB shares that may be exercised respectively by Vallourec Tubes and NSSMC upon the occurrence of certain events. Such options may be exercised at a purchase price per Old VSB share equal to the fair market value (determined by an investment banking firm if the parties cannot agree on such value) or, in some cases, with a discount or a premium compared to such fair market value. In the event of a material breach of the joint venture agreement by NSSMC, NSTB or Sumitomo Corporation or of the supply agreement by NSSMC, Vallourec Tubes will have a call option right that may be exercised at the fair market value minus a discount, and in the event of a material breach of the joint venture agreement by Vallourec Tubes or VBR, NSSMC will have a put option right that may be exercised at the fair market value plus a premium;

- in the event of a change of control of Vallourec Tubes, VBR or of the controlling entity, NSSMC will have the right to acquire the Jeceaba facility at fair market value (determined in the manner described above); and

- in the event of a change of control of NSSMC, NSTB or of the holding company, Vallourec Tubes will have the right to acquire the Old VSB shares held by NSSMC, NSTB and Sumitomo Corporation at fair market value (determined in the manner described above).

Industrial Agreements Entered into with NSSMC

Supply agreement

Since 2011, Vallourec Tubes and NSSMC have been parties to an agreement for the supply of tubes entered into with Old VSB. In connection with the restructuring of Old VSB, on February 1, 2016, Vallourec Tubes, NSSMC and Old VSB entered into a new supply agreement, which supersedes the 2011 agreement, whereby Old VSB has undertaken to supply, and NSSMC has undertaken to purchase, a certain percentage of the Jeceaba facility's annual production capacity of tubes (approximately 300,000 tons when the facility runs at full capacity) (the "Annual Commitment Capacity").

This agreement, which entered into full force and effect as from the closing of the restructuring transactions under the Framework Agreement referred to above, will have the same duration as the joint venture agreement.

The supply agreement also provides the right for NSSMC to terminate the supply agreement under certain conditions.

In particular, the supply agreement provides the right for NSSMC to terminate the supply agreement with immediate effect if the Annual Commitment Capacity falls below a certain level for three consecutive years, under certain conditions. This right may not be exercised by NSSMC prior to the fifth anniversary of the effective date of the supply agreement.

The supply agreement also provides the right for NSSMC to progressively reduce the Annual Commitment Capacity under certain conditions. NSSMC may not exercise such option prior to the fifth anniversary of the effective date of the supply agreement. The exercise of the option would allow NSSMC to be released from any purchase commitment following the expiry of a minimum six-year period as from the exercise of the option.

Research and development agreement

NSSMC and Vallourec Mannesmann Oil & Gas France (now Vallourec Oil & Gas France) and Sumitomo Metal Industries Ltd. (now NSSMC) entered into the R&D Agreement as part of their industrial partnership. The parties decided to strengthen this partnership by entering into an addendum to the R&D Agreement on February 1, 2016 in order to improve the efficiency of the organization and implementation of their common R&D program in connection with the development of VAM® connections, in particular through a Technical, Industrialization and Services Committee and better organization of cooperative efforts for each material R&D program.

Shareholder's Agreements Entered into with NSSMC and Bpifrance

Vallourec entered into two shareholder's agreements with Bpifrance and NSSMC, in order to regulate the shareholdings of Bpifrance and NSSMC following the completion of its €960 million capital increase. These shareholder's agreements were entered into on February 1, 2016 for a period of fifteen years and automatically extend for additional five year periods unless terminated in writing by either party at least six months prior to the expiration date. Certain features of the shareholder agreements are summarized below.

The declarations submitted to the AMF regarding the communication of agreements between shareholders include a description of the main provisions of these shareholder's agreements, as required by article L. 233-11 of the French commercial code (these declarations are available on the AMF website http://www.amf-france.org/).

Shareholder's agreement with Bpifrance

Governance: The shareholder's agreement provided that Bpifrance was entitled to request the appointment (and, as the case may be, the renewal) of one representative on the Supervisory Board of Vallourec at the April 6, 2016 Shareholders' Meeting, as long as Bpifrance held more than 5% of the share capital and voting rights of Vallourec. Vallourec undertook to present and recommend a resolution at the April 6, 2016 Shareholders' Meeting to the effect of appointing Bpifrance as a member of the Supervisory Board. Such presentation and recommendation was duly made and adopted at the April 6, 2016 Shareholders' Meeting.

Standstill undertaking: The shareholder's agreement provides that Bpifrance shall not hold, alone or in concert, more than 15% of the voting rights of Vallourec, as from February 1, 2016 and until the expiration of the shareholder's agreement. Notwithstanding this standstill undertaking, the shareholder's agreement provides that Bpifrance shall benefit, for a four-year period as from February 1, 2016, from the double voting rights attached to Vallourec's shares owned by Bpifrance, but that Bpifrance shall not use voting rights in excess of the 15% threshold at any shareholders' meeting of Vallourec. This standstill undertaking shall not apply upon the occurrence of a tender offer or if a third party comes to hold, acting alone or in concert, directly or indirectly, more than 15% of Vallourec's share capital or voting rights.

Right of first offer: If Bpifrance desires to effect a transfer of Vallourec's shares to a third party, it shall send to Vallourec a pre-notification in writing. Vallourec will then have the right to purchase (or cause another party to purchase) the shares offered under the same conditions.

Shareholder's agreement with NSSMC

Governance: The shareholder's agreement provided that NSSMC was entitled to request the appointment (and, as the case may be, the renewal) of one representative on the Supervisory Board of Vallourec at the first shareholders' meeting following the conversion of the Bonds into ordinary shares, as long as it held more that 10% of the share capital and voting rights of Vallourec. Vallourec undertook to present and recommend a resolution at this shareholders' meeting to the effect of appointing a NSSMC representative as a member of the Supervisory Board, who would be subject to information barriers to prevent the exchange of any competitively sensitive information. Such presentation and recommendation was duly made and adopted at the May 12, 2017 Shareholders' Meeting, appointing Mr. Yuki Iriyama to the Supervisory Board.

Standstill undertaking: The shareholder's agreement provides that NSSMC shall not hold, alone or in concert, more than 15% of the voting rights of Vallourec as from February 1, 2016 and until the expiration of the shareholder's agreement. This standstill undertaking shall not apply upon the occurrence of a tender offer or if a third party comes to hold, acting alone or in concert, directly or indirectly, more than 15% of Vallourec's share capital or voting rights.

Right of first offer: If NSSMC desires to effect a transfer of Vallourec's shares to a third party, it shall send to Vallourec a pre-notification in writing. Vallourec will then have the right to purchase (or cause another party to purchase) the shares offered under the same conditions.

Industrial agreements: In the event of the termination of the Joint Venture Agreement in Brazil, of the R&D Agreement or the trademark license agreement (dated April 1, 2007) between Vallourec and NSSMC (and/or their respective affiliates):

- due to the fault of NSSMC, NSSMC shall transfer all Vallourec's shares it holds within six months of the occurrence of the termination, subject to the contractual transfer restrictions applicable to the transfer of shares. NSSMC shall not exercise any voting rights relating to its shares during any shareholders' meeting held after the occurrence of the termination; and

- due to the fault of Vallourec, NSSMC shall either file a tender offer for the securities of Vallourec (by exception to the standstill undertaking), or transfer its shares (subject only to the prohibition to sell the shares to a competitor, which will remain applicable).

SHARE OWNERSHIP

As of December 31, 2017, Vallourec's authorized share capital was €915,975,520, divided into 457,987,760 shares of a par value of 2.00 euros, fully subscribed and paid-up, and of the same class. Vallourec's bylaws provide that each of Vallourec's ordinary shares entitles its holder to one vote, except that a holder is entitled to double voting rights on fully paid-up, registered nominal shares held by such holder for at least four years. In accordance with Article L. 225-123 of the French Commercial Code, in the event of an increase in Vallourec's share capital through incorporation of reserves, profits or share premium, the newly-issued shares will carry double voting rights if they are granted to a shareholder in relation to existing shares that already carry double voting rights.

Pursuant to Vallourec's bylaws, double voting rights may be exercised at any shareholders' meeting. Double voting rights terminate if the shares are no longer held in registered form or in the event they are transferred to another shareholder or a third party, with the exception of certain transfers between spouses or family members.

Principal Shareholders

The following share ownership table as of December 31, 2017 has been prepared based on Vallourec's knowledge, on the basis of the information available to it as of the date hereof, in particular on the basis of notifications of the crossing of legal thresholds filed with the AMF. References to "theoretical" voting rights in each of the following tables are to voting rights assuming that all Treasury shares were held by investors rather than Vallourec. Treasury shares held by Vallourec are disregarded for purposes of voting in shareholders' meetings. The column showing the percentage of voting rights exercisable in shareholders' meetings treats Treasury shares as if they were not outstanding.

The following table presents the ownership of Vallourec's shares as of December 31, 2017.

As of December 31, 2017	Number of Shares	% of Shares	Theoretical Number of Voting Rights	Theoretical % of Voting Rights	% of Voting Rights Exercisable at Shareholders' Meetings
Bpifrance Participations SA[(a)]....	66,695,708	14.56 %	73,166,786	15.58 %	15.59 %
CDC savings fund	7,585,658	1.66 %	7,585,658	1.62 %	1.62 %
Group subtotal, CDC[(b)]	**74,281,366**	**16.22 %**	**80,752,444**	**17.20 %**	**17.20 %**
Nippon Steel & Sumitomo Metal Corporation[(a)]	66,695,715	14.56 %	68,668,849	14.62 %	14.63 %
Public..	297,640,888	64.99 %	299,971,735	63.87 %	63.90 %
Group employees[(c)]	19,197,184	4.19 %	20,044,743	4.27 %	4.27 %
Treasury shares[(d)]	172,607	0.04 %	172,607	0.04 %	0.00 %
TOTAL......................................	**457,987,760**	**100.00%**	**469,610,378**	**100.00%**	**100.00%**

(a) As of February 1, 2016, Bpifrance Participations on the one hand and Nippon Steel & Sumitomo Metal Corporation on the other must respect a 15% cap on their voting rights for a 15-year period, subject to certain reservations. See "*Agreements Relating to Strategic Initiatives—Shareholder's Agreements Entered into with NSSMC and Bpifrance*".

(b) Bpifrance Participations, jointly with Caisse des dépôts et consignations (CDC). By letter received by the AMF on April 30, 2014, CDC and Bpifrance Participations SA clarified that they were each acting alone, and CDC declared that there was no collaboration with Bpifrance Participations SA.

(c) The stake of Group employees as at December 31, 2017 includes all of the shares subscribed via company mutual funds under the international employee share ownership plans that have been implemented by the Group over the last 10 years, which include allocated shares at that date. Under the leveraged formula of these plans, the performance multiple on their Vallourec shares is obtained through a transfer of the discount on dividends and other financial rights related to ownership of the shares to the bank structuring the transaction through a swap contract. As at December 31, 2017, 15,966,628 non-allocated shares appeared in the assets of the company mutual funds, an employee stake of 3.40% in capital and 3.58% in voting rights at that date.

(d) Treasury shares included the shares appearing in the balance of the liquidity contract handled by Rothschild & Cie Banque. This contract, which had been in effect since June 26, 2012 and related to 2,481,000 shares, was terminated on December 18, 2017 after market closing on Euronext Paris.

Shareholder's Agreements with NSSMC and Bpifrance

In connection with the Group's strategic initiatives under the Group's Transformation Plan announced on February 1, 2016, Vallourec entered into shareholder's agreements with each of NSSMC and Bpifrance as of the same date. For additional details regarding these agreements, see "*Agreements Relating to Strategic Initiatives—Shareholder's Agreements Entered into with NSSMC and Bpifrance*".

DESCRIPTION OF CERTAIN INDEBTEDNESS

The following is a summary of the material terms of Vallourec's principal financing arrangements other than the Indenture after giving effect to this offering. The following summaries do not purport to describe all of the applicable terms and conditions of such arrangements.

Overview

Following the completion of this offering, Vallourec's principal outstanding indebtedness will include certain credit facilities for which the borrowers are either Vallourec S.A. or its subsidiaries, Vallourec's commercial paper program, Vallourec's outstanding bonds and certain finance leases, each of which are summarized in further detail below, and the Notes.

Credit Facilities

Vallourec and its subsidiaries have entered into medium-term or long-term committed credit facilities with a number of banks, primarily for the purpose of financing the Group's operational requirements and providing back-up liquidity. As of December 31, 2017, the Group had total medium-term and long-term committed credit facilities of 2,040 million, which remained entirely available and undrawn.

The credit facilities into which Vallourec S.A. has entered include the following (collectively, the "Issuer Credit Facilities"):

- a multicurrency facility (the "Vallourec Syndicated Facility") for an amount of €1.1 billion, initially maturing in February 2019, with two one-year extension options. The extension options have been granted, with the first option extending maturities of €44 million of the facility to February 2020 and the second option extending maturities of €1,034 million of the facility to February 2021;
- a revolving credit facility (the "Vallourec 2015 Club Deal Facility") for an amount of €400 million, maturing in July 2020 following the exercise of a one-year extension option in July 2016;
- a revolving credit facility (the "Vallourec 2016 Club Deal Facility") in an amount of €450 million, maturing in February 2020; and
- a bilateral line (the "Vallourec Bilateral Line") of €90 million maturing in February 2021.

In addition to these credit facilities, Vallourec Star, LP, a subsidiary of Vallourec S.A., has a credit line (the "Vallourec Star Credit Line") for U.S.$80 million, maturing in March 2019.

The material terms of these credit facilities are summarized in further detail below.

Issuer Credit Facilities

Common provisions

Except as noted or as described further below under "*—Vallourec Bilateral Line*", "*—Vallourec 2015 Club Deal Facility*", "*—Vallourec Syndicated Facility*" and "*—Vallourec 2016 Club Deal Facility*", the financing agreements governing the Issuer Credit Facilities contain certain common provisions, summarized below.

Interest and fees

The rate of interest on loans under the Issuer Credit Facilities is calculated at a percentage per annum that is the sum of (1) an applicable margin that may be adjusted based upon Vallourec's debt ratings and (2) EURIBOR or LIBOR, as the case may be. The rate of interest is subject to increase by a certain percentage for amounts that are overdue. Vallourec S.A. is also generally required to pay certain other customary fees under the Issuer Credit Facilities, including commitment, utilization and other fees.

Conditions to drawdown

Loans granted pursuant to utilization requests under the Issuer Credit Facilities are subject to certain customary conditions precedent, including confirmation that no default has occurred and is continuing or would result from the

proposed loan and the confirmation of certain customary representations and warranties made in the respective agreements governing the Issuer Credit Facilities.

Repayments

Each loan made under the Issuer Credit Facilities must be repaid in full on the last day of its interest period. Amounts repaid may be reborrowed during the availability period for the applicable Issuer Credit Facility, subject to certain conditions, and must be paid in full prior to the termination date of the applicable Issuer Credit Facility.

Prepayments

In addition to the scheduled repayment of principal, the Issuer Credit Facilities provide for mandatory prepayment under certain circumstances, including if it becomes unlawful in any applicable jurisdiction for a lender under the applicable Issuer Credit Facility to perform any of its obligations or upon the occurrence of a change of control (generally defined as a person or group of persons acting in concert gaining control of more than 50% of the share capital or voting rights of Vallourec S.A.).

In the event of a change of control, each lender may request that its commitments under the applicable Issuer Credit Facility be cancelled and its participation in outstanding loans prepaid upon the receipt of the required notice from Vallourec S.A. regarding the change of control, with all amounts outstanding thereunder subsequently becoming due and payable, together with accrued interest.

Indebtedness under the applicable Issuer Credit Facility may be voluntarily cancelled or prepaid at any time without penalty or premium, in whole or in part, subject to certain conditions, including with respect to minimum amounts, notice period and payment of certain related costs.

Amounts prepaid may be reborrowed during the availability period for the applicable Issuer Credit Facility, subject to certain conditions. Commitments cancelled may not be reinstated.

Covenants

The Issuer Credit Facilities contain customary information and affirmative covenants (including covenants applicable to Vallourec S.A. and, as the case may be, to Vallourec S.A.'s subsidiaries or material subsidiaries relating to maintenance of relevant authorizations, compliance with laws, change of business, preservation of assets, pari passu ranking, provision of financial and other information, etc.), which are subject to certain exceptions. The Issuer credit facilities also contain customary negative covenants (including covenants applicable to Vallourec S.A. and, as the case may be, to Vallourec S.A.'s subsidiaries or material subsidiaries relating to the creation of security interests on assets, the sale, transfer or disposal of assets, mergers and acquisitions, etc.), which are also subject to certain exceptions.

Financial covenant

The Issuer Credit Facilities each require Vallourec S.A. to maintain its consolidated net debt-to-equity ratio (the ratio between (a) the Group's net consolidated debt, restated for items that would not be treated as a finance or capital lease in accordance with the accounting principles applied in the preparation of the consolidated financial statements of Vallourec S.A. for the financial years ended on or prior to December 31, 2015, and (b) the Group's equity, restated for gains and losses on derivatives and valuation differences (gains and losses on the consolidated subsidiaries in foreign currencies)) (i) at no more than 75% for each 12-month period ending on December 31 on or prior to December 31, 2017 and (ii) at no more than 100% for each 12-month period ending on December 31 thereafter, in each case calculated as of December 31 of each year.

Events of default

The Issuer Credit Facilities contain customary events of default (subject in certain cases to grace periods, thresholds, materiality and other exceptions), including payment default, failure to comply with the financial covenant described above, failure to comply with any other obligation, misrepresentation, cross-default, insolvency and insolvency proceedings concerning Vallourec S.A. or one of its material subsidiaries, creditor enforcement proceedings, judicial alert proceeding (*procédure d'alerte*) initiated by Vallourec S.A.'s auditors, unlawfulness and invalidity, cessation of business, material litigation and material adverse change.

The occurrence of an event of default allows the agent, if so directed by the majority lenders (or in the case of the Vallourec Bilateral Line, the relevant lender) to, among other things, (i) cancel the total commitments under the applicable Issuer Credit Facility and/or (ii) declare all or part of any borrowings thereunder immediately due and payable.

Security and guarantees

The Issuer Credit Facilities are unsecured and are not guaranteed.

Specific provisions

Certain specific provisions of each of the Issuer Credit Facilities are set forth below.

Vallourec Bilateral Line

On June 25, 2015, Vallourec S.A. entered into a €90,000,000 revolving credit facility agreement (as amended, the "Vallourec S.A. Bilateral Credit Agreement") with Natixis acting as lender. The Vallourec S.A. Bilateral Credit Agreement provides for a borrowing commitment of up to a maximum principal amount of €90,000,000. Borrowings may be prepaid or repaid and reborrowed in accordance with the terms of the Vallourec S.A. Bilateral Credit Agreement and may be used to fund Vallourec S.A.'s general working capital requirements, general corporate purposes of the Group or refinancing, in all or in part, any existing advance under the Vallourec Bilateral Line.

Following an amendment in July 2016 that, among other things, extended the term of the facility, the Vallourec Bilateral Line may be utilized until the date that is one week prior to its final maturity date, which is February 9, 2021.

Vallourec 2015 Club Deal Facility

On September 21, 2015, Vallourec S.A. entered into a €400,000,000 revolving credit facility agreement (as amended, the "Vallourec 2015 Club Deal Agreement") with a syndicate of financial institutions acting as lenders and Natixis acting as agent. The Vallourec 2015 Club Deal Agreement provides for borrowings of up to an aggregate of €400,000,000 on a committed basis. Borrowings may be prepaid or repaid and reborrowed in accordance with the terms of the Vallourec 2015 Club Deal Agreement. Borrowings may be used to finance the general corporate purposes of the Group.

Following an amendment in July 2016 that, among other things, extended the term of the facility, the Vallourec 2015 Club Deal may be utilized to and including the business day that is one month prior to the extended termination date, which is July 13, 2020.

Vallourec Syndicated Facility

On February 12, 2014, Vallourec S.A. entered into a €1,100,000,000 multicurrency revolving facility agreement (as amended, the "Vallourec Syndicated Facility Agreement") with a syndicate of financial institutions acting as lenders and Société Générale acting as agent. The Vallourec Syndicated Facility Agreement provides for borrowings of up to an aggregate of €1,100,000,000 on a committed basis. Borrowings may be prepaid or repaid and reborrowed in accordance with the terms of the Vallourec Syndicated Facility Agreement. Borrowings may be used to finance the general corporate purposes of the Group.

Following amendments in July 2016 and July 2017 that, among other things, extended the term of the facility, the Vallourec Syndicated Facility may be utilized to and including the business day which is one month prior to the second extended termination date, which is February 9, 2021.

Vallourec 2016 Club Deal Facility

On May 2, 2016, Vallourec S.A. entered into a €450,000,000 revolving facility agreement (the "Vallourec 2016 Club Deal Agreement") with a syndicate of financial institutions acting as lenders and Natixis as agent. The Vallourec 2016 Club Deal Facility provides for borrowings of up to an aggregate of €450,000,000 on a committed basis. Borrowings may be prepaid or repaid and reborrowed in accordance with the terms of the Vallourec 2016 Club Deal Agreement. Borrowings may be used to fund the Group's general corporate purposes.

The Vallourec 2016 Club Deal Facility may be utilized from May 3, 2016 until the date that is one month prior to the termination date, which is February 11, 2020.

In addition to the provisions with respect to prepayment and cancellation described above under "—*Prepayments*", the Vallourec 2016 Club Deal Agreement includes a mandatory prepayment and cancellation provision in the event that Vallourec S.A. publicly or privately issues bonds or notes on any debt capital market, subject to, among others, exceptions for commercial paper issuances or where the purpose of the issuance is to refinance certain existing bonds or to finance certain permitted acquisitions.

The Vallourec 2016 Club Deal Agreement provides that if Vallourec S.A. enters into a new financing or amends the Vallourec Syndicated Facility, the Vallourec 2015 Club Deal Facility or the Vallourec Bilateral Line, and such agreements provide for a financial maintenance covenant more restrictive than the one for the Vallourec 2016 Club Deal Agreement or an additional financial maintenance covenant, then Vallourec S.A. shall take all necessary steps to include equivalent provisions in the Vallourec 2016 Club Deal Agreement.

Vallourec Star Credit Line

Overview

On March 29, 2016, Vallourec Star, LP entered into a U.S.$80,000,000 amended and restated credit agreement (the "Vallourec Star Credit Line") with JPMorgan Chase Bank, National Association, as lender. On May 3, 2016, Vallourec S.A. acceded to this agreement as guarantor. The Vallourec Star Credit Line provides for borrowings of up to U.S.$80,000,000 on a committed basis. Borrowings may be prepaid or repaid and reborrowed in accordance with the terms of the agreement, and may only be used to fund Vallourec Star's general corporate purposes. The Vallourec Star Credit Line may be utilized until, but excluding, the earlier of (i) the maturity date, which is March 29, 2019, and (ii) the date of termination of the lending commitment pursuant to its terms.

Interest and Fees

Loans bear interest at either (i) a rate determined by reference to the greatest of the (a) prime rate, (b) rates set by the Federal Reserve Bank of New York plus a percentage and (c) the LIBO rate plus a percentage, or (ii) for Eurodollar loans, at the LIBO rate plus a percentage. The rate of interest is subject to increase by a certain percentage for amounts that are overdue. Vallourec Star, LP is also generally required to pay certain customary fees including commitment and other fees.

Repayments

Each loan made under the Vallourec Star Credit Line must be repaid on the maturity date.

Prepayments

In addition to the scheduled repayment of principal, the Vallourec Star Credit Line provides for mandatory prepayment upon the occurrence of a change of control, which is defined as a person or group of persons acting in concert gaining control of more than 50% of the share capital or the voting rights of Vallourec S.A., or Vallourec S.A. ceasing to own, directly or indirectly, equity interests in Vallourec Star, LP representing 51% or more of the aggregate ordinary voting power represented by the total issued and outstanding equity interests of Vallourec Star, LP.

In the event of a change of control, the Vallourec Star Credit Line will immediately be cancelled and all amounts outstanding thereunder, plus accrued interest and all fees, will become immediately due and payable.

General covenants

The Vallourec Star Credit Line contains customary information and affirmative loan style covenants (including covenants applicable to Vallourec Star, LP and, as the case may be, to its affiliates or subsidiaries relating to maintenance of legal existence, conduct of business, maintenance of properties, insurance, compliance with laws, anti-money laundering and anti-corruption laws, provision of financial and other information, etc., as well as covenants applicable to Vallourec S.A. and, as the case may be, its subsidiaries other than Vallourec Star, LP, relating to maintenance of relevant authorizations, change of business, pari passu ranking, economic sanction laws, provision of financial and other information, etc.), which are subject to certain exceptions, as well as negative covenants (including covenants applicable to Vallourec Star, LP and, as the case may be, to its subsidiaries, relating to liens, fundamental changes, investments and other obligations, swaps, restricted payments and transactions with affiliates as well as covenants applicable to Vallourec S.A. relating to mergers), which are also subject to certain exceptions.

Financial covenants

The Vallourec Star Credit Line contains a financial covenant prohibiting Vallourec Star, LP at any time from (1) having a ratio of net debt (defined as total indebtedness of Vallourec Star, LP minus cash and permitted investments and intercompany subordinated debt of Vallourec Star, LP) to adjusted equity (defined as, at any date, the sum of Vallourec Star, LP's total partners' equity and intercompany subordinated debt of Vallourec Star, LP) of greater than 1.0 or (2) having tangible net worth (defined as, at any date, an amount equal to (a) the total partners' equity of the Vallourec Star, LP, minus (b) the amount of all intangible items included therein, including, without limitation, goodwill, franchises, licenses, patents,

trademarks, trade names, copyrights, service marks and brand names, all as determined in accordance with applicable accounting principles) of less than U.S.$500,000,000.

The Vallourec Star Credit Line also contains a financial covenant applicable to Vallourec S.A., requiring it to maintain its consolidated net debt-to-equity ratio (the ratio between the Group's net consolidated debt and the Group's equity, restated for gains and losses on derivatives and valuation differences (gains and losses on the consolidated subsidiaries in foreign currencies)) at no more than 75% for each 12-month period ending on December 31, calculated as of December 31 of each year.

The Vallourec Star Credit Line also provides that if Vallourec S.A. enters into a new financing or amends the Vallourec Syndicated Facility, the Vallourec 2015 Club Deal Facility, the Vallourec 2016 Club Deal Facility or the Vallourec Bilateral Line, and such agreements provide for a financial maintenance covenant more restrictive than the one of the Vallourec Star Credit Line or an additional financial maintenance covenant, then Vallourec S.A. shall take all necessary steps to include equivalent provisions in the Vallourec Star Credit Line.

Events of default

The Vallourec Star Credit Line contains customary events of default (subject in certain cases to grace periods, thresholds, materiality and other exceptions) relating to (i) Vallourec Star, LP, including payment default, failure to comply with the financial covenants or other covenants described above, failure to comply with any other obligation, misrepresentation, cross-default, insolvency and insolvency proceedings concerning Vallourec Star, LP or one of its subsidiaries, judgments in certain amounts or ERISA events and (ii) Vallourec S.A., including payment default, failure to comply with the financial covenants or other covenants described above, failure to comply with any other obligation, misrepresentation, cross-default, insolvency and insolvency proceedings concerning Vallourec S.A. or one of its material subsidiaries, creditors' process, unlawfulness, cessation of business, and material adverse change.

The occurrence of an event of default allows the lender under the Vallourec Star Credit Line to (i) cancel the total commitments under the Vallourec Star Credit Line and (ii) declare all or part of any borrowings thereunder immediately due and payable. In the case of certain events of default relating to insolvency and insolvency proceedings, the commitments under the Vallourec Star Credit Line will automatically terminate and any amounts due will become automatically due and payable.

Commercial Paper Program

Vallourec launched a commercial paper program on October 12, 2011 and updated on June 8, 2017 to meet its short-term financing needs. The program has a €1 billion ceiling and provides for the issuance of euros or U.S. dollars with maturities of up to one year. As of December 31, 2017, Vallourec had outstanding commercial paper debt of €396.8 million.

Outstanding Bonds

The August 2027 Bonds, August 2019 Bonds, September 2024 Bonds and October 2022 Convertible Bonds (OCEANEs) (each as defined below and, collectively, the "Outstanding Bonds") are each Vallourec S.A.'s general senior unsecured obligations and rank *pari passu*, without preference among them, and, subject to such exceptions as are from time to time mandatory under French law, equally and rateably with all other present or future senior unsecured obligations of Vallourec S.A. Throughout the maturity period for each series of the Outstanding Bonds, Vallourec S.A. has agreed not to grant (and shall ensure that none of its principal subsidiaries will grant) any security interest (mortgage, lien, pledge, real surety, etc.) on its assets, income or rights, present or future, to secure (i) any bonds, notes or other securities listed or traded (or that may be listed or traded) on a regulated market, multilateral trading system, over-the-counter market or any other securities market or (ii) any guarantee or indemnity in respect of such debt, unless the same ranking or same surety or guarantee is granted to the Outstanding Bonds.

The applicable terms and conditions governing each series of Outstanding Bonds include a change-of-control clause that would trigger the mandatory prepayment of the applicable series at the request of any bondholder of such series in the event of a change of control of Vallourec (defined as any person or persons acting in concert coming to own or acquire directly or indirectly more than 50% of the issued share capital of Vallourec S.A. or such number of shares in the capital of Vallourec S.A. carrying more than 50% of the voting rights exercisable at a general meeting of Vallourec S.A.), and, with respect to the August 2027 Bonds, the August 2019 Bonds and the September 2024 Bonds, if, within a certain period and under certain conditions, a rating downgrade of Vallourec S.A. occurs or has occurred as a result of the change of control or potential change of control.

In addition, the applicable terms and conditions governing each series of Outstanding Bonds contain customary events of default (subject in certain cases to grace periods, thresholds and other conditions) (each, an "Event of Default") allowing a bondholder to require Vallourec S.A. to cause all, but not some only, of the Outstanding Bonds of the applicable

series held by such bondholder to become immediately due and payable, at their principal amount together with any accrued interest thereon until, but excluding, their redemption date. Such Events of Default include payment default, failure to comply with obligations created by the Outstanding Bonds, cross-default, insolvency and insolvency proceedings concerning Vallourec or certain of its principal subsidiaries or, in the case of the October 2022 Convertible Bonds, if the shares of Vallourec S.A. are no longer admitted to trading on Euronext Paris or any other regulated market.

The terms and conditions for each of the series of Outstanding Bonds are governed by the laws of the Republic of France.

August 2027 Bonds

On July 30, 2012, Vallourec S.A. issued €55 million aggregate principal amount of 4.125% notes due August 2, 2027 (the "August 2027 Bonds") in a private placement. These bonds have a unit par value of €100,000 and bear interest at a fixed rate of 4.125% per annum, payable in arrears on August 2 of each year.

August 2019 Bonds

On August 3, 2012, Vallourec S.A. issued €400 million aggregate principal amount of 3.25% notes due August 2, 2019 (the "August 2019 Bonds"). These bonds have a unit par value of €100,000 and were admitted to trading on the Euronext Paris stock market. They bear interest at a fixed rate of 3.25% per annum, payable in arrears on August 2 of each year.

September 2024 Bonds

On September 30, 2014, Vallourec S.A. issued €500 million aggregate principal amount of 2.25% notes due September 30, 2024 (the "September 2024 Bonds"). These bonds have a unit par value of €100,000 and were admitted for trading on the Euronext Paris stock market. They bear interest at a fixed rate of 2.25% per annum, payable in arrears on September 30 of each year.

October 2022 Convertible Bonds (OCEANEs)

On October 4, 2017, Vallourec S.A. issued €250 million aggregate principal amount of 4.125% bonds convertible into new shares and/or exchangeable for existing shares of Vallourec S.A. due October 4, 2022 (the "October 2022 Convertible Bonds"). These notes have a par value of €6.89, representing an issue premium of 37.5% over the reference price of the Vallourec S.A. share used at the time of determination of the final terms of the bonds. The notes were admitted for trading on the open market of Euronext Paris (Euronext Access). They bear interest at a fixed rate of 4.125%, payable semi-annually in arrears on April 4 and October 4 of each year.

October 2022 Bonds

On October 18, 2017 and October 26, 2017, Vallourec S.A. issued €550 million aggregate principal amount of 6.625% notes due October 15, 2022 (the "October 2022 Bonds"). These bonds have a unit par value of €100,000 and were listed on the Official List of the Luxembourg Stock Exchange and admitted for trading on the Euro MTF market. They bear interest at a fixed rate of 6.625% per annum, payable semi-annually on April 15 and October 15 of each year. The October 2022 Bonds are subject to restrictive covenants that are substantially identical to those described under "*Description of the Notes*".

Finance Leases

The Group's principal finance leases consist of the following:

- In Brazil, Old VSB concluded a finance lease with a nominal value of BRL570 million relating to equipment needed to operate the plant at Jeceaba. As of December 31, 2017, the residual amount outstanding on this finance lease was BRL287 million (€72 million).

- In the United States, Vallourec Star, LP concluded a finance lease with a nominal value of U.S.$64.3 million with a maturity of five years. As of December 31, 2017, the residual amount outstanding on this finance lease was U.S.$28 million (€23 million).

ACC/ACE Facility

The Group's ACC/ACE facility is a short-term export financing facility that VSB has entered into with the Brazilian Central Bank. The facility provides for advances of funds in BRL to VSB against payment received for shipments of products in U.S. dollars. Advances on Exchange Contracts (*Adiantamentos sobre Contratos de Câmbio*), or ACC advances, are provided in BRL by the bank before the shipment of products by VSB, and payable following export in the corresponding U.S. dollars received for the shipment. Advances on Delivered Exchanges (*Adiantamentos sobre Cambiais Entregues*), or ACE advances, are provided in BRL after shipment of VSB's products outside of Brazil against receipt of evidence of shipment, and payable with the corresponding U.S. dollars received for the export.

ACC advances are generally subject to a maximum repayment period of 360 days, while ACE advances are generally subject to a maximum repayment period of 390 days. Interest on the advances is variable. As of December 31, 2017, VSB had €183 million outstanding under its ACC/ACE facility.

VSB Shareholder Loan

The Group is a party to a shareholder loan that was initially granted to Old VSB by a Brazilian subsidiary of NSSMC (the "Shareholder Loan"). The Shareholder Loan consists of one tranche issued on August 8, 2011 in an initial nominal amount of BRL426.8 million and a second tranche issued on February 25, 2013 in an initial nominal amount of BRL132 million. The Company pays interest on the two tranches at an interest rate calculated by reference to the *Taxa de Juros de Longo Prazo*, or TJLP, the long-term interest rate target for the BNDES, the Brazilian central bank. The two tranches mature on August 31, 2022 and December 30, 2018, respectively. As of December 31, 2017, the amount outstanding under the first tranche was BRL191 million and the amount outstanding under the second tranche was BRL132 million.

DESCRIPTION OF THE NOTES

The Issuer will issue €400 million aggregate principal amount of 6.375% senior notes due 2023 (the "Notes") under an indenture (the "Indenture"), dated as of April 19, 2018, among, *inter alios*, itself and BNY Mellon Corporate Trustee Services Limited, as Trustee (the "Trustee"), in a private transaction that is not subject to the registration requirements of the U.S. Securities Act. See "Notice to Investors" and "Transfer Restrictions." The terms of the Notes include those stated in the Indenture and will not incorporate provisions by reference to, and will not be subject to the provisions of, the U.S. Trust Indenture Act of 1939. The following description is a summary of the material provisions of the Indenture, including the Notes. It does not restate the Indenture in its entirety. We urge you to read the Indenture because it, and not this description, defines your rights as holders of the Notes.

Certain defined terms used in this description but not defined below under "Certain Definitions" have the meanings assigned to them in the Indenture. You can find the definitions of certain terms used in this description under the subheading "Certain Definitions."

The Issuer will make an application to list the Notes on the Official List of the Luxembourg Stock Exchange and to admit the Notes to trading on the Euro MTF Market. The Issuer can provide no assurance that the Notes will be so listed or admitted to trading.

The registered holder of a Note will be treated as the owner of it for all purposes. Only registered holders will have rights under the Indenture.

Brief Description of the Notes

The Notes:

- will be general senior unsecured obligations of the Issuer;
- will rank pari passu in right of payment among themselves and with any existing and future unsecured Indebtedness of the Issuer that is not expressly subordinated in right of payment to the Notes;
- will not be guaranteed on the Issue Date and will be structurally subordinated to all indebtedness and other liabilities (including trade payables) of the Issuer's Subsidiaries that do not guarantee the Notes (which, as of the Issue Date, includes all of the Issuer's Subsidiaries but which may be subject to change in the future);
- will rank senior in right of payment to any existing and future subordinated obligations of the Issuer; and
- will be effectively subordinated to any existing or future secured Indebtedness of the Issuer, to the extent of the value of the property and assets securing such Indebtedness.

As of December 31, 2017, on an as-adjusted basis after giving effect to the offering of the Notes and the use of proceeds therefrom to repay the 2019 Notes, the Issuer and its subsidiaries would have had (x) €2,558 million of indebtedness outstanding, all of which was unsecured, and (y) €2,040 million of undrawn but committed financing available under several revolving credit facilities.

The operations of the Issuer are conducted through its Subsidiaries and, therefore, the Issuer depends on the cash flow of its Subsidiaries to meet its obligations, including its obligations under the Notes. None of the Issuer's Subsidiaries will guarantee the Notes on the date of the Indenture, although one or more of the Issuer's Subsidiaries may elect or be required to guarantee the Notes in the future. The Notes will be structurally subordinated in right of payment to all Indebtedness and other commitments, trade payables and other liabilities of the Issuer's Subsidiaries that do not guarantee the Notes. Any right of the Issuer to receive assets of any of its Subsidiaries that do not guarantee the Notes upon that Subsidiary's liquidation or reorganization (and the consequent right of the holders of the Notes to participate in those assets) will be effectively subordinated to the claims of that Subsidiary's creditors, except to the extent that the Issuer is itself recognized as a creditor of the Subsidiary, in which case the claims of the Issuer would still be subordinate in right of payment to any security in the assets of the Subsidiary and any Indebtedness of the Subsidiary senior to that held by the Issuer. As of December 31, 2017, on an as-adjusted basis after giving effect to the offering of the Notes and the use of proceeds therefrom to repay the 2019 Notes, the Issuer's Subsidiaries would have had €432 million of third-party indebtedness, as well as the Shareholder Loan (as defined in this offering memorandum) in an amount of €72 million. The Issuer's subsidiaries are also subject to substantial other obligations incurred in the ordinary course of business. See "Risk Factors—Risks Relating to Financial Markets and Liquidity—The Group's debt exposes it to certain risks, and it may incur significantly more indebtedness, which could exacerbate these risks."

As of the date of the Indenture, all of our Subsidiaries will be our "Restricted Subsidiaries." However, under the circumstances described below under the caption "Certain Covenants—Designation of Restricted and Unrestricted Subsidiaries," we will be permitted to designate, subject to certain exceptions, our Subsidiaries as "Unrestricted Subsidiaries." Our Unrestricted Subsidiaries will not be subject to many of the restrictive covenants in the Indenture.

Principal, Maturity and Interest

The Issuer will issue €400 million in aggregate principal amount of Notes in this offering. The Indenture governing the Notes will provide for the issuance of additional Notes having terms and conditions identical in all respects to the Notes offered in this offering, except for issue date, issue price and the first payment on the Notes (the "Additional Notes"). Any issuance of Additional Notes is subject to all of the covenants in the Indenture, including the covenants described below under the caption "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock" and "Certain Covenants—Limitation on Liens." The Notes and any Additional Notes subsequently issued under the Indenture will be treated as a single class for all purposes under the Indenture, including, without limitation, waivers, amendments, redemptions and offers to purchase; *provided* that if the Additional Notes are not issued pursuant to a "qualified reopening" of the original series, are otherwise treated as part of the same "issue" of debt instruments as the original series or are issued with no more than a *de minimis* amount of original discount, in each case for U.S. federal income tax purposes, the Additional Notes will be issued with one or more separate identification codes from the Notes. The Issuer will issue Notes in denominations of €100,000 and integral multiples of €1,000 above €100,000. The Notes will mature on October 15, 2023. Unless the context otherwise requires, in this "Description of the Notes" references to the Notes include the Notes and any Additional Notes that are issued from time to time.

Interest on the Notes will accrue at the rate of 6.375% per annum and will be payable semi-annually in arrears on April 15 and October 15, commencing on October 15, 2018. Interest on overdue principal and interest and Additional Amounts, if any, will, to the extent lawful, accrue at a rate that is 1% higher than the then applicable interest rate on the Notes. The Issuer will make each interest payment to the holders of record on the immediately preceding April 1 and October 1 (each, a "Record Date").

Interest on the Notes will accrue from the date of original issuance or, if interest has already been paid, from the date it was most recently paid. Interest will be computed on the basis of a 360-day year comprised of twelve 30-day months (and in the case of an incomplete month, the number of days actually elapsed).

Methods of Receiving Payments on the Notes

Principal, interest, premium and Additional Amounts (as defined below), if any, on the Global Notes (as defined below) will be payable in euros at the specified office or agency of one or more paying agents; *provided* that all such payments with respect to Notes represented by one or more Global Notes registered in the name of a nominee of the common depositary of Clearstream and/or Euroclear will be made by wire transfer of immediately available funds to the account specified by the holder or holders thereof.

Principal, interest, premium and Additional Amounts, if any, on the Definitive Registered Notes (as defined below) will be payable at the specified office or agency of one or more paying agents in the City of London maintained for such purposes. In addition, interest on the Definitive Registered Notes may be paid by check mailed to the person entitled thereto as shown on the register for the Definitive Registered Notes.

Paying Agent and Registrar for the Notes

The Issuer will maintain one or more paying agents for the Notes (each, a "Paying Agent"). The initial Paying Agent will be The Bank of New York Mellon, London Branch.

The Issuer will also maintain one or more registrars (each, a "Registrar") and a transfer agent in a member state of the European Union. The initial Registrar will be The Bank of New York Mellon SA/NV, Luxembourg Branch. The initial transfer agent will be The Bank of New York Mellon SA/NV, Luxembourg Branch. The Registrar will maintain a register reflecting ownership of Definitive Registered Notes, if any, outstanding from time to time.

Upon written notice to the Trustee, the Issuer may change or add any Paying Agent, Registrar or transfer agent. For so long as the Notes are listed on the Luxembourg Stock Exchange and its rules so require, the Issuer will publish a notice of any change of Paying Agent, Registrar or transfer agent in a newspaper having a general circulation in Luxembourg (which is expected to be the *Luxemburger Wort*) in accordance with the provisions set forth under "Notices."

Transfer and Exchange

Notes sold within the United States to qualified institutional buyers pursuant to Rule 144A under the U.S. Securities Act will initially be represented by one or more global notes in registered form without interest coupons attached (collectively, the "144A Global Notes"). Notes sold outside the United States pursuant to Regulation S under the U.S. Securities Act will initially be represented by one or more global notes in registered form without interest coupons attached (collectively, the "Reg S Global Notes"). The 144A Global Notes and the Reg S Global Notes are collectively referred to herein as the "Global Notes."

The Global Notes will be deposited with a common depositary for Euroclear and Clearstream or its nominee. The Global Notes may be transferred only to Euroclear and/or Clearstream or a nominee of them, to a successor of Euroclear and/or Clearstream and/or to a nominee of such successor.

Ownership of interests in the Global Notes ("Book-Entry Interests") will be limited to persons that have accounts with Euroclear and Clearstream or persons that may hold interests through such participants. Ownership of interests in the form of Book-Entry Interests and transfers thereof will be subject to the restrictions on transfer and certification requirements summarized below and described more fully under "Book-Entry, Delivery and Form—Transfers." In addition, transfers of Book-Entry Interests between participants in Euroclear or participants in Clearstream will be effected by Euroclear or Clearstream pursuant to customary procedures and subject to the applicable rules and procedures established by Euroclear or Clearstream and their respective participants.

Book-Entry Interests in a 144A Global Note (the "144A Book-Entry Interests") may be transferred to a person who takes delivery in the form of Book-Entry Interests in a Reg S Global Note ("Reg S Book-Entry Interests") only upon delivery by the transferor to the transfer agent of a written certification (in the form provided in the Indenture) to the effect that such transfer is being made in accordance with Regulation S under the U.S. Securities Act or otherwise in accordance with the applicable restrictions set out in the Indenture and any applicable securities laws of any state of the United States or any other jurisdiction. Subject to the foregoing, Reg S Book-Entry Interests may be transferred to a person who takes delivery in the form of 144A Book-Entry Interests only upon delivery by the transferor to the transfer agent of a written certification (in the form provided in the Indenture) to the effect that such transfer is being made to a person who the transferor reasonably believes is a "qualified institutional buyer" within the meaning of Rule 144A in a transaction meeting the requirements of Rule 144A or otherwise in accordance with applicable transfer restrictions set out in the Indenture and any applicable securities laws of any state of the United States or any other jurisdiction.

Any Book-Entry Interest that is transferred will, upon transfer, cease to be a Book-Entry Interest in the Global Note from which it was transferred and will become a Book-Entry Interest in the Global Note to which it is transferred. Accordingly, from and after such transfer, it will become subject to all transfer restrictions, if any, and other procedures applicable to Book-Entry Interests in the Global Note to which it was transferred.

If Notes in definitive registered form ("Definitive Registered Notes") are issued, they will be issued only in minimum denominations of €100,000 principal amount and integral multiples of €1,000 in excess thereof, upon receipt by the Registrar of instructions relating thereto and any certificates, opinions and other documentation required by the Indenture. It is expected that such instructions will be based upon directions received by Euroclear or Clearstream, as applicable, from the participant which owns the relevant Book-Entry Interests. Definitive Registered Notes issued in exchange for a Book-Entry Interest, if any, will, except as set forth in the Indenture or as otherwise determined by the Issuer in compliance with applicable law, be subject to, and will have a legend with respect to, the restrictions on transfer summarized below and described more fully under "Notice to Investors."

Definitive Registered Notes may be transferred and exchanged for Book-Entry Interests in a Global Note only in accordance with the Indenture and, if required, only after the transferor first delivers to the transfer agent a written certification (in the form provided in the Indenture) to the effect that such transfer will comply with the transfer restrictions applicable to such Notes.

Subject to the restrictions on transfer referred to above, Notes issued as Definitive Registered Notes, if any, may be transferred or exchanged, in whole or in part, in minimum denominations of €100,000 in principal amount and integral multiples of €1,000 in excess thereof. In connection with any such transfer or exchange, the Indenture will require the transferring or exchanging holder to, among other things, furnish appropriate endorsements and transfer documents, to furnish information regarding the account of the transferee at Euroclear or Clearstream, where appropriate, to furnish certain certificates and opinions, and to pay any taxes, duties and governmental charges in connection with such transfer or exchange. Any such transfer or exchange will be made without charge to the holder, other than any taxes, duties and governmental charges payable in connection with such transfer.

Notwithstanding the foregoing, the Issuer (or, as applicable, any Registrar or transfer agent) is not required to register the transfer of any Definitive Registered Notes:

- for a period of 15 calendar days prior to any date fixed for the redemption of the Notes;
- for a period of 15 calendar days immediately prior to the date fixed for selection of Notes to be redeemed in part;
- for a period of 15 calendar days prior to the Record Date with respect to any interest payment date; or
- which the holder has tendered (and not withdrawn) for repurchase in connection with a Change of Control Offer or an Asset Sale Offer.

Note Guarantees

The Notes will not be guaranteed on the Issue Date. However, under the covenant described under "Certain Covenants—Limitations on Issuances of Guarantees of Indebtedness," certain of our Restricted Subsidiaries may be required or elect to provide a Note Guarantee in the future. The Note Guarantees will be joint and several obligations of each Guarantor.

Each of the Note Guarantees and the amounts recoverable thereunder will be contractually limited to the maximum amount that can be guaranteed by a particular Guarantor without rendering its guarantee voidable or otherwise ineffective under applicable law, including laws relating to fraudulent conveyance, fraudulent transfer, maintenance of share capital, corporate benefit, financial assistance or similar laws affecting the rights of creditors generally, or otherwise to reflect applicable laws, including laws relating to capital maintenance and the liability of directors and officers. By virtue of these limitations, a Guarantor's obligations under its Note Guarantee could be significantly less than amounts payable in respect of the Notes.

The Note Guarantee of each Guarantor, if any, will:

- be a general senior obligation of that Guarantor;
- rank pari passu in right of payment with all existing and future obligations of such Guarantor that are not expressly subordinated in right of payment to such Note Guarantee; and
- be effectively subordinated to any existing and future obligations of the relevant Guarantor that are secured by property or assets that do not secure its Note Guarantee, to the extent of the value of the property and assets securing such obligations.

Optional Redemption

At any time prior to October 15, 2020, the Issuer may redeem up to 40% of the aggregate principal amount of Notes issued under the Indenture at a redemption price of 106.375% of the principal amount, plus accrued and unpaid interest and Additional Amounts, if any, to, but not including, the redemption date, with the net cash proceeds of one or more Equity Offerings; *provided* that:

(1) at least 60% of the aggregate principal amount of Notes then issued under the Indenture (excluding Notes held by the Issuer and its Affiliates but including any Additional Notes) remains outstanding immediately after the occurrence of such redemption; and

(2) the redemption occurs within 90 days of the date of the closing of such Equity Offering.

At any time prior to October 15, 2020, the Issuer may also redeem all or a part of the Notes, upon not less than 10 nor more than 60 days' prior notice, at a redemption price equal to 100% of the principal amount of the Notes redeemed plus the Applicable Premium as of, and accrued and unpaid interest and Additional Amounts, if any, to, but not including, the date of redemption (the "Redemption Date"), subject to the rights of Holders of Notes on the relevant Record Date to receive interest due on the relevant interest payment date.

Except pursuant to the two preceding paragraphs and as set out below under "Redemption for Changes in Withholding Taxes," the Notes will not be redeemable at the Issuer's option prior to October 15, 2020.

On or after October 15, 2020, the Issuer may redeem all or part of the Notes in an amount of €100,000 or in integral multiples of €1,000 in excess thereof, upon not less than 10 nor more than 60 days' notice, at the redemption prices (expressed as percentages of principal amount) set forth below plus accrued and unpaid interest and Additional Amounts, if any, on the Notes redeemed, to, but not including, the applicable redemption date, if redeemed during the twelve-month

period beginning on the dates indicated below, subject to the rights of Holders of Notes on the relevant Record Date to receive interest due on the relevant interest payment date:

Year	Percentage
October 15, 2020	103.18750%
October 15, 2021	101.59375%
October 15, 2022 and thereafter	100.00000%

Unless the Issuer defaults in the payment of the redemption price, interest will cease to accrue on the Notes or portions thereof called for redemption on the applicable redemption date.

Any notice of redemption may, in the Issuer's discretion, be subject to the satisfaction of one or more conditions precedent.

Open Market Purchases

The Issuer and its Restricted Subsidiaries may at any time acquire the Notes through open market purchases, negotiated transactions or otherwise, in accordance with applicable securities laws; *provided, however*, that in determining whether the Holders of the required principal amount of Notes have concurred in any direction, waiver or consent, Notes owned by the Issuer or by any Affiliate of the Issuer will be considered as though not outstanding.

Selection and Notice

If less than all of the Notes are to be redeemed at any time, the Registrar will select Notes for redemption on a *pro rata* basis unless otherwise required by law, the applicable stock exchange requirements or clearing system procedures.

No Notes of €100,000 or less can be redeemed in part. Notices of redemption will be transmitted at least 10 but not more than 60 days before the redemption date to each Holder of Notes to be redeemed; *except* that redemption notices may be transmitted more than 60 days prior to a redemption date if the notice is issued in connection with a defeasance of the Notes or a satisfaction and discharge of the Indenture. Any redemption and notice may, in the Issuer's discretion, be subject to the satisfaction of one or more conditions precedent.

If any Note is to be redeemed in part only, the notice of redemption that relates to that Note will state the portion of the principal amount of that note that is to be redeemed. A new Note in principal amount equal to the unredeemed portion of the original Note will be issued in the name of the Holder of Notes upon cancellation of the original Note. Notes called for redemption become due on the date fixed for redemption. Unless the Issuer defaults in the payment of the redemption price, on and after the redemption date, interest ceases to accrue on Notes or portions of Notes called for redemption.

The Trustee and/or the Registrar shall not be liable for any selection made by it under this "Selection and Notice."

Redemption for Changes in Withholding Taxes

The Issuer may redeem the Notes, in whole but not in part, at any time upon giving not less than 30 nor more than 60 days' prior notice to the Holders with a copy to the Trustee and Paying Agent (which notice must be given in accordance with the procedures described in "Selection and Notice"), at a redemption price equal to the principal amount thereof, together with accrued and unpaid interest, if any, to the date fixed by the Issuer for redemption (a "Tax Redemption Date") and all Additional Amounts (if any) then due and which will become due on the Tax Redemption Date as a result of the redemption or otherwise (subject to the right of Holders on the relevant Record Date to receive interest due on the relevant interest payment date and Additional Amounts (if any) in respect thereof), if on the next date on which any amount would be payable in respect of the Notes or any Note Guarantee, the Issuer under or with respect to the Notes or any of the Guarantors with respect to any Note Guarantee is or would be required to pay Additional Amounts (but, in the case of the relevant Guarantor, only if such amount cannot be paid by the Issuer or another Guarantor who can pay such amount without the obligation to pay Additional Amounts), and the Issuer or relevant Guarantor, as applicable, cannot avoid any such payment obligation by taking reasonable measures available (including making payment through a Paying Agent located in another jurisdiction), as a result of:

(1) any change in, or amendment to, the laws or treaties (or any regulations, or rulings promulgated thereunder) of the relevant Tax Jurisdiction (as defined below) affecting taxation which change or amendment becomes effective on or after the date of the Indenture (or, if the relevant Tax Jurisdiction has changed since the date of the Indenture, the date on which the then current Tax Jurisdiction became the applicable Tax Jurisdiction under the Indenture) except if publicly announced before the date thereof (and being enacted in substantially the form as formally proposed); or

(2) any change in, or amendment to, the existing official position or the introduction of an official position regarding the application, administration or interpretation of such laws, treaties, regulations or rulings (including a holding, judgment or order by a court of competent jurisdiction or a change in published practice), which change, amendment or introduction becomes effective on or after the date of the Indenture (or, if the relevant Tax Jurisdiction has changed since the date of the Indenture, the date on which the then current Tax Jurisdiction became the applicable Tax Jurisdiction under the Indenture), except if publicly announced before the date thereof (and being enacted in substantially the form as formally proposed) (each of the foregoing clauses (1) and (2), a "Change in Tax Law").

The Issuer will not give any such notice of redemption earlier than 60 days prior to the earliest date on which the Issuer or the Guarantor, as applicable, would be obligated to make such payment or withholding if a payment in respect of the Notes were then due. Notwithstanding the foregoing, the Issuer may not redeem the Notes under this provision if the relevant Tax Jurisdiction changes under the Indenture and the Issuer is obligated to pay any Additional Amounts solely as a result thereof. Prior to the publication or, where relevant, mailing of any notice of redemption of the Notes pursuant to the foregoing, the Issuer will deliver to the Trustee (with a copy to the Paying Agent) (a) an officer's certificate stating that the obligation to pay Additional Amounts cannot be avoided by the Issuer or the relevant Guarantor taking reasonable measures available to it; and (b) an opinion of independent tax counsel to the effect that there has been such Change in Tax Law which would entitle the Issuer to redeem the Notes hereunder and the Issuer or the relevant Guarantor cannot avoid any obligation to pay Additional Amounts by taking reasonable measures available to it. The Trustee will accept such opinion of independent tax counsel and officer's certificate as sufficient evidence of the satisfaction of the conditions precedent described above, without further inquiry, in which event it will be conclusive and binding on the Holders.

The foregoing provisions shall apply *mutatis mutandis* to any successor Person, after such successor Person becomes a party to the Indenture, with respect to a Change in Tax Law occurring after the time such successor Person becomes a party to the Indenture.

Additional Amounts

All payments made by or on behalf of the Issuer under or with respect to the Notes or any of the Guarantors with respect to any Note Guarantee, if any, (whether or not in the form of Definitive Registered Notes) will be made free and clear of and without withholding or deduction for, or on account of, any present or future tax, duty, levy, impost, assessment and any other charge of a similar nature, including penalties, interest and other liabilities related thereto (collectively, "Taxes") unless the withholding or deduction of such Taxes is then required by law. If any deduction or withholding for, or on account of, any Taxes imposed or levied by or on behalf of any jurisdiction in which the Issuer (including any successor entity) is then incorporated or organized, engaged in business (directly or indirectly) or resident for tax purposes or any political subdivision thereof or therein or any jurisdiction from or through which payment is made by or on behalf of the Issuer or any Guarantor (including the jurisdiction of any Paying Agent) or any political subdivision thereof or therein (each, a "Tax Jurisdiction"), will at any time be required to be made from any payments made by or on behalf of the Issuer under or with respect to the Notes, or any of the Guarantors with respect to any Note Guarantees, if any, including payments of principal, redemption price, purchase price, interest or premium, the Issuer or the relevant Guarantor, as applicable, will pay (to the extent lawful) such additional amounts (the "Additional Amounts") as may be necessary in order that the net amounts received and retained in respect of such payments (including Additional Amounts) after such withholding or deduction (including any such withholding or deduction from such Additional Amounts) will equal the respective amounts which would have been received and retained in respect of such payments in the absence of such withholding or deduction; *provided, however*, that no Additional Amounts will be payable with respect to:

(1) any Taxes which would not have been imposed but for the Holder or the beneficial owner of the Notes being a citizen or resident or national of, incorporated or organized in, carrying on a business in, or having any other connection with, the relevant Tax Jurisdiction in which such Taxes are imposed other than by the mere acquisition or holding of such Note or Note Guarantee, if any, enforcement or exercise of rights thereunder or the receipt of payments in respect thereof;

(2) any Taxes that are imposed or withheld as a result of the failure of the Holder of the Notes or beneficial owner of the Notes to comply with any written request, made to that Holder in writing at least 30 days before any such withholding or deduction would be payable, by the Issuer to provide timely or accurate information concerning the nationality, residence or identity of such Holder or beneficial owner or to make any valid or timely declaration or similar claim or satisfy any certification information or other reporting requirement (to the extent such Holder or beneficial owner is legally entitled to do so), which is required or imposed by a statute, treaty, regulation or administrative practice of the relevant Tax Jurisdiction as a precondition to exemption from all or part of such Taxes;

(3) any Taxes imposed or withheld as a result of any Note presented for payment (where Notes are in the form of Definitive Registered Notes and presentation is required) more than 30 days after the relevant payment is first

made available for payment to the Holder (except to the extent that the Holder would have been entitled to Additional Amounts had the Note been presented on the last day of such 30-day period);

(4) any estate, inheritance, gift, sale, transfer, personal property or similar tax or assessment;

(5) any Taxes imposed only by virtue of a Holder or beneficial owner of the Notes (or any financial institution through which the Holder or beneficial owner holds any Notes through which payment on such Notes are made) having failed to comply with any certification, information, identification, documentation or other reporting requirements (including entering into and complying with an agreement with the Internal Revenue Service) imposed pursuant to Sections 1471 through 1474 of the Internal Revenue Code as in effect on the date of issuance of the Notes or any successor or amended version of these provisions;

(6) any Taxes imposed or withheld as a result of any Note presented for payment by or on behalf of a Holder of Notes who would have been able to avoid such withholding or deduction by presenting the relevant Note to another Paying Agent in any European Union Member State;

(7) any Taxes payable other than by deduction or withholding from payments under, or with respect to, the Notes or any Note Guarantee;

(8) any Taxes imposed on or with respect to any payment by the Issuer or any Guarantor, as the case may be, to the Holder if such Holder is a fiduciary of a beneficial owner or partnership or any person other than the sole beneficial owner of such payment to the extent that Taxes would not have been imposed on such payment had such beneficial owner or partner (in the case of a partnership) been the Holder of such Note; or

(9) any combination of items (1) through (8) above.

In addition to the foregoing, the Issuer and the Guarantors, if any, will also pay and indemnify the Holder or beneficial owner of the Notes for any present or future stamp, issue, registration, transfer, court or documentary Taxes, or any other excise or property taxes, charges or similar levies or Taxes which are levied by any Tax Jurisdiction on the issuance, execution, delivery, registration or enforcement of any of the Notes or any Note Guarantee, the Indenture, or any other document or instrument referred to therein, or the receipt of any payments with respect thereto.

If the Issuer or any Guarantor, as the case may be, becomes aware that it will be obligated to pay Additional Amounts with respect to any payment under or with respect to the Notes or any Note Guarantee, the Issuer or the relevant Guarantor, if any, will deliver to the Trustee (with a copy to the Paying Agent) on a date which is at least 30 days prior to the date of that payment (unless the obligation to pay Additional Amounts arises after the 45th day prior to that payment date, in which case the Issuer shall notify the Trustee promptly thereafter) an officer's certificate stating the fact that Additional Amounts will be payable and the amount estimated to be so payable. The officer's certificate must also set forth any other information reasonably necessary to enable the Paying Agent to pay Additional Amounts to Holders on the relevant payment date. The Trustee will be entitled to rely solely on such officer's certificate as conclusive proof that such payments are necessary. The Issuer will provide the Trustee with documentation evidencing the payment of Additional Amounts.

The Issuer or the relevant Guarantor, if any, will make all withholdings and deductions required by law and will timely remit the full amount deducted or withheld to the relevant Tax authority in accordance with applicable law. The Issuer will use its reasonable efforts to obtain Tax receipts, if legally available, from each Tax authority evidencing the payment of any Taxes so deducted or withheld. The Issuer or the relevant Guarantor, if any, will furnish to the Trustee (with a copy to the Paying Agent), within a reasonable time after the date the payment of any Taxes so deducted or withheld is made, certified copies of Tax receipts evidencing payment by the Issuer or the relevant Guarantor, as the case may be, or if, notwithstanding such entity's efforts to obtain receipts, receipts are not obtained, other evidence of payments by such entity (reasonably satisfactory to the Trustee). The Issuer or the relevant Guarantor shall attach to each certified copy or other evidence, as applicable, a certificate stating (x) that the amount of Tax evidenced by the certified copy was paid in connection with payments under or with respect to the Notes then outstanding upon which such Taxes were due; and (y) the amount of such withholding tax paid per €1,000 of principal amount of the Notes.

Whenever in the Indenture or in this "Description of the Notes" there is mentioned, in any context, the payment of amounts based upon the principal amount of the Notes or of principal, interest or of any other amount payable under, or with respect to, any of the Notes or Note Guarantees, such mention shall be deemed to include mention of the payment of Additional Amounts to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof.

The above obligations will survive any termination, defeasance or discharge of the Indenture, any transfer by a Holder or beneficial owner of its Notes and will apply, *mutatis mutandis*, to any jurisdiction in which any successor Person

to the Issuer or any Guarantor is incorporated or organized, engaged in business or resident for tax purposes or any jurisdiction from or through which such Person makes any payment under or with respect to the Notes (or any Note Guarantee) and any department or political subdivision thereof or therein.

Mandatory Redemption

The Issuer is not required to make mandatory redemption or sinking fund payments with respect to the Notes. However, under certain circumstances, the Issuer may be required to offer to purchase the Notes as described under the captions "Repurchase at the Option of Holders—Change of Control" and "Repurchase at the Option of Holders—Asset Sales."

Repurchase at the Option of Holders

Change of Control

If a Change of Control occurs, the Issuer shall offer to repurchase any and all of the Holder's Notes (a "Change of Control Offer") on the terms set forth in the Indenture. In the Change of Control Offer, the Issuer will offer a payment (the "Change of Control Payment") in cash equal to 101% of the aggregate principal amount of Notes repurchased plus accrued and unpaid interest and Additional Amounts, if any, on the Notes repurchased to the date of purchase, subject to the rights of Holders of Notes on the relevant Record Date to receive interest due on the relevant interest payment date.

Unless the Issuer has unconditionally exercised its right to redeem all the Notes as described under "Optional Redemption" or all conditions to such redemption have been satisfied or waived, within 30 days following any Change of Control, the Issuer will mail a notice to each Holder describing the transaction or transactions that constitute the Change of Control and offering to repurchase Notes on the date (the "Change of Control Payment Date") specified in the notice, which date will be no earlier than 30 days and no later than 60 days from the date such notice is mailed, pursuant to the procedures required by the Indenture and described in such notice. If the Change of Control has been publicly announced but has not occurred at the time the notice of the Change of Control Offer is mailed to Holders, the Change of Control Offer may be conditional on the consummation of such Change of Control occurring prior to or concurrent with the repurchase.

The Issuer will comply with the requirements of any applicable securities laws and regulations thereunder to the extent those laws and regulations are applicable in connection with the purchase of the Notes as a result of a Change of Control. To the extent that the provisions of any securities laws or regulations conflict with the provisions of the Indenture, the Issuer will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under the Indenture by virtue of such compliance.

On the Change of Control Payment Date, the Issuer will, to the extent lawful:

(1) accept for payment all Notes or portions of Notes properly tendered pursuant to the Change of Control Offer;

(2) deposit with the Paying Agent an amount equal to the Change of Control Payment in respect of all Notes or portions of Notes properly tendered; and

(3) deliver or cause to be delivered to the Paying Agent and the Registrar the Notes properly accepted together with an officer's certificate (with a copy to the Trustee) stating the aggregate principal amount of Notes or portions of notes being purchased by the Issuer.

The Paying Agent will, at the written direction of the Issuer, promptly mail to each Holder of Notes properly tendered the Change of Control Payment for such Notes, and the Trustee will promptly authenticate (or cause to be authenticated) and mail (or cause to be transferred by book entry) to each Holder new Notes equal in principal amount to any unpurchased portion of the Notes surrendered, if any; *provided* that such new Notes will be in minimum denominations of €100,000 principal amount and integral multiples of €1,000 in excess thereof. Unless the Issuer defaults in making the Change of Control Payment, any Note so accepted for payment will cease to accrue interest on and after the Change of Control Payment Date. The Issuer will publicly announce the results of the Change of Control Offer on or as soon as reasonably practicable after the Change of Control Payment Date.

If Holders of not less than 90% in aggregate principal amount of the outstanding Notes validly tender and do not validly withdraw such Notes in a Change of Control Offer and the Issuer, or any third party making a Change of Control Offer in lieu of the Issuer, purchases all of the Notes validly tendered and not withdrawn by such Holders, the Issuer or such third party will have the right, upon not less than 10 nor more than 60 days' prior notice, given not more than 60 days following such purchase pursuant to such Change of Control Offer, to redeem all Notes that remain outstanding following such purchase at a redemption price equal to 101% of the principal amount thereof, plus accrued and unpaid interest and

Additional Amounts, if any, to (but not including) the date of redemption (subject to the rights of Holders of Notes on the relevant record date to receive interest due on the relevant interest payment date).

The provisions described above that require the Issuer to make a Change of Control Offer following a Change of Control will be applicable whether or not any other provisions of the Indenture are applicable. Except as described above with respect to a Change of Control, the Indenture does not contain provisions that permit the holders of the Notes to require that the Issuer repurchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

The Issuer will not be required to make a Change of Control Offer upon a Change of Control if (1) a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements set forth in the Indenture applicable to a Change of Control Offer made by the Issuer and purchases all Notes properly tendered and not withdrawn under the Change of Control Offer; or (2) notice of redemption has been given pursuant to the Indenture as described above under the caption "Optional Redemption," unless and until there is a default in payment of the applicable redemption price.

The definition of Change of Control includes a phrase relating to the direct or indirect sale, lease, transfer, conveyance or other disposition of "all or substantially all" of the properties or assets of the Issuer and its Subsidiaries taken as a whole. Although there is a limited body of case law interpreting the phrase "substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, the ability of a Holder of Notes to require the Issuer to repurchase its Notes as a result of a sale, lease, transfer, conveyance or other disposition of less than all of the assets of the Issuer and its Subsidiaries taken as a whole to another Person or group may be uncertain.

If and for so long as the Notes are listed on the Luxembourg Stock Exchange and admitted for trading on the Euro MTF, and the rules of the Luxembourg Stock Exchange so require, the Issuer will publish notices as soon as practicable relating to the Change of Control Offer in a leading newspaper of general circulation in Luxembourg (which is expected to be the *Luxemburger Wort*) or, to the extent and in the manner permitted by such rules, posted on the official website of the Luxembourg Stock Exchange (*www.bourse.lu*).

The provisions of the Indenture relating to the Issuer's obligation to make an offer to repurchase the Notes as a result of a Change of Control may be waived or modified with the written consent of the Holders of a majority in aggregate principal amount of the then outstanding Notes.

Certain of our Credit Facilities provide that the occurrence of a change of control would require the prepayment of all the outstanding Indebtedness thereunder. If the Issuer experiences a change of control that triggers a mandatory prepayment under such Credit Facilities, the Issuer may seek the agreement of the relevant lenders thereunder to maintain their availability or seek to refinance them. Moreover, the exercise by the holders of the Notes of their right to require the Issuer to repurchase the Notes could cause a default under, or require a repurchase of, other debt, even if a Change of Control does not, due to the financial effect of the repurchase of Notes on the Issuer. Finally, the Issuer's ability to repurchase Notes pursuant to a Change of Control Offer following the occurrence of a Change of Control may be limited by the Issuer's then-existing financial resources. There can be no assurance that sufficient funds will be available when necessary to make the required purchase of the Notes.

Asset Sales

The Issuer will not, and will not permit any of its Restricted Subsidiaries to, consummate an Asset Sale unless:

(1) the Issuer and/or any Restricted Subsidiary of the Issuer receives consideration at the time of the Asset Sale at least equal to the Fair Market Value (measured as of the date of the definitive agreement with respect to such Asset Sale) of the assets, rights or Equity Interests issued or sold or otherwise disposed of; and

(2) at least 75% of the consideration received in the Asset Sale by the Issuer and/or such Restricted Subsidiary of the Issuer is in the form of cash, Cash Equivalents or Government Guaranteed Securities. For purposes of this provision, each of the following will be deemed to be cash:

  (a) any liabilities, as shown on the Issuer's most recent consolidated balance sheet, of the Issuer or any Restricted Subsidiary of the Issuer (other than contingent liabilities and liabilities that are by their terms subordinated to the Notes) that are assumed by the transferee of any such assets or are discharged pursuant to an agreement with such transferee and as a result of which, in each case, the Issuer or such Restricted Subsidiary of the Issuer is released from further liability or is indemnified against any further liability in connection therewith;

  (b) any securities, notes or other obligations received by the Issuer and/or any such Restricted Subsidiary of the Issuer from such transferee that are within 180 days, subject to ordinary settlement periods, converted

by the Issuer or such Restricted Subsidiary of the Issuer into cash or Cash Equivalents, to the extent of the cash or Cash Equivalents received in that conversion;

(c) any share or assets of the kind referred to in clauses (1)(b), (1)(c) or (1)(d) of the next paragraph of this covenant;

(d) any Designated Non-Cash Consideration;

(e) Indebtedness of any Restricted Subsidiary of the Issuer that is no longer a Restricted Subsidiary of the Issuer as a result of such Asset Sale, to the extent that the Issuer and each other Restricted Subsidiary of the Issuer are released from or indemnified against any Guarantee of such Indebtedness in connection with such Asset Sale; and

(f) Indebtedness of the Issuer or of any Restricted Subsidiary of the Issuer (other than Indebtedness that is by its terms subordinated to the Notes) received from Persons who are not the Issuer or any Restricted Subsidiary of the Issuer.

Within 365 days after the receipt of any Net Proceeds from an Asset Sale, the Issuer (or the applicable Restricted Subsidiary of the Issuer, as the case may be) may:

(1) apply such Net Proceeds, at its option:

(a) (x) to repay, repurchase, redeem or prepay any Indebtedness (other than Subordinated Obligations) and, if the Indebtedness prepaid, redeemed or repaid is revolving credit Indebtedness, to correspondingly reduce commitments with respect thereto (*except* that no such reduction will be required to the extent that such Indebtedness would, immediately after giving effect to such prepayment, repayment, repurchase or redemption, have been capable of being reincurred under the first paragraph of the covenant described under "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock"); or (y) towards the making of an offer to all Holders of Notes to repurchase Notes (including any Additional Notes) at no less than par plus accrued and unpaid interest to the date of purchase;

(b) to acquire all or substantially all of the assets of, or any Capital Stocks of a Person engaged in, another Permitted Business, if, in the case of any such acquisition of Capital Stock, such Person is or becomes a Restricted Subsidiary of the Issuer or is merged with or into the Issuer or a Restricted Subsidiary of the Issuer;

(c) to make a capital expenditure; or

(d) to acquire other assets that are not classified as current assets under IFRS and that are used or useful in a Permitted Business;

(2) enter into a binding commitment to apply the Net Proceeds pursuant to clauses (1)(b), (1)(c) or (1)(d) of this paragraph; *provided* that such binding commitment shall be treated as a permitted application of the Net Proceeds from the date of such commitment until the earlier of (x) the date on which such acquisition or expenditure is consummated; and (y) the 180th day following the expiration of the aforementioned 365-day period; or

(3) any combination of the foregoing.

Pending the final application of any Net Proceeds, the Issuer or any applicable Restricted Subsidiary of the Issuer may invest the Net Proceeds in any manner that is not prohibited by the Indenture.

Any Net Proceeds from Asset Sales that are not applied or invested as provided in the second paragraph of this covenant will constitute "Excess Proceeds." When the aggregate amount of Excess Proceeds exceeds the greater of €40.0 million and 0.55% of Consolidated Total Assets of the Issuer (or the equivalent in another currency), within 30 days thereof, the Issuer will make an offer (an "Asset Sale Offer") to all Holders of Notes, and (at the Issuer's election) to holders of Pari Passu Indebtedness containing provisions similar to those set forth in the Indenture with respect to offers to purchase, prepay, redeem or repay with the proceeds of sales of assets, to purchase the maximum principal amount of Notes and such other Pari Passu Indebtedness (plus all accrued interest thereon and the amount of all fees and expenses, including premiums, incurred in connection therewith) that may be purchased, prepaid or redeemed out of the Excess Proceeds. The offer price in any Asset Sale Offer in respect of the Notes will not be less than 100% of the principal amount of the Notes and, in the case of Pari Passu Indebtedness, not greater than the principal amount thereof, plus, in each case, accrued and unpaid interest, and in the case of the Notes, Additional Amounts, if any, to the date of purchase in accordance with the Indenture or the agreements governing such Pari Passu Indebtedness, as applicable, and in the case of the Notes, in

minimum denominations of €100,000 and in integral multiples of €1,000 in excess thereof. If any Excess Proceeds remain after consummation of an Asset Sale Offer, the Issuer or any Restricted Subsidiaries of the Issuer may use those Excess Proceeds for any purpose not otherwise prohibited by the Indenture. If the aggregate principal amount of Notes and other Pari Passu Indebtedness tendered into (or to be redeemed in connection with) such Asset Sale Offer exceeds the amount of Excess Proceeds, the Registrar will select the Notes and such other Pari Passu Indebtedness to be repaid on a *pro rata* basis based on the principal amount of Notes and such other Pari Passu Indebtedness presented for purchase, prepayment or redemption. For the purposes of calculating the principal amount of any such Pari Passu Indebtedness not denominated in euros, such Pari Passu Indebtedness shall be calculated by converting any such principal amounts into their Euro Equivalent determined as of the Business Day immediately prior to the date on which the Asset Sale Offer is announced. Upon completion of each Asset Sale Offer, the amount of Excess Proceeds will be reset at zero.

The Asset Sale Offer, insofar as it relates to the Notes, will remain open for a period of not less than 20 Business Days following its commencement (the "Asset Sale Offer Period"). No later than five Business Days after the termination of the Asset Sale Offer Period (the "Asset Sale Purchase Date"), the Issuer will purchase the principal amount of Notes and to the extent the Issuer elects, Pari Passu Indebtedness required to be purchased by it pursuant to this covenant, or if less than the Asset Sale Offer Amount has been so validly tendered, all Notes and Pari Passu Indebtedness validly tendered in response to the Asset Sale Offer.

On and after the repurchase date, unless the Issuer defaults in payment of the purchase price, interest shall cease to accrue on Notes or portions thereof purchased.

The Issuer will comply with the requirements of any relevant securities laws and regulations thereunder to the extent those laws and regulations are applicable in connection with each repurchase of Notes pursuant to an Asset Sale Offer. To the extent that the provisions of any securities laws or regulations conflict with the Indenture, the Issuer will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under the Asset Sale provisions of the Indenture by virtue of such compliance.

Certain Covenants

Changes in Covenants When Notes Rated Investment Grade

If on any date following the date of the Indenture:

(1) the Notes are rated BBB− or higher by S&P or, if no rating by S&P then exists, the equivalent of such rating by Moody's (or, if Moody's ceases to rate the Notes for reasons outside of the control of the Issuer, the equivalent investment grade credit rating from any other "nationally recognized statistical rating organization" registered under Section 15E of the U.S. Exchange Act selected by the Issuer as a replacement agency); and

(2) no Default or Event of Default shall have occurred and be continuing,

then, beginning on that day and subject to the provisions of the following paragraph, the covenants specifically listed under the following captions in this offering memorandum will be suspended:

(1) "Repurchase at the Option of the Holders—Asset Sales;"

(2) "—Restricted Payments;"

(3) "—Incurrence of Indebtedness and Issuance of Preferred Stock;"

(4) "—Dividend and Other Payment Restrictions Affecting Restricted Subsidiaries;"

(5) "—Designation of Restricted and Unrestricted Subsidiaries;"

(6) "—Transactions with Affiliates;"

(7) clause (4) of the covenant described below under the caption "—Merger, Consolidation or Sale of Assets;" and

(8) "—Limitations on Issuances of Guarantees of Indebtedness."

The Issuer will notify the Trustee in writing that the foregoing covenants have been suspended; *provided* that such notification shall not be a condition for the suspension of the covenants set forth above to be effective; and *provided, further*, that the Trustee shall be under no obligation to inform the Holders that the foregoing covenants have been suspended. During any period that the foregoing covenants have been suspended (such period the "Suspension Period"),

the Issuer's Board of Directors may not designate any of its Subsidiaries as Unrestricted Subsidiaries pursuant to the covenant described below under the caption "—Designation of Restricted and Unrestricted Subsidiaries."

Notwithstanding the foregoing, if on any subsequent date (the "Reinstatement Date"), the Notes cease to maintain ratings of at least BBB− from S&P or, if no rating by S&P then exists, the equivalent of such rating by Moody's (or, if Moody's ceases to rate the Notes for reasons outside of the control of the Issuer, the equivalent investment grade credit rating from any other "nationally recognized statistical rating organization" registered under Section 15E of the U.S. Exchange Act selected by the Issuer as a replacement agency), the foregoing covenants will be reinstituted as of and from the date of such rating decline; *provided* that (i) with respect to Restricted Payments made after such reinstatement, the amount available to be made as Restricted Payments will be calculated as though the covenant described under "—Restricted Payments" had been in effect prior to, but not during, the Suspension Period; (ii) all Indebtedness incurred, or Disqualified Stock or preferred stock issued, during the Suspension Period will be classified to have been incurred or issued pursuant to clause (3) of the second paragraph of "—Incurrence of Indebtedness and Issuance of Preferred Stock;" (iii) any transactions with Affiliates entered into after such reinstatement pursuant to an agreement entered into during any Suspension Period shall be deemed to be permitted pursuant to clause (12) of the second paragraph of the covenant described under "—Transactions with Affiliates;" and (iv) any encumbrance or restriction on the ability of any Restricted Subsidiary of the Issuer that is not a Guarantor to take any action described in clauses (1) through (3) of the first paragraph of the covenant described under "—Dividend and Other Payment Restrictions Affecting Subsidiaries" that becomes effective during any Suspension Period shall be deemed to be permitted pursuant to clause (1) of the second paragraph of the covenant described under "—Dividend and Other Payment Restrictions Affecting Subsidiaries."

For the avoidance of doubt, the Issuer and any Restricted Subsidiary of the Issuer will be permitted, without causing a Default or Event of Default or breach of any kind under the Indenture, to honor, comply with or otherwise perform any contractual commitments or obligations entered into during a Suspension Period and to consummate the transactions contemplated thereby; *provided, however*, that (a) the Issuer and its Subsidiaries did not incur or otherwise enter into such contractual commitments or obligations in contemplation of the Suspension Period ending and (b) the Issuer reasonably believed that such incurrence or actions would not result in the Suspension Period ending. For purposes of clauses (a) and (b) in the preceding sentence, anticipation and reasonable belief shall be as determined in good faith by a responsible accounting or financial officer of the Issuer.

Within 20 Business Days of the end of a Suspension Period, the Issuer will cause any of its Restricted Subsidiaries that is not a Guarantor and that guaranteed any Indebtedness of the Issuer or any Guarantor during such Suspension Period to execute and deliver a Note Guarantee, subject to the second, fourth, fifth and seventh paragraphs of the covenant described under "—Limitations on Issuances of Guarantees of Indebtedness."

There can be no assurance that the Notes will ever achieve an investment grade rating or that any such rating will be maintained.

Restricted Payments

The Issuer will not, and will not permit any of its Restricted Subsidiaries to, directly or indirectly:

(1) declare or pay any dividend or make any other payment or distribution on account of the Issuer's or any of its Restricted Subsidiaries' Equity Interests (including, without limitation, any payment in connection with any merger or consolidation involving the Issuer's or any of its Restricted Subsidiaries) or to the direct or indirect holders of the Issuer's or any of its Restricted Subsidiaries' Equity Interests in their capacity as such on account of such Equity Interests (other than dividends or distributions payable in Equity Interests (other than Disqualified Stock) of the Issuer or in the form of Subordinated Shareholder Debt and other than dividends or distributions payable to the Issuer or a Restricted Subsidiary of the Issuer);

(2) purchase, redeem or otherwise acquire or retire for value (including, without limitation, in connection with any merger or consolidation involving the Issuer) any Equity Interests of the Issuer or any direct or indirect parent of the Issuer (other than in exchange for Equity Interests of the Issuer (other than Disqualified Stock) or Subordinated Shareholder Debt);

(3) make any principal payment on or with respect to, or purchase, redeem, defease or otherwise acquire or retire for value, prior to the scheduled maturity, scheduled repayment or scheduled sinking fund payment, any Subordinated Obligations of the Issuer (excluding (i) any intercompany Indebtedness between or among the Issuer and any of its Restricted Subsidiaries; and (ii) the purchase, repurchase, redemption, acquisition or retirement of Subordinated Obligations acquired in anticipation of satisfying a sinking fund obligation, principal installment or final maturity, in each case due within one year of the date of the purchase, repurchase, redemption, acquisition or retirement);

(4) make any payment on or with respect to, or purchase, redeem, defease or otherwise acquire or retire for value any Subordinated Shareholder Debt (other than non-cash interest payable in Equity Interests (other than Disqualified Stock) of the Issuer or any payment in the form of additional Subordinated Shareholder Debt); or

(5) make any Restricted Investment,

(all such payments and other actions set forth in the foregoing clauses (1) through (5) being collectively referred to as "Restricted Payments"), unless, at the time of and after giving *pro forma* effect to such Restricted Payment:

(1) no Default or Event of Default has occurred and is continuing or would occur as a consequence of such Restricted Payment;

(2) the Issuer would, at the time of such Restricted Payment and after giving *pro forma* effect thereto as if such Restricted Payment had been made at the beginning of the applicable four-quarter period, have been permitted to incur at least €1.00 of additional Indebtedness pursuant to the Fixed Charge Coverage Ratio test set forth in the first paragraph of the covenant described below under the caption "—Incurrence of Indebtedness and Issuance of Preferred Stock;" and

(3) such Restricted Payment, together with the aggregate amount of all other Restricted Payments made by the Issuer and its Restricted Subsidiaries since the Issue Date (excluding Restricted Payments permitted by clauses (2), (3), (4), (6), (7), (9), (10), (11), (12) and (14) of the next succeeding paragraph), is less than the sum, without duplication, of:

    (a) 50% of the Consolidated Net Income of the Issuer for the period (taken as one accounting period) from the beginning of the first quarter following the Issue Date to the end of the Issuer's most recently ended fiscal quarter for which internal financial statements are available at the time of such Restricted Payment (or, if such Consolidated Net Income for such period is a deficit, less 100% of such deficit); *plus*

    (b) 100% of the aggregate net cash proceeds and the Fair Market Value of marketable securities and other property received by the Issuer since the Issue Date as a contribution to its common equity capital or from the issue or sale of Equity Interests of the Issuer (other than Disqualified Stock) or Subordinated Shareholder Debt or from the issue or sale of convertible or exchangeable Disqualified Stock or convertible or exchangeable debt securities of the Issuer or a Restricted Subsidiary of the Issuer that have been converted into or exchanged for such Equity Interests or Subordinated Shareholder Debt (other than (x) Equity Interests (or Disqualified Stock or debt securities) sold to a Subsidiary of the Issuer; and (y) Excluded Contributions since the Issue Date); *plus*

    (c) to the extent that any Restricted Investment that was (i) made after the Issue Date is sold or otherwise disposed of or otherwise cancelled, liquidated or repaid, 100% of the aggregate amount received in cash and of the Fair Market Value of the marketable securities and other property received; or (ii) made in an entity that subsequently becomes a Restricted Subsidiary of the Issuer (or is merged or consolidated with or into the Issuer or a Restricted Subsidiary of the Issuer), 100% of the Fair Market Value of the Restricted Investment of the Issuer and its Restricted Subsidiaries as of the date such entity becomes a Restricted Subsidiary of the Issuer (or is so merged or consolidated); or (iii) a Guarantee made by the Issuer or one of its Restricted Subsidiaries to any Person, upon the full and unconditional release of such Restricted Investment, an amount equal to the amount of such Guarantee; *plus*

    (d) to the extent that any Unrestricted Subsidiary designated as such after the Issue Date is redesignated as a Restricted Subsidiary of the Issuer after such date, or has been merged or consolidated with or into, or transfers or conveys its assets to, the Issuer or a Restricted Subsidiary of the Issuer, 100% of the Fair Market Value of the Issuer's Investment in such Subsidiary as of the date of such redesignation, combination or transfer (or of the assets transferred or conveyed, as applicable); *plus*

    (e) the amount by which Indebtedness of the Issuer or a Restricted Subsidiary of the Issuer is reduced on the Issuer's consolidated balance sheet upon the conversion or exchange (other than by the Issuer or its Restricted Subsidiary) of such Indebtedness for Equity Interests (other than Disqualified Stock) of the Issuer or Subordinated Shareholder Debt (less the amount of any cash, and the Fair Market Value of any other property, received or distributed by the Issuer or any Restricted Subsidiary of the Issuer on any such conversion or exchange); *plus*

    (f) 100% of the Fair Market Value of any dividends, distributions or payments received by the Issuer or a Restricted Subsidiary of the Issuer after the Issue Date from an Unrestricted Subsidiary or from a Person in which the Issuer or a Restricted Subsidiary of the Issuer has a Restricted Investment to the extent that

such dividends, distributions or payments were not otherwise included in the Consolidated Net Income of the Issuer for such period.

The preceding provisions will not prohibit:

(1) the payment of any dividend or distribution or the consummation of any redemption within 60 days after the date of declaration of the dividend or distribution or giving of the redemption notice, as the case may be, if at the date of declaration or notice, the dividend or distribution or redemption payment would have complied with the provisions of the Indenture;

(2) the making of any Restricted Payment in exchange for (including any such exchange pursuant to the exercise of a conversion right or privilege in connection with which cash is paid in lieu of the issuance of fractional shares or scrip), or out of the net cash proceeds of the substantially concurrent sale or issuance (other than to a Subsidiary of the Issuer) of, Equity Interests of the Issuer (other than Disqualified Stock) or Subordinated Shareholder Debt or from the substantially concurrent contribution of such proceeds to the common equity capital to the Issuer (other than through an Excluded Contribution); *provided* that the amount of any such net cash proceeds that are utilized for any such Restricted Payment will be excluded from clause (3)(b) of the preceding paragraph and will not be considered Excluded Contributions or net cash proceeds from an Equity Offering for purposes of the "Optional Redemption" provisions of the Indenture;

(3) the repurchase, redemption, defeasance or other acquisition or retirement for value of Indebtedness of the Issuer that is contractually subordinated to the Notes in exchange for or with the net cash proceeds from a substantially concurrent incurrence of Permitted Refinancing Indebtedness;

(4) the declaration or payment of any dividend or the making of any payment or distribution by a Restricted Subsidiary of the Issuer to the holders of its Equity Interests other than the Issuer or another Restricted Subsidiary of the Issuer on a no more than *pro rata* basis;

(5) so long as no Default has occurred and is continuing or would be caused thereby, the repurchase, redemption or other acquisition or retirement for value of any Equity Interests of the Issuer or any Restricted Subsidiary of the Issuer, or distribution to enable such repurchase, redemption or other acquisition or retirement for value of any Equity Interests of the Issuer or any Restricted Subsidiary of the Issuer, held directly or indirectly by any current or former officer, director, consultant or employee of the Issuer or any Restricted Subsidiary of the Issuer (or permitted transferees of such current or former officers, directors, consultants or employees); *provided* that the aggregate price paid for all such repurchased, redeemed, acquired or retired Equity Interests may not exceed €5.0 million in any calendar year, beginning in the year starting January 1, 2018, with the unused portion for any calendar year carried over to the immediately succeeding calendar year; and *provided, further,* that such amount in any one-year period may be increased by an amount not to exceed the cash proceeds received by the Issuer or a Restricted Subsidiary of the Issuer during such period from the sale of Equity Interests of the Issuer or a Restricted Subsidiary of the Issuer in each case to members of management or directors or consultants of the Issuer or any Restricted Subsidiary of the Issuer to the extent the cash proceeds from the sale of Equity Interests have not otherwise been applied to the making of Restricted Payments pursuant to clause (3)(b) of the preceding paragraph or clause (2) of this paragraph and have not otherwise been designated as Excluded Contributions;

(6) the repurchase of Equity Interests deemed to occur upon the exercise of stock options or warrants to the extent such Equity Interests represent a portion of the exercise price of those stock options or warrants;

(7) the declaration and payment of regularly scheduled or accrued dividends to holders of any class or series of Disqualified Stock of the Issuer or any preferred stock of any Restricted Subsidiary of the Issuer issued on or after the Issue Date in accordance with the Fixed Charge Coverage Ratio test described in the first paragraph of the covenant described under the caption "—Incurrence of Indebtedness and Issuance of Preferred Stock;"

(8) so long as no Default has occurred and is continuing or would be caused thereby and the shares of Capital Stock of the Issuer are admitted to trading on Euronext Paris, the declaration and payment by the Issuer of dividends on the Capital Stock of the Issuer in an aggregate amount not to exceed in any fiscal year the greater of €100.0 million and 35% of the Issuer's consolidated net income for the preceding fiscal year determined in accordance with IFRS, it being specified that no unused amounts with respect to any fiscal year may be carried over to any succeeding fiscal year;

(9) any payments to minority shareholders as required by law or regulation pursuant to or in contemplation of a merger or consolidation involving the Issuer or any of its Restricted Subsidiaries that does not violate the provisions of the covenant described under "—Merger, Consolidation or Sale of Assets;"

(10) payments of cash, dividends, distributions, advances or other Restricted Payments by the Issuer or any Restricted Subsidiary of the Issuer to allow the payment of cash in lieu of the issuance of fractional shares upon (x) the exercise of options or warrants; or (y) the conversion or exchange of Capital Stock of any such Person;

(11) [Reserved];

(12) purchases of Equity Interests for contribution to an employee stock ownership plan of the Issuer during each fiscal year not in excess of €20.0 million in aggregate;

(13) so long as no Default has occurred and is continuing or would be caused thereby, other Restricted Payments in an aggregate amount at any time outstanding not to exceed the greater of €100.0 million and 1.50% of Consolidated Total Assets;

(14) Restricted Payments that are made with Excluded Contributions; and

(15) as long as no Default or Event of Default has occurred or is continuing, any Restricted Payments; *provided* that the Consolidated Net Leverage Ratio does not exceed 2.0 to 1.0 on a *pro forma* basis after giving effect to any such Restricted Payments.

The amount of all Restricted Payments (other than cash) will be the Fair Market Value on the date of the Restricted Payment of the asset(s) or securities proposed to be transferred or issued by the Issuer or such Restricted Subsidiary of the Issuer, as the case may be, pursuant to the Restricted Payment. The Fair Market Value of any assets or securities that are required to be valued by this covenant will be determined by the Board of Directors of the Issuer whose resolution with respect thereto will be delivered to the Trustee. For the avoidance of doubt, the Trustee shall have no obligation to determine the Fair Market Value of any assets or securities.

Incurrence of Indebtedness and Issuance of Preferred Stock

The Issuer will not, and will not permit any of its Restricted Subsidiaries to, directly or indirectly, create, incur, issue, assume, guarantee or otherwise become directly or indirectly liable, contingently or otherwise, with respect to (collectively, "incur") any Indebtedness (including Acquired Debt), and the Issuer will not issue any Disqualified Stock and will not permit any of its Restricted Subsidiaries to issue any shares of preferred stock; *provided, however*, that the Issuer may incur Indebtedness (including Acquired Debt) or issue Disqualified Stock and the Issuer's Restricted Subsidiaries that are Guarantors may incur Indebtedness (including Acquired Debt) and issue preferred stock, if the Fixed Charge Coverage Ratio for the Issuer's most recently ended four-quarter period for which internal financial statements are available immediately preceding the date on which such additional Indebtedness is incurred or such Disqualified Stock or preferred stock is issued, as the case may be, would have been at least 2.0 to 1.0, determined on a *pro forma* basis (including the *pro forma* application of the net proceeds therefrom), as if such additional Indebtedness had been incurred or such Disqualified Stock or preferred stock had been issued, as the case may be, at the beginning of such period.

The first paragraph of this covenant will not prohibit the incurrence of any of the following items of Indebtedness (collectively, "Permitted Debt"):

(1) the incurrence by the Issuer and its Restricted Subsidiaries of Indebtedness and letters of credit under Credit Facilities in an aggregate principal amount at any one time outstanding under this clause (1) not to exceed the greater of €2.1 billion and 28.75% of Consolidated Total Assets, plus, in the case of any Permitted Refinancing Indebtedness of any Indebtedness permitted under this clause (1) or any portion thereof, the aggregate amount of fees, underwriting discounts, premiums and other costs and expenses (including fees and commissions paid as discounts) incurred in connection with such refinancing;

(2) the incurrence by the Brazilian Subsidiaries of Indebtedness under ACC/ACE Facilities in an aggregate principal amount, at any one time outstanding, not to exceed 100% of the Brazilian Borrowing Base;

(3) the incurrence by the Issuer and its Restricted Subsidiaries of the Existing Indebtedness (other than Indebtedness incurred under clauses (1) or (2) of this paragraph);

(4) the incurrence by the Issuer of Indebtedness represented by the Notes to be issued on the Issue Date and any Note Guarantee issued pursuant to the provisions of the covenant described under "—Limitations on Issuances of Guarantees of Indebtedness;"

(5) the incurrence by the Issuer or any of its Restricted Subsidiaries of Indebtedness represented by Capital Lease Obligations, mortgage financings or purchase money obligations or other Indebtedness or preferred stock, in each case, incurred for the purpose of financing or refinancing all or any part of the purchase price or cost of acquisition,

design, development, construction, lease, installation, transportation or improvement of property (real or personal), plant or equipment that is used or useful in the business of the Issuer or any of its Restricted Subsidiaries (each, a "Productive Asset Financing") (including Equity Interests of any Person owning such assets) (including any reasonable related fees or expenses incurred in connection therewith), in an aggregate principal amount, at any one time outstanding, not to exceed the greater of €200.0 million and 2.75% of Consolidated Total Assets, plus, in the case of any Permitted Refinancing Indebtedness of any Indebtedness permitted under this clause (5) or any portion thereof, the aggregate amount of fees, underwriting discounts, premiums and other costs and expenses (including fees and commissions paid as discounts) incurred in connection with such refinancing;

(6) the incurrence by the Issuer or any of its Restricted Subsidiaries of Permitted Refinancing Indebtedness in exchange for, or the net proceeds of which are used to renew, refund, refinance, replace, defease or discharge any Indebtedness (other than intercompany Indebtedness) that was permitted by the Indenture to be incurred under the first paragraph of this covenant or clauses (3), (4), (6) or (15) of this paragraph;

(7) the incurrence by the Issuer or any of its Restricted Subsidiaries of intercompany Indebtedness between or among the Issuer and any of its Restricted Subsidiaries; *provided, however*, that:

(a) except in respect of current liabilities incurred in the ordinary course of business in connection with cash management, tax and accounting operations, if the Issuer or a Guarantor is the obligor on such Indebtedness and the payee is not the Issuer or a Guarantor, such Indebtedness must be expressly subordinated to the prior payment in full in cash of all Obligations then due with respect to the Notes, in the case of the Issuer, or the applicable Note Guarantee, in the case of a Guarantor; and

(b) (i) any subsequent issuance or transfer of Equity Interests that results in any such Indebtedness being held by a Person other than the Issuer or a Restricted Subsidiary of the Issuer; and (ii) any sale or other transfer of any such Indebtedness to a Person that is not either the Issuer or a Restricted Subsidiary of the Issuer,

will be deemed, in each case, to constitute an incurrence of such Indebtedness by the Issuer or such Restricted Subsidiary of the Issuer, as the case may be, that was not permitted by this clause (7);

(8) the issuance by any of the Issuer's Restricted Subsidiaries to the Issuer or to any of its Restricted Subsidiaries of shares of preferred stock; *provided, however*, that:

(a) any subsequent issuance or transfer of Equity Interests that results in any such preferred stock being held by a Person other than the Issuer or a Restricted Subsidiary of the Issuer; and

(b) any sale or other transfer of any such preferred stock to a Person that is not either the Issuer or a Restricted Subsidiary of the Issuer, will be deemed, in each case, to constitute an issuance of such preferred stock by such Restricted Subsidiary of the Issuer that was not permitted by this clause (8);

(9) the incurrence by the Issuer or any of its Restricted Subsidiaries of Hedging Obligations in the ordinary course of business and not for speculative purposes;

(10) the Guarantee by the Issuer or a Restricted Subsidiary of the Issuer of Indebtedness of the Issuer or any of its Restricted Subsidiaries so long as the incurrence of such Indebtedness by the Issuer or such Restricted Subsidiary of the Issuer is permitted under the Indenture; *provided* that such Guarantee is incurred in accordance with the covenant described under "—Limitations on Issuances of Guarantees of Indebtedness;"

(11) Guarantees by the Issuer or a Restricted Subsidiary of the Issuer of Indebtedness arising pursuant to terms requiring such Indebtedness to be guaranteed if the Notes are also guaranteed by the same Restricted Subsidiary of the Issuer on a senior or *pari passu* basis;

(12) the incurrence by the Issuer or any of its Restricted Subsidiaries of Indebtedness in respect of workers' compensation claims, payment obligations in connection with health or other types of social security benefits, unemployment or other insurance or self-insurance obligations, statutory obligations, bankers' acceptances, export, import, customs, VAT and other tax guarantees, performance and bid, reclamation, remediation, completion, surety, appeal or similar bonds or performance guarantees in the ordinary course of business or consistent with past practice;

(13) Indebtedness constituting reimbursement obligations with respect to letters of credit, bankers' acceptances or similar instruments or obligations issued in the ordinary course of business; *provided* that upon the drawing or

other funding of such letters of credit or other instruments or obligations, such drawings or fundings are reimbursed within 10 Business Days;

(14) the incurrence by the Issuer or any of its Restricted Subsidiaries of Indebtedness arising from the honoring by a bank or other financial institution of a check, draft or similar instrument inadvertently drawn against insufficient funds, so long as such Indebtedness is extinguished within 5 Business Days;

(15) Indebtedness of any Person (a) outstanding on the date on which such Person becomes a Restricted Subsidiary of the Issuer or is merged, consolidated, amalgamated or otherwise combined with (including pursuant to any acquisition of assets and assumption of related liabilities) the Issuer or any Restricted Subsidiary of the Issuer or (b) Incurred to provide all or a portion of the funds utilized to consummate the transaction or series of related transactions pursuant to which such Person became a Restricted Subsidiary or was otherwise acquired by the Issuer or a Restricted Subsidiary of the Issuer; *provided, however*, with respect to this clause (15), that at the time of the acquisition or other transaction pursuant to which such Indebtedness was deemed to be incurred (i) the Issuer would have been able to incur €1.00 of additional Indebtedness pursuant to the first paragraph of this covenant after giving *pro forma* effect to the incurrence of such Indebtedness pursuant to this clause (15); or (ii) the Fixed Charge Coverage Ratio would be no less than it was immediately prior to the incurrence of such Indebtedness pursuant to this clause (15);

(16) the incurrence by the Issuer and its Restricted Subsidiaries of Indebtedness arising from agreements of the Issuer or a Restricted Subsidiary of the Issuer providing for indemnification, earnouts, adjustments of purchase price, guarantees or, in each case, similar obligations, in each case, incurred or assumed in connection with the acquisition or disposition of any business or assets or Person or any Equity Interests of a Subsidiary in accordance with the terms of the Indenture, other than Guarantees of Indebtedness incurred or assumed by any Person acquiring all or any portion of such business, assets or Equity Interests of a Subsidiary for the purpose of financing such acquisition;

(17) customer deposits and advance payments received in the ordinary course of business from customers for goods and services purchased in the ordinary course of business;

(18) the incurrence by the Issuer or any of its Restricted Subsidiaries of additional Indebtedness or the issuance by any Restricted Subsidiary that is not a Guarantor of preferred stock in an aggregate principal amount (or accreted value, as applicable) or having an aggregate liquidation preference at any time outstanding incurred pursuant to this clause (18), not to exceed the greater of €300.0 million and 4.25% of Consolidated Total Assets, plus, in the case of any refinancing of any Indebtedness permitted under this clause (18) or any portion thereof, the aggregate amount of fees, underwriting discounts, premiums and other costs and expenses (including fees and commissions paid as discounts) incurred in connection with such refinancing;

(19) any customary cash management, cash pooling or netting or setting off arrangements in the ordinary course of business;

(20) Indebtedness of the Issuer in an aggregate outstanding principal amount (or accreted value, as applicable) at any time outstanding, not to exceed 100% of the Net Proceeds received by the Issuer from the issuance or sale (other than to a Subsidiary) of its Capital Stock (other than Disqualified Stock or an Excluded Contribution) or otherwise contributed to the equity (other than through the issuance of Disqualified Stock or an Excluded Contribution) of the Issuer or from the issuance or sale (other than to a Subsidiary) of Subordinated Shareholder Debt, in each case, subsequent to the Issue Date; *provided, however*, that (i) any such Net Proceeds that are so received or contributed shall be excluded for purposes of making Restricted Payments under the first paragraph and clause (2) and the second proviso to clause (5) of the second paragraph of the covenant described under the caption "—Restricted Payments" to the extent the Issuer incurs Indebtedness in reliance thereon; and (ii) any Net Cash Proceeds that are so received or contributed shall be excluded for purposes of incurring Indebtedness pursuant to this clause (20) to the extent the Issuer or any of its Restricted Subsidiaries makes a Restricted Payment under the first paragraph or clause (2) and the second proviso to clause (5) of the second paragraph of the covenant described under the caption "—Restricted Payments" in reliance thereon;

(21) Indebtedness of the Issuer or any Restricted Subsidiary of the Issuer in respect of Management Advances; and

(22) Indebtedness of the Issuer or any Restricted Subsidiary of the Issuer in connection with any Permitted Recourse Receivables Transaction in an aggregate principal amount, at any one time outstanding, not to exceed €50.0 million.

Notwithstanding anything to the contrary contained herein, the aggregate principal amount of Indebtedness that is permitted to be incurred by the Issuer's Restricted Subsidiaries that are not Guarantors pursuant to clauses (1), (3), (15),

(18), (21) and (22) of the second paragraph of this covenant and without double counting shall not exceed at any one time outstanding an amount equal to the greater of €750.0 million and 10.25% of Consolidated Total Assets.

For purposes of determining compliance with this covenant, in the event that an item of proposed Indebtedness or preferred stock meets the criteria of more than one of the categories of Permitted Debt described in clauses (1) through (22) above, or is entitled to be incurred pursuant to the first paragraph of this covenant, the Issuer will be permitted, in its sole discretion, to classify such item of Indebtedness or preferred stock on the date of its incurrence and will only be required to include the amount and type of such Indebtedness or preferred stock in one of the above clauses, although the Issuer may, in its sole discretion, divide and classify an item of Indebtedness or preferred stock in one or more of the types of Indebtedness or preferred stock and may later reclassify all or a portion of such item of Indebtedness or preferred stock in any manner that complies with this covenant; *provided, however*, that (i) all Indebtedness incurred under the Revolving Credit Facility Agreement, each of the Club Deal Facility Agreements, the Natixis Bilateral Facility Agreement and the Vallourec Star-JPM Credit Agreement shall be deemed to be incurred under clause (1) of the definition of Permitted Debt; (ii) all Indebtedness incurred under clause (1) of the definition of Permitted Debt (including, for the avoidance of doubt, all facilities listed under (i) of this paragraph) may not be reclassified; (iii) all Indebtedness incurred under ACC/ACE Facilities shall be deemed to be incurred under clause (2) of the definition of Permitted Debt and may not be reclassified; and (iv) for the avoidance of doubt, Indebtedness outstanding as of the Issue Date under the Existing Notes and the Commercial Paper Program (as of December 31, 2017 constituting €397 million) will be deemed to be incurred under clause (3) of the preceding paragraph.

The accrual of interest or dividends, the accretion or amortization of original issue discount, the payment of interest on any Indebtedness in the form of additional Indebtedness with the same terms, the reclassification of preferred stock as Indebtedness due to a change in accounting principles, and the payment of dividends on Disqualified Stock or preferred stock in the form of additional shares of the same class of Disqualified Stock or preferred stock will not be deemed to be an incurrence of Indebtedness or an issuance of Disqualified Stock for purposes of this covenant; *provided*, in each such case, that the amount of any such accrual, accretion or payment is included in Fixed Charges of the Issuer as accrued. Notwithstanding any other provision of this covenant (including pursuant to any Permitted Refinancing Indebtedness permitted pursuant to this covenant), the maximum amount of Indebtedness that the Issuer or any Restricted Subsidiary of the Issuer may incur pursuant to this covenant shall not be deemed to be exceeded solely as a result of fluctuations in exchange rates or currency values.

For purposes of determining compliance with any euro-denominated restriction on the incurrence of Indebtedness, the Euro Equivalent of the principal amount of Indebtedness denominated in another currency will be calculated based on the relevant currency exchange rate in effect on the date such Indebtedness was incurred, in the case of term Indebtedness, or first committed, in the case of Indebtedness incurred under a revolving credit facility; *provided* that (1) if such Indebtedness is incurred to refinance other Indebtedness denominated in a currency other than euros, and such refinancing would cause the applicable euro-denominated restriction to be exceeded if calculated at the relevant currency exchange rate in effect on the date of such refinancing, such euro-denominated restriction will be deemed not to have been exceeded so long as the principal amount of such Permitted Refinancing Indebtedness does not exceed the principal amount of such Indebtedness being refinanced; (2) the Euro Equivalent of the principal amount of any such Indebtedness outstanding on the Issue Date will be calculated based on the relevant currency exchange rate in effect on the Issue Date; and (3) if and for so long as any such Indebtedness is subject to an agreement intended to protect against fluctuations in currency exchange rates with respect to the currency in which such Indebtedness is denominated covering principal and interest on such Indebtedness, the amount of such Indebtedness, if denominated other than in euros, will be the amount of the principal payment required to be made under such currency agreement and, otherwise, the Euro Equivalent of such amount plus the Euro Equivalent of any premium which is at such time due and payable but is not covered by such currency agreement.

The amount of any Indebtedness outstanding as of any date will be:

(1) the accreted value of the Indebtedness, in the case of any Indebtedness issued with original issue discount;

(2) the principal amount of the Indebtedness, in the case of any other Indebtedness;

(3) in the case of Hedging Obligations, the net amount payable if such Hedging Obligations were terminated at that time due to default by such Person (after giving effect to any contractually permitted set-off);

(4) in respect of Indebtedness of another Person secured by a Lien on the assets of the specified Person, the lesser of:

  (a) the Fair Market Value of such assets at the date of determination; and

  (b) the amount of the Indebtedness of the other Person; and

(5) the principal amount of any Disqualified Stock of the Issuer or preferred stock of a Restricted Subsidiary of the Issuer will be equal to the greater of the maximum mandatory redemption or repurchase price (not including, in either case, any redemption or repurchase premium) or the liquidation preference thereof.

No Layering of Debt

Neither the Issuer nor any Guarantor will incur any Indebtedness (including Permitted Debt) that is contractually subordinated in right of payment to any other Indebtedness of the Issuer or such Guarantor unless such Indebtedness is also contractually subordinated in right of payment to the Notes and the applicable Note Guarantee on substantially identical terms. No such Indebtedness will be considered to be subordinate or junior in right of payment to any other Indebtedness by reason of any Liens or Guarantees arising or created in respect of such other Indebtedness or by virtue of the fact that holders of any secured Indebtedness have entered into intercreditor agreements giving one or more holders priority over other holders in the collateral held by them.

Limitations on Issuances of Guarantees of Indebtedness

The Issuer will not permit any of its Restricted Subsidiaries that are not Guarantors, directly or indirectly, to guarantee, assume or in any other manner become liable for the payment of any of the Issuer's or any Guarantor's Indebtedness unless such Restricted Subsidiary of the Issuer simultaneously executes and delivers a supplemental indenture providing for the Note Guarantee by such Restricted Subsidiary of the Issuer, which Note Guarantee will be senior to or *pari passu* with such Restricted Subsidiary's Guarantee of such other Indebtedness. The Trustee shall accept any such Note Guarantee for the account and on behalf of the Holders of Notes. Upon such Note Guarantee being accepted by the Trustee for the account and on behalf of the Holders of Notes, such Restricted Subsidiary of the Issuer shall become a Guarantor.

The first paragraph of this covenant will not be applicable to any Guarantees by any Restricted Subsidiary of the Issuer:

(1) that existed at the time such Person became a Restricted Subsidiary of the Issuer if the Guarantee was not incurred in connection with, or in contemplation of, such Person becoming a Restricted Subsidiary of the Issuer; or

(2) given to a bank or trust company or other financial institution referred to in clause (2) of the definition of Cash Equivalents in respect of or in connection with the operation of cash management or pooling programs or similar arrangements established for the Issuer's benefit or that of any Restricted Subsidiary of the Issuer.

Each Note Guarantee created for the benefit of the Holders of Notes pursuant to this covenant will be provided to the fullest extent permitted by applicable law (including, for the avoidance of doubt, by the Issuer and its Restricted Subsidiaries having taken, in respect of each such Note Guarantee, measures no less effective to overcome any relevant legal prohibition or limitation in respect of such Note Guarantee as shall have been taken to overcome any substantially similar legal prohibitions or limitations in respect of the Guarantee of such other Indebtedness, including any whitewash or similar procedures which are legally available to eliminate the relevant limit).

Notwithstanding the foregoing, the Issuer shall not be obligated to cause such Restricted Subsidiary of the Issuer to guarantee the Notes pursuant to this covenant (and any Note Guarantee that is given may be limited) to the extent that, in the good faith determination of the Issuer (which determination shall be conclusive), such Note Guarantee by such Restricted Subsidiary of the Issuer would reasonably be expected to give rise to or result in (i) a violation of applicable law which cannot be prevented or otherwise avoided through measures reasonably available to the Issuer or the Restricted Subsidiary of the Issuer; or (ii) any personal liability for the officers, directors or shareholders of the Issuer or such Restricted Subsidiary of the Issuer.

Notwithstanding the foregoing, any Note Guarantee created pursuant to the provisions described in the first paragraph of this covenant may provide by its terms that it will be automatically and unconditionally released and discharged:

(1) subject to customary contingent reinstatement provisions, upon payment in full of the aggregate principal amount of all Notes then outstanding and all other applicable Obligations of such Guarantor then due and owing;

(2) upon a release of the Guarantee or Indebtedness that resulted in the creation of the Note Guarantee under this covenant;

(3) in connection with any sale or other disposition of all or substantially all of the assets of that Guarantor (including by way of merger, consolidation, amalgamation or combination) to a Person that is not (either before or immediately after giving effect to such transaction) the Issuer or a Restricted Subsidiary of the Issuer, if the sale

or other disposition does not violate the covenant described under the caption "Repurchase at the Option of Holders—Asset Sales;"

(4) in connection with any sale, disposition or transfer of Capital Stock of that Guarantor (or Capital Stock of a Person of which such Guarantor is a Subsidiary) to a Person that is not (either before or immediately after giving effect to such transaction) the Issuer or a Restricted Subsidiary of the Issuer, if the sale or other disposition does not violate the covenant described under the caption "Repurchase at the Option of Holders—Asset Sales" and the Guarantor ceases to be a Restricted Subsidiary of the Issuer as a result of the sale or other disposition;

(5) concurrently with such Guarantor becoming an Unrestricted Subsidiary in accordance with the applicable provisions of the Indenture;

(6) upon legal defeasance or satisfaction and discharge of the Indenture as provided below under the captions "Legal Defeasance and Covenant Defeasance" and "Satisfaction and Discharge;" or

(7) as described under "Amendment, Supplement and Waiver."

The Issuer shall be permitted to add and remove Guarantors subject to and in accordance with the provisions of the Indenture. For the avoidance of doubt, the Issuer will be permitted after the Issue Date to cause additional Restricted Subsidiaries of the Issuer to become Guarantors under the Indenture even if such Restricted Subsidiaries are not required at such time to become Guarantors pursuant to this covenant (such Guarantors, "Optional Guarantors"). The Issuer will be entitled to release any such Optional Guarantor from its Note Guarantee obligations; *provided* that (x) no Event of Default would result from such release; and (y) such Optional Guarantor is not at the time of the proposed release otherwise required to be a Guarantor pursuant to this covenant. Upon any release of a Note Guarantee contemplated under this "—Limitations on Issuances of Guarantees of Indebtedness" section, the Trustee shall execute any documents reasonably requested in order to evidence such release, discharge and termination in respect of such Note Guarantee.

Each Note Guarantee provided pursuant to the provisions of this covenant will be limited to the maximum amount that can be guaranteed by such Guarantor without rendering such Note Guarantee void, voidable or unenforceable under applicable law or as otherwise necessary to recognize certain defenses generally available to guarantors (including those that relate to fraudulent conveyance or transfer, voidable preference, financial assistance, corporate purpose, corporate benefit, capital maintenance or similar laws, regulations or defenses affecting the rights of creditors generally) or other considerations under applicable law, including the liability of directors and officers.

Limitation on Liens

The Issuer will not, and will not permit any of its Restricted Subsidiaries to, directly or indirectly, create, incur, assume or suffer to exist any Lien (except Permitted Liens) of any kind on any of their property and assets now owned or hereafter acquired securing Indebtedness of the Issuer or its Restricted Subsidiaries (the "Initial Lien") unless all payments under the Notes (or if it is a Guarantor that incurs such an Initial Lien, then the Note Guarantee by such Guarantor) are secured on an equal and ratable basis with (or in the case of Indebtedness which is subordinated in right of payment to the Notes or any Note Guarantees, prior or senior thereto with the same relative priority as the Notes or such Note Guarantee, as applicable, shall have with respect to such subordinated Indebtedness) the obligations so secured.

Any Lien created for the benefit of the Holders of Notes shall provide by its terms that such Lien shall be automatically and unconditionally released and discharged upon (or, where not automatically released and discharged, the Person having granted such security will be entitled to seek such Liens' unconditional release and discharge) under any one or more of the following circumstances:

(1) the release and discharge of the Initial Lien to which it relates;

(2) upon the sale, disposition or transfer of the assets which are subject to such Liens (including by way of merger, consolidation, amalgamation or combination) to a Person that is not (either before or after giving effect to such transaction), the Issuer or a Restricted Subsidiary of the Issuer, if such sale, disposition or transfer does not violate the provisions set forth under "Repurchase at the Option of Holders—Asset Sales;"

(3) upon the sale, disposition or transfer of Capital Stock of the Restricted Subsidiary of the Issuer that has granted such Liens (or Capital Stock of a parent of the relevant Restricted Subsidiary of the Issuer (other than the Issuer)) to a Person that is not (either before or after giving effect to such transaction) the Issuer or a Restricted Subsidiary of the Issuer, if (i) after giving effect to such sale, disposition or transfer, such Person is no longer a Restricted Subsidiary of the Issuer; and (ii) the sale, disposition or transfer does not violate the provisions set forth under "Repurchase at the Option of Holders—Asset Sales;"

(4) upon the defeasance or discharge of the Notes as provided in "Legal Defeasance and Covenant Defeasance" or "Satisfaction and Discharge," in each case, in accordance with the terms of the Indenture;

(5) if the relevant Restricted Subsidiary of the Issuer is designated as an Unrestricted Subsidiary (or is a Subsidiary of such designated Subsidiary) and such designation complies with the other applicable provisions of the Indenture (in which case, for the avoidance of doubt, such release will be of the property and assets (as well as any Equity Interests and Indebtedness) of such Restricted Subsidiary of the Issuer);

(6) upon full and final repayment of the Notes;

(7) in the case of any Lien incurred by a Guarantor securing its Note Guarantee, upon the termination and discharge of such Note Guarantee in accordance with the Indenture; and

(8) in accordance with the provisions described under caption below entitled "Amendment, Supplement and Waiver."

Upon any occurrence giving rise to a release and discharge of a Lien created for the benefit of the Holders of Notes pursuant to the second paragraph as specified above, the Trustee, subject to receipt of an officer's certificate certifying that the event or circumstance in question has occurred, will execute any documents reasonably requested in order to evidence or effect such release and discharge in respect of such Lien.

Dividend and Other Payment Restrictions Affecting Subsidiaries

The Issuer will not, and will not permit any of its Restricted Subsidiaries to, directly or indirectly, create or permit to exist or become effective any consensual encumbrance or restriction on the ability of any Restricted Subsidiary of the Issuer to:

(1) pay dividends or make any other distributions on its Capital Stock to the Issuer or any of its Restricted Subsidiaries, or with respect to any other interest or participation in, or measured by, its profits, or pay any indebtedness owed to the Issuer or any of its Restricted Subsidiaries;

(2) make loans or advances to the Issuer or any of its Restricted Subsidiaries; or

(3) sell, lease or transfer any of its properties or assets to the Issuer or any of its Restricted Subsidiaries,

provided that (x) the priority of any preferred stock in receiving dividends or liquidating distributions prior to dividends or liquidating distributions being paid on common stock; and (y) the subordination of (including the application of any standstill period to) loans or advances made to the Issuer or any Restricted Subsidiary of the Issuer to other Indebtedness incurred by the Issuer or any Restricted Subsidiary of the Issuer, in each case, shall not be deemed to constitute such an encumbrance or restriction.

However, the preceding restrictions will not apply to encumbrances or restrictions existing under or by reason of:

(1) agreements governing Existing Indebtedness, Capital Lease Obligations and Credit Facilities and any other agreements, instruments and arrangements, in each case, as in effect on the Issue Date and any amendments, restatements, modifications, renewals, supplements, refundings, replacements or refinancings of those agreements; *provided* that such amendments, restatements, modifications, renewals, supplements, refundings, replacements or refinancings are not materially more restrictive, taken as a whole, with respect to such dividend and other payment restrictions than those contained in those agreements on the Issue Date or would not, in the good faith determination of the Issuer, materially impair the ability to (a) make payments of amounts due in respect of the Notes; or (b) comply with the respective obligations of the Issuer under the Notes or the Indenture (as, in each case, determined in good faith by a responsible accounting or financial officer of the Issuer);

(2) the Notes and the Indenture, as applicable;

(3) applicable law, rule, regulation, order, approval, license, authorization, permit or concession or any similar restriction or other control by any government or governmental authority;

(4) any instrument or agreement governing Indebtedness or Capital Stock of a Person acquired by the Issuer or any of its Restricted Subsidiaries as in effect at the time of such acquisition (except to the extent such Indebtedness or Capital Stock was incurred or issued in connection with or in contemplation of such acquisition), which encumbrance or restriction is not applicable to any Person, or the properties or assets of any Person, other than the Person, or the property or assets of the Person, so acquired; *provided* that, in the case of Indebtedness, such Indebtedness was permitted by the terms of the Indenture to be incurred;

(5) customary non-assignment provisions or subletting restrictions in contracts, leases and licenses entered into in the ordinary course of business;

(6) purchase money obligations for property (including Capital Stock) acquired in the ordinary course of business and Capital Lease Obligations that impose restrictions on the property purchased or leased of the nature described above in clause (3) of the preceding paragraph;

(7) any agreement for the sale or other disposition of the Capital Stock or assets of a Restricted Subsidiary of the Issuer that restricts distributions by that Restricted Subsidiary of the Issuer pending closing of the sale or other disposition;

(8) Permitted Refinancing Indebtedness; *provided* that the restrictions contained in the agreements governing such Permitted Refinancing Indebtedness are not materially more restrictive, taken as a whole, than those contained in the agreements governing the Indebtedness being refinanced (as determined in good faith by a responsible accounting or financial officer of the Issuer);

(9) Liens permitted to be incurred under the provisions of the covenant described above under the caption "—Limitation on Liens" that limit the right of the debtor to dispose of the assets subject to such Liens;

(10) customary provisions limiting the disposition or distribution of assets or property or transfer of Capital Stock in joint venture agreements, limited liability company organizational documents, asset sale agreements, sale-leaseback agreements, stock sale agreements, minority shares arrangements and other similar agreements entered into (A) in the ordinary course of business, consistent with past practice; or (B) with the approval of the Issuer's Board of Directors, which limitation is applicable only to the assets, property or Capital Stock that are the subject of such agreements;

(11) restrictions on cash, Cash Equivalents, Government Guaranteed Securities or other deposits or net worth imposed by customers, suppliers or lessors or required by insurance, surety or bonding companies under contracts or leases entered into in the ordinary course of business;

(12) any agreement or instrument relating to Indebtedness permitted to be incurred after the Issue Date under the covenant entitled "—Incurrence of Indebtedness and Issuance of Preferred Stock;" *provided, however*, that such encumbrance or restriction is not materially more disadvantageous to the holders of the Notes than is customary in comparable financings (as determined in good faith by a responsible accounting or financial officer of the Issuer); and either (x) a responsible accounting or financial officer of the Issuer determines that such encumbrance or restriction will not materially affect the Issuer's ability to make principal or interest payments on the Notes as and when they come due; or (y) such encumbrance or restriction applies only if a default occurs in respect of a payment or financial covenant relating to such Indebtedness;

(13) Hedging Obligations entered into from time to time for *bona fide* hedging purposes of the Issuer and its Restricted Subsidiaries;

(14) encumbrances on property that exist at the time the property was acquired by the Issuer or a Restricted Subsidiary of the Issuer provided such encumbrance was not created in anticipation of such acquisition;

(15) any encumbrances or restrictions imposed by any amendments or refinancings of the contracts, instruments or obligations referred to in clauses (1) through (14) above; *provided* that such amendments or refinancings are not materially more restrictive, taken as a whole, than such encumbrances and restrictions prior to such amendment or refinancing (as determined in good faith by a responsible accounting or financial officer of the Issuer); and

(16) encumbrances or restrictions with respect to any Permitted Receivables Transaction; *provided* that such encumbrances or restrictions are customarily required by the institutional sponsor or arranger of such Permitted Receivables Transaction in similar types of documents relating to the purchase of similar receivables in connection with the financing thereof; *provided* that such Permitted Receivables Transaction was permitted to be incurred under terms of the Indenture.

Merger, Consolidation or Sale of Assets

The Issuer

The Issuer will not, directly or indirectly: (1) consolidate or merge with or into another Person (whether or not the Issuer is the surviving corporation); or (2) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Issuer and its Restricted Subsidiaries taken as a whole, in one or more related transactions,

to another Person. The previous sentence will not apply if at the time and immediately after giving effect to any such transaction or series of transactions:

(1) either: (a) the Issuer is the surviving corporation; or (b) the Person formed by or surviving any such consolidation or merger (if other than the Issuer) or to which such sale, assignment, transfer, conveyance or other disposition has been made is a corporation organized or existing under the laws of any European Union Member State, Switzerland, Norway, Canada or the United States, any state of the United States or the District of Columbia;

(2) the Person formed by or surviving any such consolidation or merger (if other than the Issuer) or the Person to which such sale, assignment, transfer, conveyance or other disposition has been made assumes all the obligations of the Issuer under the Notes and the Indenture;

(3) immediately after giving effect to such transaction or series of transactions, no Default or Event of Default will have occurred and be continuing;

(4) the Issuer or the Person formed by or surviving any such consolidation or merger (if other than the Issuer), or to which such sale, assignment, transfer, conveyance or other disposition has been made would, on the date of such transaction after giving *pro forma* effect thereto and any related financing transactions as if the same had occurred at the beginning of the applicable four-quarter period (i) be permitted to incur at least €1.00 of additional Indebtedness pursuant to the Fixed Charge Coverage Ratio test set forth in the first paragraph of the covenant described above under the caption "—Incurrence of Indebtedness and Issuance of Preferred Stock;" or (ii) have a Fixed Charge Coverage Ratio no less than it was immediately prior to giving effect to such transaction; and

(5) the Issuer shall have delivered to the Trustee an officer's certificate and an opinion of counsel, each to the effect that such consolidation, merger or transfer and, in the event of a successor to the Issuer, supplemental indenture and other customary agreements (if any) comply with the Indenture and an opinion of counsel to the effect that such supplemental indenture and other customary agreements (if any) have been duly authorized, executed and delivered and are the legal, valid and binding agreements enforceable against the successor to the Issuer; *provided* that in giving an opinion of counsel, counsel may rely on an officer's certificate as to any matters of fact.

Although there is a limited body of case law interpreting the phrase "all or substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstance there may be a degree of uncertainty as to whether a particular transaction would involve "all or substantially all" of the property or assets of a Person.

This "Merger, Consolidation or Sale of Assets" covenant will not apply to:

(1) a merger of the Issuer with an Affiliate solely for the purpose of reincorporating the Issuer in another jurisdiction or changing the legal form of the Issuer; or

(2) any consolidation or merger, or any sale, assignment, transfer, conveyance, lease or other disposition of assets between or among the Issuer and its Restricted Subsidiaries.

The Guarantors

A Guarantor may not sell or otherwise dispose of all or substantially all of its properties or assets to, or consolidate with or merge with or into (whether or not such Guarantor is the surviving Person), another Person, other than the Issuer or another Guarantor, unless:

(1) immediately after giving effect to that transaction or series of related transactions, no Default or Event of Default exists; and

(2) either:

    (a) (i) such Guarantor is the surviving entity; or (ii) the Person formed by or surviving any such consolidation or merger or the Person to which such sale, assignment, transfer, conveyance or other disposition has been made is either the Issuer or a Restricted Subsidiary of the Issuer that assumes all the obligations of such Guarantor under the Indenture by supplemental indenture executed and delivered to the Trustee, by customary agreements; or

    (b) the transaction constitutes a sale or other disposition (including by way of consolidation or merger) of the Guarantor or the sale or disposition of all or substantially all the assets of the Guarantor (in each case other than to the Issuer or a Restricted Subsidiary of the Issuer) otherwise permitted by and conducted in

compliance with the provisions of the covenant described above under the caption "Repurchase at the Option of Holders—Asset Sales;" *provided* that the Note Guarantee will be permitted to be released pursuant to clause (3) of the fifth paragraph of the covenant described under the caption "—Limitations on Issuances of Guarantees of Indebtedness" in connection with such a transaction; and

(3) the Issuer shall have delivered to the Trustee an officer's certificate and an opinion of counsel, each stating that such merger or consolidation and such supplemental indenture and each such amendment comply with this covenant.

The paragraph above will not apply to:

(1) a merger of the Guarantor with an Affiliate solely for the purpose of reincorporating the Guarantor in another jurisdiction; or

(2) the merger, consolidation with, liquidation into or transfer of all or substantially all of the properties and assets of any Guarantor to the Issuer or another Guarantor.

Transactions with Affiliates

The Issuer will not, and will not permit any of its Restricted Subsidiaries to, make any payment to, or sell, lease, transfer or otherwise dispose of any of its properties or assets to, or purchase any property or assets from, or enter into or make or amend, in any material respect, any transaction, contract, agreement, understanding, loan, advance or Guarantee with, or for the benefit of, any Affiliate of the Issuer (each, an "Affiliate Transaction"), involving aggregate consideration in any single Affiliate Transaction or series of related Affiliate Transactions in excess of €10.0 million unless:

(1) the Affiliate Transaction is on terms that are not materially less favorable to the Issuer or the relevant Restricted Subsidiary of the Issuer than those that would have been obtained in a comparable transaction on an arms-length basis by the Issuer or such Restricted Subsidiary of the Issuer with an unrelated Person;

(2) with respect to any Affiliate Transaction or series of related Affiliate Transactions involving aggregate consideration in excess of €25.0 million, the Issuer delivers to the Trustee an officer's certificate certifying that such Affiliate Transaction complies with this covenant; and

(3) with respect to any Affiliate Transaction or series of related Affiliate Transactions involving aggregate consideration in excess of €50.0 million, the Issuer delivers to the Trustee a resolution of a majority of the members of the Board of Directors of the Issuer set forth in an officer's certificate certifying that such Affiliate Transaction complies with this covenant.

The following items will not be deemed to be Affiliate Transactions and, therefore, will not be subject to the provisions of the prior paragraph:

(1) any employment agreement, collective bargaining agreement, employee benefit plan, officer or director indemnification agreement, including any stock option, stock appreciation rights, stock incentive or similar plans, or any similar arrangement entered into by the Issuer or any of its Restricted Subsidiaries in the ordinary course of business or consistent with past practice and payments or other transactions pursuant thereto;

(2) transactions (including a merger) between or among the Issuer and/or any of its Restricted Subsidiaries;

(3) transactions with a Person (other than an Unrestricted Subsidiary) that is an Affiliate of the Issuer solely because the Issuer owns, directly or through a Restricted Subsidiary of the Issuer, an Equity Interest in, or controls, such Person;

(4) payment of reasonable fees to and reimbursements of expenses and indemnity provided on behalf of officers, directors, employees or consultants;

(5) any transaction between or among the Issuer and/or its Restricted Subsidiaries and any joint venture (a) pursuant to the terms of the respective joint venture agreement; (b) in the ordinary course of business; or (c) which are fair to the Issuer or the relevant Restricted Subsidiary of the Issuer in the reasonable determination of the Board of Directors of the Issuer or the senior management of the Issuer or the Restricted Subsidiary of the Issuer, as applicable, or are on terms no less favorable (taking into account the costs and benefits of associated with such transactions) than those that could reasonably have been obtained at such time from an unaffiliated Person;

(6) any issuance or sale of Equity Interests (other than Disqualified Stock) of the Issuer to Affiliates of the Issuer or to any director, officer, employee or consultant of the Issuer or receipt of cash capital contributions from Affiliates of the Issuer in exchange for Equity Interests of the Issuer (other than Disqualified Stock) and the incurrence of Subordinated Shareholder Debt;

(7) Restricted Payments that do not violate the provisions of the Indenture described above under the caption "—Restricted Payments" and Permitted Investments (other than Permitted Investments described in clauses (3), (13), (15) or (16) of the definition thereof);

(8) transactions with customers, clients, lenders, suppliers or purchasers or sellers or other providers of goods or services or providers of employees or other labor, or lessors or lessees of property, in each case in the ordinary course of business and otherwise in compliance with the terms of the Indenture that are fair to the Issuer or its Restricted Subsidiaries, or are on terms at least as favorable as might reasonably have been obtained at such time from an unaffiliated Person in each case, as determined by a responsible accounting or financial officer of the Issuer or the senior management thereof;

(9) Management Advances;

(10) (a) pledges of Equity Interests or Indebtedness of Unrestricted Subsidiaries and joint ventures for the benefit of lenders thereto; (b) guarantees of performance by the Issuer and its Restricted Subsidiaries of the Issuer's Unrestricted Subsidiaries in the ordinary course of business (as determined in good faith by a responsible accounting officer of the Issuer), except for Guarantees of Indebtedness in respect of borrowed money; and (c) to the extent constituting Affiliate Transactions, transactions with charities and charitable foundations or with or that form part of community or social or environmental projects or initiatives;

(11) if such Affiliate Transaction is with a Person in its capacity as a holder of Capital Stock of the Issuer or any Restricted Subsidiary of the Issuer where such Person is treated no more favorably than the holders of Capital Stock of the Issuer or any Restricted Subsidiary of the Issuer;

(12) transactions effected pursuant to or contemplated by agreements or arrangements in effect or entered into on the date of the Indenture and any amendments, modifications or replacements of such agreements or arrangements (so long as such amendments, modifications or replacements are not materially more disadvantageous to the holders of the Notes, taken as a whole, than the original agreements or arrangements as in effect on or entered into on the date of the Indenture) (as determined in good faith by a responsible accounting or financial officer of the Issuer);

(13) transactions effected pursuant to or contemplated by agreements or arrangements between any Person and an Affiliate of such Person existing at the time such Person is acquired by, merged into or amalgamated, arranged or consolidated with the Issuer or any of its Restricted Subsidiaries; *provided* that such agreements or arrangements were not entered into in contemplation of such acquisition, merger, amalgamation, arrangement or consolidation, and any amendments, modifications or replacements of such agreements or arrangements (so long as such amendments, modifications or replacements are not materially more disadvantageous to the holders of the Notes, taken as a whole, than the original agreements or arrangements as in effect on the date of such acquisition, merger, amalgamation, arrangement or consolidation) (as determined in good faith by a responsible accounting or financial officer of the Issuer);

(14) Hedging Obligations entered into from time to time for *bona fide* hedging purposes of the Issuer and its Restricted Subsidiaries and the unwinding of any Hedging Obligations;

(15) execution, delivery and performance of any consolidated group arrangements for tax or accounting purposes; *provided* that any payments to be made pursuant to such arrangements are made in compliance with the covenant as set forth in "—Restricted Payments;" and

(16) any transaction effected as part of a Permitted Receivables Transaction.

Business Activities

The Issuer will not, and will not permit any of its Restricted Subsidiaries to engage in any business other than a Permitted Business, except to such extent as would not be material to the Issuer and its Restricted Subsidiaries taken as a whole.

Designation of Restricted and Unrestricted Subsidiaries

The Board of Directors of the Issuer may designate any Restricted Subsidiary of the Issuer to be an Unrestricted Subsidiary if that designation would not cause a Default. If a Restricted Subsidiary of the Issuer is designated as an Unrestricted Subsidiary, the aggregate Fair Market Value of all outstanding Investments owned by the Issuer and its Restricted Subsidiaries in the Subsidiary designated as Unrestricted will be deemed to be an Investment made as of the time of the designation and will reduce the amount available for Restricted Payments under the covenant described above under the caption "—Restricted Payments" or under one or more clauses of the definition of Permitted Investments, as determined by the Issuer. That designation will only be permitted if the Investment would be permitted at that time. The Board of Directors of the Issuer may redesignate any Unrestricted Subsidiary to be a Restricted Subsidiary if that redesignation would not cause a Default.

Any designation of a Restricted Subsidiary of the Issuer as an Unrestricted Subsidiary will be evidenced to the Trustee by filing with the Trustee a certified copy of a resolution of the Board of Directors of the Issuer giving effect to such designation and an officer's certificate certifying that such designation complied with the preceding conditions and was permitted by the covenant described above under the caption "—Restricted Payments." The Board of Directors of the Issuer may at any time designate any Unrestricted Subsidiary to be a Restricted Subsidiary of the Issuer; *provided* that such designation will be deemed to be an incurrence of Indebtedness by a Restricted Subsidiary of the Issuer of any outstanding Indebtedness of such Unrestricted Subsidiary, and such designation will only be permitted if (1) such Indebtedness is permitted under the covenant described under the caption "—Incurrence of Indebtedness and Issuance of Preferred Stock," calculated on a *pro forma* basis taking into account such designation as if such designation had occurred at the beginning of the applicable reference period; and (2) no Default or Event of Default would be in existence following such designation.

Listing of the Notes

The Issuer will use its commercially reasonable efforts to list and maintain the listing of the Notes on the Luxembourg Stock Exchange and to admit the Notes to trading on the Euro MTF market of the Luxembourg Stock Exchange; *provided, however*, that if the Issuer is unable to list the Notes on the Luxembourg Stock Exchange or if maintenance of such listing becomes unduly onerous, it will use its commercially reasonable efforts to maintain a listing of such Notes on another recognized stock exchange.

Reports

So long as any Notes are outstanding, the Issuer will furnish to the Trustee and make available to the Holders of Notes:

(1) commencing with the fiscal year ending December 31, 2018, within 120 days after each fiscal year of the Issuer, annual reports containing audited consolidated financial statements of the Issuer for the fiscal year then ended and comparative audited consolidated financial statements of the Issuer for the prior fiscal year, in each case prepared in accordance with IFRS together with reasonably detailed footnote disclosure, and also containing, with respect to the Issuer and its Subsidiaries, (i) an operating and financial review of the audited financial statements, including a discussion of the results of operations, financial condition, EBITDA and liquidity and capital resources of the Issuer, and a discussion of material commitments and contingencies and critical accounting policies; (ii) description of the business, management and shareholders of the Issuer, all material affiliate transactions and a description of all material contractual arrangements, including material debt instruments; and (iii) a description of material risk factors and material recent developments, in each case in form, substance and with a level of detail that are substantially comparable in all material respects with the Issuer's annual reference document (*Document de référence*) with respect to the fiscal year ended December 31, 2016;

(2) within 90 days following the end of the first half-year in each fiscal year of the Issuer beginning after the Issue Date, half-year reports containing the following information: (i) an unaudited condensed consolidated balance sheet as of the end of such period and unaudited condensed statements of income and cash flow for such period, and the comparable prior year period, each under IFRS, together with condensed footnote disclosure; and (ii) an operating and financial review of the audited and unaudited financial statements, including a discussion of the results of operations, financial condition, and liquidity and capital resources, and a discussion of material commitments and contingencies and changes in critical accounting policies, in each case in form, substance and with a level of detail that are substantially comparable in all material respects with those published by the Issuer on its website with respect to half-year information as of the Issue Date;

(3) commencing with the fiscal quarter ended March 31, 2018, within 60 days following the end of the first and third fiscal quarters of each fiscal year of the Issuer, quarterly reports of the Issuer in form, substance and with a level of detail that are substantially comparable in all material respects with those published by the Issuer on its website with respect to quarterly information as of the Issue Date; and

(4) promptly after the occurrence of a material acquisition, disposition, restructuring, senior management changes, change in auditors, the entering into of an agreement by the Issuer or any Restricted Subsidiary of the Issuer that will result in a Change of Control or any other material event that the Issuer or any Restricted Subsidiary of the Issuer announces publicly, in each case, a report containing a description of such event.

If the Issuer has designated any of its Subsidiaries as Unrestricted Subsidiaries, then the half-year and annual financial information required by the preceding paragraphs will include a reasonably detailed presentation, either on the face of the financial statements or in the footnotes thereto, and in the discussion of the financial condition and results of operations of the Issuer and its Restricted Subsidiaries separate from the financial condition and results of operations of the Unrestricted Subsidiaries.

The Issuer will also make available copies of all reports required by clauses (1) through (4) above (i) on the Issuer's website (and maintain for a period of at least five years after posting); and (ii) at the offices of the listing agent in Luxembourg.

In addition, so long as any Notes are "restricted securities" (as defined in Rule 144 under the U.S. Securities Act) during any period during which the Issuer is not subject to Section 13 or 15(d) of the U.S. Exchange Act nor exempt therefrom pursuant to Rule 12g3-2(b), the Issuer has agreed that it will, upon their request, furnish to the Holders and to securities analysts and prospective purchasers of the Notes, the information required to be delivered pursuant to Rule 144A(d)(4) under the U.S. Securities Act.

So long as any Notes are outstanding, the Issuer will also provide holders of the Notes with access to and the opportunity to participate in any public conference call, investor presentation, webcast or other event, the primary purpose of which is to discuss results of operations (or any material event referenced in clause (4) of the first paragraph of this covenant) with investors in the ordinary shares of the Issuer. Details of such conference calls will either (x) be delivered with each report; or (y) posted at least one week prior to such call on an electronic website that is used by the Issuer to communicate to the equity holders generally for which the holders of the Notes have been, prior to the posting of such notice, informed of the website address and relevant password specifications, which notice shall constitute reasonable notice of such public calls for the purpose of this paragraph.

All reports made pursuant to this covenant shall be made in, or translated to, the English language.

Events of Default and Remedies

Each of the following is an "Event of Default:"

(1) default for 30 days in the payment when due of interest on, or Additional Amounts, if any, with respect to, the Notes;

(2) default in the payment when due (at maturity, upon redemption or otherwise) of the principal of, or premium, if any, on, the Notes;

(3) failure by the Issuer or any of its Restricted Subsidiaries to comply with any of the provisions described under the caption "Certain Covenants—Merger, Consolidation or Sale of Assets;"

(4) failure by the Issuer or any of its Restricted Subsidiaries for 60 days after notice to the Issuer by the Trustee or the Holders of at least 25% in aggregate principal amount of the Notes then outstanding voting as a single class to comply with any of the other agreements in the Indenture (other than a default in performance, or breach, or a covenant or agreement which is specifically dealt with in clauses (1), (2) or (3));

(5) default under any mortgage, indenture or instrument under which there may be issued or by which there may be secured or evidenced any Indebtedness for money borrowed by the Issuer or any of its Restricted Subsidiaries (or the payment of which is guaranteed by the Issuer or any of its Restricted Subsidiaries), whether such Indebtedness or Guarantee now exists, or is created after the date of such default (but excluding Indebtedness owed to the Issuer or a Restricted Subsidiary of the Issuer), if that default:

  (a) is caused by a failure to pay principal of, or interest or premium, if any, on, such Indebtedness prior to the expiration of the grace period provided in such Indebtedness on the date of such Indebtedness (a "Payment Default"); or

  (b) results in the acceleration of such Indebtedness prior to its Stated Maturity,

and, in each case, the principal amount of any such Indebtedness that is due and has not been paid or which has been accelerated, together with the principal amount of any other such Indebtedness under which there has been a Payment Default or the maturity of which has been so accelerated, aggregates €35.0 million or more;

(6) failure by the Issuer or any of its Restricted Subsidiaries to pay final and non-appealable judgments entered by a court or courts of competent jurisdiction aggregating in excess of €35.0 million (net of any amounts which are covered by insurance or bonded), which judgments are not paid, waived, satisfied, discharged or stayed for a period of 60 days;

(7) any Note Guarantee, if any, is held in any judicial proceeding to be unenforceable or invalid or ceases for any reason to be, or shall for any reason be asserted in writing by any Guarantor or the Issuer not to be, in full force and effect and enforceable in accordance with its terms, except to the extent contemplated by the Indenture and any such Note Guarantee; or

(8) certain events of bankruptcy or insolvency described in the Indenture with respect to the Issuer or any of its Restricted Subsidiaries that is a Significant Subsidiary or any group of Restricted Subsidiaries that, taken together, would constitute a Significant Subsidiary.

In the case of an Event of Default arising from certain events of bankruptcy or insolvency, with respect to the Issuer, any Restricted Subsidiary of the Issuer that is a Significant Subsidiary or any group of Restricted Subsidiaries of the Issuer that, taken together, would constitute a Significant Subsidiary, all outstanding Notes will become due and payable immediately without further action or notice. If any other Event of Default occurs and is continuing, the Trustee or the Holders of at least 25% in aggregate principal amount of the then outstanding Notes may declare all the Notes to be due and payable immediately.

Subject to certain limitations, Holders of a majority in aggregate principal amount of the then outstanding Notes may direct the Trustee in its exercise of any trust or power. The Trustee may refuse to follow any direction that conflicts with law or the Indenture, or that may involve the Trustee in personal liability. Furthermore, the Trustee may withhold from holders of the Notes notice of any continuing Default or Event of Default if it determines that withholding notice is in their interest, except a Default or Event of Default relating to the payment of principal, interest or premium or Additional Amounts, if any.

Subject to the provisions of the Indenture relating to the duties of the Trustee, in case an Event of Default occurs and is continuing, the Trustee will be under no obligation to exercise any of the rights or powers under the Indenture at the request or direction of any Holders of Notes unless such Holders have offered to the Trustee indemnity and/or security, including by way of pre-funding, satisfactory to it, against any loss, liability or expense (including the costs of the Trustee's legal counsel). Except to enforce the right to receive payment of principal, premium, if any, or interest or Additional Amounts, if any, when due, no Holder of a Note may pursue any remedy with respect to the Indenture or the Notes unless:

(1) such Holder has previously given the Trustee notice that an Event of Default is continuing;

(2) Holders of at least 25% in aggregate principal amount of the then outstanding Notes have requested the Trustee to pursue the remedy;

(3) such Holders have offered the Trustee security, and/or indemnity, including by way of pre-funding, satisfactory to it, against any loss, liability or expense (including the costs of the Trustee's legal counsel);

(4) the Trustee has not complied with such request within 60 days after the receipt of the request and the offer of such security or indemnity; and

(5) Holders of a majority in aggregate principal amount of the then outstanding Notes have not given the Trustee a direction inconsistent with such request within such 60-day period.

The Holders of a majority in aggregate principal amount of the then outstanding Notes by written notice to the Trustee may, on behalf of the Holders of all of the Notes, rescind an acceleration or waive any existing Default or Event of Default and its consequences under the Indenture except a continuing Default or Event of Default in the payment of interest or premium or Additional Amounts, if any, on, or the principal of, the Notes (including in connection with an offer to purchase). Upon any such rescission or waiver, such Default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured for every purpose of the Indenture; but no such waiver shall extend to any subsequent or other Default or impair any right consequent thereon.

The Issuer is required to deliver to the Trustee annually a statement regarding compliance with the Indenture. Within 20 Business Days after becoming aware of any Default or Event of Default, the Issuer is required to deliver to the Trustee a statement specifying such Default or Event of Default and detailing the steps it is taking to remedy the same.

No Personal Liability of Directors, Officers, Employees and Shareholders

No director, officer, employee, incorporator or shareholder of the Issuer, as such, will have any liability for any obligations of the Issuer under the Notes, the Indenture, or for any claim based on, in respect of, or by reason of, such obligations or their creation. Each Holder of Notes by accepting a note waives and releases all such liability. The waiver and release are part of the consideration for issuance of the Notes. The waiver may not be effective to waive liabilities under the federal securities laws of the United States.

Legal Defeasance and Covenant Defeasance

The Issuer may at any time, at the option of its Board of Directors evidenced by a resolution set forth in an officer's certificate, elect to have all of its obligations discharged with respect to the outstanding Notes ("Legal Defeasance") except for:

(1) the rights of Holders of outstanding Notes to receive payments in respect of the principal of, or interest or premium and Additional Amounts, if any, on, such Notes when such payments are due from the trust referred to below;

(2) the Issuer's obligations with respect to the Notes concerning issuing temporary Notes, registration of Notes, mutilated, destroyed, lost or stolen Notes and the maintenance of an office or agency for payment and money for security payments held in trust;

(3) the rights, powers, trusts, duties, indemnifications, fees and immunities of the Trustee, and the Issuer's obligations in connection therewith; and

(4) the Legal Defeasance and Covenant Defeasance provisions of the Indenture.

In addition, the Issuer may, at its option and at any time, elect to have the obligations of the Issuer released with respect to certain covenants (including its obligation to make Change of Control Offers and Asset Sale Offers and the cross-acceleration provision and judgment default provisions described under "Events of Default and Remedies")) that are described in the Indenture ("Covenant Defeasance") and thereafter any omission to comply with those covenants will not constitute a Default or Event of Default with respect to the Notes. In the event Covenant Defeasance occurs, certain events (not including non-payment, bankruptcy, receivership, rehabilitation and insolvency events) described under "Events of Default and Remedies" will no longer constitute an Event of Default with respect to the Notes.

In order to exercise either Legal Defeasance or Covenant Defeasance:

(1) the Issuer must irrevocably deposit with the Trustee (or such other entity designated or appointed as agent by the Trustee for this purpose), in trust, for the benefit of the holders of the Notes, cash in euro and euro-denominated, non-callable government securities, or a combination of cash in euro and non-callable government securities, in amounts as will be sufficient, in the opinion of a nationally recognized investment bank, appraisal firm or firm of independent public accountants, to pay the principal of, or interest and premium and Additional Amounts, if any, on, the outstanding Notes on the stated date for payment thereof or on the applicable redemption date, as the case may be, and the Issuer must specify whether the Notes are being defeased to such stated date for payment or to a particular redemption date;

(2) in the case of Legal Defeasance, the Issuer must deliver to the Trustee: (i) an opinion of U.S. counsel reasonably acceptable to the Trustee (subject to customary exceptions and exclusions) confirming that (a) the Issuer has received from, or there has been published by, the U.S. Internal Revenue Service a ruling; or (b) since the date of the Indenture, there has been a change in the applicable U.S. federal income tax law, in either case to the effect that, and based thereon such opinion of counsel will confirm that, the Holders of the outstanding Notes will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such Legal Defeasance and will be subject to U.S. federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Legal Defeasance had not occurred; and (ii) an opinion of counsel in the jurisdiction of incorporation of the Issuer to the effect that the Holders will not recognize income, gain or loss for the income tax purposes of such jurisdiction as a result of such deposit and defeasance and will be subject to income tax in such jurisdiction on the same amounts, in the same manner and at the same times as would have been the case if such Legal Defeasance had not occurred;

(3) in the case of Covenant Defeasance, the Issuer must deliver to the Trustee: (i) an opinion of U.S. counsel reasonably acceptable to the Trustee (subject to customary exceptions and exclusions) confirming that the Holders of the outstanding Notes will not recognize income, gain or loss for U.S. federal income tax purposes as a result of such Covenant Defeasance and will be subject to U.S. federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Covenant Defeasance had not occurred; and (ii) an opinion of counsel in the jurisdiction of incorporation of the Issuer to the effect that the Holders will not recognize income, gain or loss for income tax purposes of such jurisdiction as a result of such deposit and defeasance and will be subject to income tax in such jurisdiction on the same amounts, in the same manner and at the same times as would have been the case if such Covenant Defeasance had not occurred;

(4) no Default or Event of Default has occurred and is continuing on the date of such deposit (other than a Default or Event of Default resulting from the borrowing of funds to be applied to such deposit) and the deposit will not result in a breach or violation of, or constitute a default under, any other instrument to which the Issuer is a party or by which the Issuer is bound;

(5) such Legal Defeasance or Covenant Defeasance will not result in a breach or violation of, or constitute a default under, any material agreement or instrument (other than the Indenture and the agreements governing any other Indebtedness being defeased, discharged or replaced) to which the Issuer or any of its Subsidiaries is a party or by which the Issuer or any of its Subsidiaries is bound;

(6) the Issuer must deliver to the Trustee an officer's certificate stating that the deposit was not made by the Issuer with the intent of preferring the Holders of Notes over the other creditors of the Issuer with the intent of defeating, hindering, delaying or defrauding any creditors of the Issuer or others; and

(7) the Issuer must deliver to the Trustee an officer's certificate and an opinion of counsel, each stating that all conditions precedent relating to the Legal Defeasance or the Covenant Defeasance have been complied with.

Amendment, Supplement and Waiver

Except as provided in the next two succeeding paragraphs, the Indenture or the Notes may be amended or supplemented with the consent of the Holders of at least a majority in aggregate principal amount of the Notes then outstanding (including, without limitation, consents obtained in connection with a purchase of, or tender offer or exchange offer for, Notes), and, subject to certain exemptions, any existing Default or Event of Default or compliance with any provision of the Indenture or the Notes may be waived with the consent of the Holders of a majority in aggregate principal amount of the then outstanding Notes (including, without limitation, consents obtained in connection with a purchase of, or tender offer or exchange offer for, Notes).

Without the consent of Holders holding at least 90% of the then outstanding principal amount of Notes affected thereby, an amendment, supplement or waiver may not (with respect to any Notes held by a non-consenting Holder):

(1) reduce the principal amount of Notes whose Holders must consent to an amendment, supplement or waiver referred to in this paragraph;

(2) reduce the principal of or change the fixed maturity of any Note or alter the provisions with respect to the redemption of the Notes (other than provisions described above under the caption "Repurchase at the Option of Holders");

(3) release, other than in accordance with the Indenture, any Lien or any Note Guarantee in a manner that would adversely affect the Holders of Notes;

(4) reduce the rate of or change the time for payment of interest, including default interest, on any Note;

(5) waive a Default or Event of Default in the payment of principal of, or interest or premium, or Additional Amounts, if any, on, the Notes (except a rescission of acceleration of the Notes by the holders of at least a majority in aggregate principal amount of the then outstanding Notes and a waiver of the payment default that resulted from such acceleration);

(6) make any Note payable in money other than that stated in the Notes;

(7) make any change in the provisions of the Indenture relating to waivers of past Defaults or the rights of holders of Notes to receive payments of principal of, or interest or premium or Additional Amounts, if any, on, the Notes;

(8) waive a redemption payment with respect to any Note (other than a payment required by the provisions described above under the caption "Repurchase at the Option of Holders"); or

(9) make any change in the preceding amendment and waiver provisions.

Notwithstanding the preceding, without the consent of any Holder of Notes, the Issuer and the Trustee may amend or supplement the Indenture or the Notes:

(1) to cure any ambiguity, mistake, omission, defect or inconsistency;

(2) to provide for uncertificated Notes in addition to or in place of certificated Notes;

(3) to provide for the assumption of by successor Person of the obligations of the Issuer under any of the documents referenced above in the case of a merger or consolidation or sale of all or substantially all of the Issuer's assets;

(4) to make any change that would provide any additional rights or benefits to the Holders of Notes or that would not adversely affect the legal rights under the Indenture of any such Holder in any material respect;

(5) to conform the text of the Indenture or the Notes to any provision of this Description of the Notes to the extent that such provision in this Description of the Notes was intended to be a verbatim recitation of a provision of the Indenture or the Notes;

(6) to provide for the issuance of additional notes in accordance with the limitations set forth in the Indenture as of the date of the Indenture;

(7) to allow any Guarantor to execute a supplemental Indenture and/or a Note Guarantee;

(8) to evidence and provide the acceptance of the appointment of a successor Trustee under the Indenture; or

(9) to mortgage, pledge, hypothecate or grant a security interest in favor of the Trustee for the benefit of the holders of the Notes as security for the payment and performance of the Issuer's or any Guarantor's obligations under the Indenture, in any property, or assets, including any of which are required to be mortgaged, pledged or hypothecated, or in which a security interest is required to be granted to the Trustee pursuant to the Indenture or otherwise.

The consent of the Holders of Notes is not necessary under the Indenture to approve the particular form of any proposed amendment, waiver or consent; it is sufficient if such consent approves the substance of the proposed amendment, waiver or consent.

The Trustee shall be entitled to rely on such evidence as it deems appropriate, including officer's certificates and opinions of counsel.

Acts by Holders

In determining whether the Holders of the required principal amount of the Notes have concurred in any direction, waiver or consent, the Notes owned by the Issuer, or by any Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Issuer will be disregarded and deemed not to be outstanding.

Satisfaction and Discharge

The Indenture will be discharged and will cease to be of further effect as to all Notes issued thereunder, when:

(1) either:

    (a) all Notes that have been authenticated, except lost, stolen or destroyed Notes that have been replaced or paid and Notes for whose payment money has been deposited in trust and thereafter repaid to the Issuer, have been delivered to the Trustee for cancellation; or

    (b) all Notes that have not been delivered to the Paying Agent for cancellation have become due and payable by reason of the mailing of a notice of redemption or otherwise or will become due and payable within one year and the Issuer has irrevocably deposited or caused to be deposited with the Trustee (or such other entity designated or appointed as agent by the Trustee for this purpose) as trust funds in trust solely

for the benefit of the Holders, cash in euro, non-callable government securities, or a combination of cash in euro and non-callable government securities, in amounts as will be sufficient, without consideration of any reinvestment of interest, to pay and discharge the entire Indebtedness on the Notes not delivered to the Trustee for cancellation for principal, premium and Additional Amounts, if any, and accrued interest to the date of maturity or redemption;

(2) the Issuer has paid or caused to be paid all sums payable by it under the Indenture; and

(3) the Issuer has delivered irrevocable instructions to the Trustee under the Indenture to apply the deposited money toward the payment of the Notes at maturity or on the redemption date, as the case may be.

In addition, the Issuer must deliver to the Trustee an officer's certificate and an opinion of counsel stating that all conditions precedent to satisfaction and discharge have been satisfied; *provided* that any such counsel may rely on any officer's certificate as to matters of fact (including as to compliance with the foregoing clauses (1), (2) and (3)).

Judgment Currency

The sole currency of account and payment for all sums payable by the Issuer or any Guarantor under the Indenture is the euro. Any payment on account of an amount that is payable in euros (the "Required Currency") which is made to or for the account of any Holder or the Trustee in lawful currency of any other jurisdiction (the "Judgment Currency"), whether as a result of any judgment or order or the enforcement thereof or the liquidation of the Issuer, shall constitute a discharge of the Issuer's obligation under the Indenture or the Notes, as the case may be, only to the extent of the amount of the Required Currency which such Holder or the Trustee, as the case may be, could purchase in the London foreign exchange markets with the amount of the Judgment Currency in accordance with normal banking procedures at the rate of exchange prevailing on the first Business Day following receipt of the payment in the Judgment Currency. If the amount of the Required Currency that could be so purchased is less than the amount of the Required Currency originally due to such Holder or the Trustee, as the case may be, and the Issuer shall indemnify and hold harmless the Holder or the Trustee, as the case may be, from and against all loss or damage arising out of, or as a result of, such deficiency. This indemnity shall constitute an obligation separate and independent from the other obligations contained in the Indenture, the Notes, and shall give rise to a separate and independent cause of action, shall apply irrespective of any indulgence granted by any Holder or the Trustee from time to time and shall continue in full force and effect notwithstanding any judgment or order for a liquidated sum in respect of an amount due hereunder or under any judgment or order.

Prescription

There is no express term in the Indenture as to any time limit on the validity of claims of the Holders to interest and repayment of principal, but any such claims will be subject to any statutory limitation period prescribed under the laws of the State of New York.

Notices

All notices to the Holders (while any Notes are represented by one or more Global Notes) shall be delivered to Euroclear and Clearstream, as applicable, for communication to entitled account holders or, alternatively, will be valid if disseminated through the newswire service of Bloomberg (or if Bloomberg does not operate, any similar agency) or published in a leading English language daily newspaper published in the City of London or, if such publication is not reasonably practicable, in such other English language daily newspaper with general circulation in Europe. It is expected that any such publication will normally be made in the *Financial Times*. So long as the Notes are listed on the Luxembourg Stock Exchange and its rules so require, all notices to Holders will also be published in a newspaper having a general circulation in Luxembourg, which is expected to be the *Luxemburger Wort*, or on the official website of the Luxembourg Stock Exchange. If publication as provided above is not practicable, notice will be given in such other manner, and shall be deemed to have been given on such date, as the Trustee may approve. In the case of Definitive Registered Notes, notices will be mailed to Holders by first-class mail at their respective addresses as they appear on the records of the Registrar.

Notices given by publication, including without limitation through the newswire service of Bloomberg (or if Bloomberg does not operate, any similar agency), will be deemed given on the first date on which publication is made. Notices delivered to Euroclear and Clearstream will be deemed given on the date when delivered. Notices given by first-class mail, postage paid, will be deemed given 5 calendar days after mailing or when the addressee receives it.

So long as any Notes are admitted to the Official List of the Luxembourg Stock Exchange and admitted to trading on the Euro MTF market of the Luxembourg Stock Exchange, and to the extent required by the Luxembourg Stock Exchange, the Issuer will provide a copy of all notices to the Luxembourg Stock Exchange.

Concerning the Trustee

BNY Mellon Corporate Trustee Services Limited is to be appointed as Trustee under the Indenture.

The Holders of a majority in aggregate principal amount of the then outstanding Notes will have the right to direct the time, method and place of conducting any proceeding for exercising any remedy available to the Trustee, subject to certain exceptions. The Indenture will provide that in case an Event of Default occurs, of which a responsible officer of the Trustee has received written notice, and is continuing, the Trustee will be required, in the exercise of its power, to use the degree of care of a prudent person in the conduct of his own affairs. The permissive rights of the Trustee to take or refrain from taking any action enumerated in the Indenture will not be construed as an obligation or duty. Subject to such provisions, the Trustee will be under no obligation to exercise any of its rights or powers under the Indenture at the request of any Holder of Notes, unless such Holder has offered to the Trustee security and/or indemnity, including by way of pre-funding, satisfactory to it against any loss, liability or expense (which includes the cost of the Trustee's legal counsel).

The Indenture will set out the terms under which the Trustee may retire or be removed, and replaced. Such terms will include, among others, (1) that the Trustee may be removed at any time by the Holders of a majority in principal amount of the then outstanding Notes, or may resign at any time by giving 30 days' written notice to the Issuer; and (2) that if the Trustee at any time (a) has or acquires a conflict of interest that is not eliminated or (b) becomes incapable of acting as Trustee or becomes insolvent or bankrupt, then the Issuer may remove the Trustee, or any Holder of Notes who has been a bona fide Holder of Notes for not less than six months may petition any court for removal of the Trustee and appointment of a successor Trustee.

Any removal or resignation of the Trustee shall not become effective until the acceptance of appointment by the successor Trustee.

The Indenture will contain provisions for the indemnification of the Trustee for any loss, liability, taxes and expenses incurred without gross negligence, willful misconduct or fraud on its part, arising out of or in connection with the acceptance or administration of the Indenture.

Consent to Jurisdiction and Service of Process

The Issuer will irrevocably submit to the jurisdiction of any New York state or U.S. federal court located in The Borough of Manhattan, City of New York, State of New York in relation to any legal action or proceeding (i) arising out of, related to or in connection with the Indenture, the Notes and the Note Guarantees; and (ii) arising under any U.S. federal or U.S. state securities laws. The Issuer will appoint Vallourec Holdings Inc. as its agent for service of process in any such action or proceeding.

Additional Information

Anyone who receives this offering memorandum may obtain a copy of the Indenture without charge by writing to the Issuer, 27, avenue du Général Leclerc, 92100 Boulogne-Billancourt, France, Attention: Mr. Frédéric Bernet.

So long as any Notes are admitted to the official list of the Luxembourg Stock Exchange and admitted to trading on the Euro MTF market of the Luxembourg Stock Exchange, and to the extent required by the Luxembourg Stock Exchange, copies of the Issuer's annual audited consolidated and unconsolidated financial statements, the Issuer's unaudited consolidated interim half-year financial statements, the Indenture (including the form of Notes), the articles of incorporation of the Issuer, the offering memorandum and any documents furnished to the Trustee under the covenant described under the heading "—Certain Covenants—Reports" may be obtained, free of charge, during normal business hours at the offices of the listing agent in Luxembourg.

Governing Law

The Indenture and the Notes will be governed by and construed in accordance with the laws of the State of New York.

Certain Definitions

Set forth below are certain defined terms used in the Indenture. Reference is made to the Indenture for a full disclosure of all defined terms used therein, as well as any other capitalized terms used herein for which no definition is provided.

"2019 Notes" means the €400,000,000 3.25% Notes of the Issuer due 2019, issued on August 3, 2012.

"2022 Notes" means the €249,999,998.30 4.125% Notes convertible into new shares and/or exchangeable for existing shares of the Issuer due 2022, issued on October 4, 2017.

"2024 Notes" means the €500,000,000 2.25% Notes of the Issuer due 2024, issued on September 30, 2014.

"2027 Notes" means the €55,000,000 4.125% Notes of the Issuer due 2027, issued on July 30, 2012.

"Acquired Debt" means, with respect to any specified Person:

(1) Indebtedness of any other Person existing at the time such other Person is merged with or into or became a Subsidiary of such specified Person, whether or not such Indebtedness is incurred in connection with, or in contemplation of, such other Person merging with or into, or becoming a Subsidiary of, such specified Person; and

(2) Indebtedness secured by a Lien encumbering any asset acquired by such specified Person.

"ACC/ACE Facilities" means Advances on Exchange Contracts (*Adiamentos sobre Contratos de Câmbio*—ACC) and Advances on Delivered Exchanges (*Adiamentos sobre Cambiais Entregues*—ACE) and any successor or similar export financing extended to any Brazilian Subsidiary that constitutes Non-Recourse Debt vis-à-vis the Issuer or any Restricted Subsidiary of the Issuer that is not a Brazilian Subsidiary.

"Affiliate" of any specified Person means any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified Person. For purposes of this definition, "control," as used with respect to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of such Person, whether through the ownership of voting securities, by agreement or otherwise. For purposes of this definition, the terms "controlling," "controlled by" and "under common control with" have correlative meanings.

"Applicable Premium" means, with respect to any Note on any redemption date, the greater of:

(1) 1.0% of the principal amount of such Note; and

(2) the excess of (to the extent positive):

 (a) the present value at such redemption date of (i) the redemption price of the Note on October 15, 2020 (such redemption price being set forth in the table appearing above under the caption "Optional Redemption"); *plus* (ii) all required interest payments due on the Note through October 15, 2020 (excluding accrued but unpaid interest to the redemption date), computed using a discount rate equal to the Bund Rate as of such redemption date plus 50 basis points; *over*

 (b) the outstanding principal amount of such Note, if greater;

as calculated by the Issuer or on behalf of the Issuer by such Person as the Issuer shall designate. For the avoidance of doubt, calculation of the Applicable Premium shall not be a duty or obligation of the Trustee or Paying Agent.

"Asset Sale" means:

(1) the sale, lease (other than operating leases entered into in the ordinary course of business), conveyance or other disposition of any assets or rights; *provided* that the sale, lease, conveyance or other disposition of all or substantially all of the assets of the Issuer and its Restricted Subsidiaries taken as a whole will be governed by the provisions of the Indenture described above under the caption "Repurchase at the Option of the Holders—Change of Control" and/or the provisions described above under the caption "Certain Covenants—Merger, Consolidation or Sale of Assets" and not by the provisions of the Asset Sale covenant; and

(2) the issuance or sale of Equity Interests in any of the Issuer's Restricted Subsidiaries.

Notwithstanding the preceding, none of the following items will be deemed to be an Asset Sale:

(1) any single transaction or series of related transactions that involves assets, rights or Equity Interests having a Fair Market Value of less than the greater of €35.0 million and 0.50% of Consolidated Total Assets;

(2) a transfer of assets, rights or Equity Interests, between or among the Issuer and its Restricted Subsidiaries;

(3) an issuance or sale of Equity Interests by a Restricted Subsidiary of the Issuer to the Issuer or to a Restricted Subsidiary of the Issuer;

(4) an issuance or sale of Equity Interests by a Restricted Subsidiary of the Issuer to holders of its Capital Stock other than the Issuer or another Restricted Subsidiary of the Issuer; *provided* that, immediately after giving effect to such issuance, the percentage of ownership of such Capital Stock held by the Issuer or such other Restricted Subsidiary of the Issuer remains the same as before giving effect to such issuance;

(5) the sale or lease of equipment, products or accounts receivable (including discounting thereof) in the ordinary course of business and any sale or other disposition of obsolete or permanently retired equipment and facilities and equipment and facilities that are no longer useful in the conduct of the business of the Issuer and its Restricted Subsidiaries;

(6) the sale or other disposition of cash, Cash Equivalents or Government Guaranteed Securities;

(7) a Restricted Payment that does not violate the provisions of the covenant described above under the caption "Certain Covenants—Restricted Payments," a Permitted Investment or any transaction specifically excluded from the definition of Restricted Payment;

(8) licensing or sublicensing of intellectual property or other general intangibles and licenses, leases or subleases of other property in the ordinary course of business;

(9) the unwinding of Hedging Obligations;

(10) the disposition of receivables in connection with the compromise, settlement or collection thereof in the ordinary course of business or in bankruptcy or similar proceedings and exclusive of factoring or similar arrangements;

(11) any exchange of assets (including a combination of assets and Cash Equivalents) for assets related to a Permitted Business (including Capital Stock of an entity that either is and remains or becomes a Restricted Subsidiary of the Issuer immediately after giving effect to such exchange) of comparable or greater market value or usefulness to the business of the Issuer and its Restricted Subsidiaries as a whole, as determined in good faith by the Issuer;

(12) the sale, lease, assignment, exchange or other transfer of inventory, products, services, raw materials, receivables or other assets in the ordinary course of business;

(13) any sale or other disposition of damaged, worn-out, obsolete or excess assets or properties or other assets that are no longer used or useful in or necessary for the proper conduct of the business of the Issuer and its Restricted Subsidiaries;

(14) any sale of assets received by the Issuer or any of its Restricted Subsidiaries upon the foreclosure on a Lien;

(15) the foreclosure, condemnation or any similar action with respect to any property or other assets, or the surrender, or waiver of contract rights or settlement, release or surrender of contract, tort or other claims;

(16) licenses and sublicenses by the Issuer or any of its Restricted Subsidiaries in the ordinary course of business;

(17) dispositions to the extent required by, or made pursuant to, customary buy/sell arrangements between joint venture parties set forth in joint venture arrangements and similar binding agreements;

(18) the granting of Liens not otherwise prohibited by the Indenture; and

(19) any disposition of Receivables Assets in a Permitted Receivables Transaction.

"Beneficial Owner" has the meaning assigned to such term in Rule 13d-3 and Rule 13d-5 under the Exchange Act; *except* that in calculating the beneficial ownership of any particular "person" (as that term is used in Section 13(d)(3) of the Exchange Act), such "person" will be deemed to have beneficial ownership of all securities that such "person" has the right to acquire by conversion or exercise of other securities, whether such right is currently exercisable or is exercisable only after the passage of time. The terms "Beneficial Ownership," "Beneficially Owns" and "Beneficially Owned" have a corresponding meaning.

"Board of Directors" means:

(1) with respect to a corporation, the board of directors of the corporation or any committee thereof duly authorized to act on behalf of such board;

(2) with respect to a partnership, the Board of Directors of the general partner of the partnership;

(3) with respect to a limited liability company, the managing member or members or any controlling committee of managing members thereof;

(4) with respect to the Issuer, its Supervisory Board (*Conseil de Surveillance*) or its Management Board (*Directoire*) or, in either case, any committee thereof duly authorized to act on behalf of such board; *provided* that in the event of change by the Issuer of its corporate bodies structure so that it has a Board of Directors (*Conseil d'Administration*) and starting from the date on which such change becomes effective, its Board of Directors (*Conseil d'Administration*); and

(5) with respect to any other Person, the board or committee of such Person serving a similar function.

"Brazilian Borrowing Base" means, with respect to any relevant date, the combined reais-denominated revenue of the Brazilian Subsidiaries under IFRS for the most recently ended four-quarter period for which internal financial statements of such companies are available.

"Brazilian Subsidiaries" means Vallourec Soluções Tubulares do Brasil S.A., its successors and assigns and any other company or entity organized under the laws of the Federative Republic of Brazil which is a direct or indirect Restricted Subsidiary of the Issuer.

"Bund Rate" means, with respect to any relevant date, the rate per annum equal to the equivalent yield to maturity as of such date of the Comparable German Bund Issue, assuming a price for the Comparable German Bund Issue (expressed as a percentage of its principal amount) equal to the Comparable German Bund Price for such relevant date, where:

(1) "Comparable German Bund Issue" means the German Bundesanleihe security selected by any Reference German Bund Dealer as having a fixed maturity most nearly equal to the period from such redemption date to October 15, 2020 and that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of euro denominated corporate debt securities in a principal amount approximately equal to the then outstanding principal amount of the Notes and of a maturity most nearly equal to the period from the redemption date to October 15, 2020; *provided, however*, that, if the period from such redemption date to October 15, 2020 is not equal to the fixed maturity of the German Bundesanleihe security selected by such Reference German Bund Dealer, the Bund Rate shall be determined by linear interpolation (calculated to the nearest one-twelfth of a year) from the yields of German Bundesanleihe securities for which such yields are given; *except* that if the period from such redemption date to October 15, 2020 is less than one year, a fixed maturity of one year shall be used;

(2) "Comparable German Bund Price" means, with respect to any relevant date, the average of all Reference German Bund Dealer Quotations for such date (which, in any event, must include at least two such quotations), after excluding the highest and lowest such Reference German Bund Dealer Quotations, or if the Issuer obtains fewer than four such Reference German Bund Dealer Quotations, the average of all such quotations;

(3) "Reference German Bund Dealer" means any dealer of German Bundesanleihe securities appointed by the Issuer in good faith; and

(4) "Reference German Bund Dealer Quotations" means, with respect to each Reference German Bund Dealer and any relevant date, the average as determined by the Issuer of the bid and offered prices for the Comparable German Bund Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Issuer by such Reference German Bund Dealer at 3:30 p.m. Frankfurt, German time on the third Business Day preceding the relevant date.

"Business Day" means any day on which commercial banking institutions are open for business and carrying out transactions in euros in France and in the country in which the Paying Agent has its specified office or in which Notes may be presented for payment in accordance with the terms of the agency agreement and is a day on which the Trans-European Automated Real Time Gross Settlement Express Transfer System ("TARGET") is operating.

"Capital Lease Obligation" means, at the time any determination is to be made, the amount of the liability in respect of a capital lease that would at that time be required to be capitalized on a balance sheet prepared in accordance with IFRS in effect as of the Issue Date, and the Stated Maturity thereof shall be the date of the last payment of rent or any

other amount due under such lease prior to the first date upon which such lease may be prepaid by the lessee without payment of a penalty.

"Capital Stock" means:

(1) in the case of a corporation, corporate stock;

(2) in the case of an association or business entity that is not a corporation, any and all shares, interests, participations, rights or other equivalents (however designated) of corporate stock;

(3) in the case of a partnership or limited liability company, partnership interests (whether general or limited) or membership interests; and

(4) any other interest or participation that confers on a Person the right to receive a share of the profits and losses of, or distributions of assets of, the issuing Person, but excluding from all of the foregoing any debt securities convertible into Capital Stock, whether or not such debt securities include any right of participation with Capital Stock.

"Cash Equivalents" means:

(1) direct obligations (or certificates representing an interest in such obligations) issued by, or unconditionally guaranteed by, the government of a member state of the European Union, Switzerland or the United States of America (including, in each case, any agency or instrumentality thereof), as the case may be, the payment of which is backed by the full faith and credit of the relevant member state of European Union, Switzerland or the United States of America, as the case may be, and which are not callable or redeemable at the Issuer's option; *provided* that such country (or agency or instrumentality) has a long-term government debt rating of "A1" or higher by Moody's or "A+" or higher by S&P or the equivalent rating category of another internationally recognized rating agency, as of the date of the investment;

(2) overnight bank deposits, time deposit accounts, certificates of deposit, banker's acceptances and money market deposits with maturities (and similar instruments) of 12 months or less from the date of acquisition issued by a bank or trust company; *provided* that (A) (i) such bank or trust company is organized under, or authorized to operate as a bank or trust company under, the laws of a member state of the European Union, Switzerland or the United States of America or any state thereof and has capital, surplus and undivided profits aggregating in excess of €250.0 million (or the foreign currency equivalent thereof as of the date of such investment) and whose rating is "P-2" or higher by Moody's or "A-2" or higher by S&P or the equivalent rating category of another internationally recognized rating agency, as of the date of the investment; and (ii) such country under which such bank or trust company is organized or authorized to operate has a long-term government debt rating of "A1" or higher by Moody's or "A+" or higher by S&P or the equivalent rating category of another internationally recognized rating agency, as of the date of the investment; or (B) such bank or trust company has capital, surplus and undivided profits aggregating in excess of €250.0 million (on the foreign currency equivalent thereof as of the date of such investment) and whose rating is "P-1" or higher by Moody's or "A-1" or higher by S&P or the equivalent rating category of another internationally recognized rating agency, as of the date of the investment; or (C) such bank or trust company is a financial institution that has an existing banking relationship with the Issuer or its Restricted Subsidiaries on the Issue Date or any Affiliate thereof; *provided* that in the case of this sub-clause (C) such financial institution ranks, in terms of combined capital and surplus and undivided profit or the ratings on its long term debt, among the top five financial institutions in the jurisdiction of its organization;

(3) repurchase obligations for underlying securities of the types described in clauses (1) and (2) above entered into with any financial institution meeting the qualifications specified in clause (2) above;

(4) commercial paper having one of the two highest ratings obtainable from Moody's or S&P and, in each case, maturing within one year after the date of acquisition;

(5) money market funds at least 95% of the assets of which constitute Cash Equivalents of the kinds described in clauses (1) through (4) of this definition; and

(6) investments made for non-speculative cash management purposes in the ordinary course of business.

"Change of Control" means the occurrence of any of the following:

(1) the direct or indirect sale, lease, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of the properties or assets of the

Issuer and its Subsidiaries taken as a whole to any "person" (as that term is used in Section 13(d) of the Exchange Act), other than a Wholly Owned Restricted Subsidiary of the Issuer; or

(2) the adoption of a plan relating to the liquidation or dissolution of the Issuer; or

(3) the Issuer becomes aware that any "person" (as defined above) or any "group" of related persons (as that term is used in Section 14(d) of the Exchange Act), is or becomes the Beneficial Owner, directly or indirectly, of more than 50% of the Voting Stock of the Issuer, measured by voting power rather than numbers of shares; *provided* that so long as the Issuer is a Subsidiary of a parent Person, no "person" shall be deemed to be or become a Beneficial Owner of more than 50% of the total voting power of the Voting Stock of the Issuer unless such "person" shall be or become a Beneficial Owner of more than 50% of the total voting power of the Voting Stock of such parent Person.

"Change of Control Offer" has the meaning assigned to that term in the Indenture governing the Notes.

"Club Deal Facilities" means, collectively, the Club Deal Facility 2015 and the Club Deal Facility 2016.

"Club Deal Facility 2015" means the revolving credit facility made available under the Club Deal Facility Agreement 2015.

"Club Deal Facility 2016" means the revolving credit facility made available under the Club Deal Facility Agreement 2016.

"Club Deal Facility Agreement 2015" means the €400,000,000 revolving credit facility agreement dated September 21, 2015 entered into, inter alia, among the Issuer as borrower and BNP Paribas, Crédit Agricole Corporate and Investment Bank, Natixis and Société Générale Corporate & Investment Banking (the corporate and investment banking division of Société Générale) as Mandated Lead Arrangers and Bookrunners and Natixis as Facility Agent, as amended, restated, modified, renewed, refunded, replaced or refinanced in whole or in part from time to time (and whether or not with the original administrative agent and lenders or another administrative agent or agents or other lenders and whether provided under the original Club Deal Facility Agreement 2015 or any other credit or other agreement or indenture).

"Club Deal Facility Agreement 2016" means the €450,000,000 revolving credit facility agreement dated May 2, 2016 entered into, inter alia, among the Issuer as borrower and BNP Paribas, Crédit Agricole Corporate and Investment Bank, Natixis and Société Générale Corporate & Investment Banking (the corporate and investment banking division of Société Générale) as Mandated Lead Arrangers and Bookrunners and Banco Santander, S.A. as Mandated Lead Arranger and Natixis as Facility Agent, as amended, restated, modified, renewed, refunded, replaced or refinanced in whole or in part from time to time (and whether or not with the original administrative agent and lenders or another administrative agent or agents or other lenders and whether provided under the original Club Deal Facility Agreement 2016 or any other credit or other agreement or indenture).

"Club Deal Facility Agreements" means, collectively, the Club Deal Facility Agreement 2015 and the Club Deal Facility Agreement 2016.

"Commercial Paper Program" means the Issuer's program for the issuance of *billets de trésorerie* established on October 12, 2011, as amended, restated, renewed or replaced from time to time.

"Consolidated Cash Flow" means, with respect to any specified Person for any period, the Consolidated Net Income of such Person for such period plus, without duplication:

(1) provision for taxes based on income or profits of such Person and its Restricted Subsidiaries for such period, to the extent that such provision for taxes was deducted in computing such Consolidated Net Income; *plus*

(2) the Fixed Charges of such Person and its Restricted Subsidiaries for such period, to the extent that such Fixed Charges were deducted in computing such Consolidated Net Income; *plus*

(3) depreciation, amortization (including amortization of intangibles but excluding amortization of prepaid cash expenses that were paid in a prior period) and other non-cash expenses (excluding any such non-cash expense to the extent that it represents an accrual of or reserve for cash expenses in any future period or amortization of a prepaid cash expense that was paid in a prior period) of such Person and its Restricted Subsidiaries for such period to the extent that such depreciation, amortization and other non-cash expenses were deducted in computing such Consolidated Net Income; *plus*

(4) acquisition costs and any fees (including legal fees), expenses, charges or other costs related to equity or debt financings, investments, restructurings, dispositions or acquisitions, establishing a joint venture, disposition, recapitalization or listing or the incurrence of Indebtedness permitted to be incurred under the covenant described above under the caption "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock" (or the refinancing thereof) whether or not successful, including (i) such fees, expenses or charges related to an incurrence of Indebtedness and (ii) any amendment or other modification of any incurrence; *minus*

(5) non-cash items increasing such Consolidated Net Income for such period, other than the accrual of revenue in the ordinary course of business and other than the reversal of a reserve for cash charges in a future period in the ordinary course of business,

in each case, on a consolidated basis and determined in accordance with IFRS.

"Consolidated Net Income" means, with respect to any specified Person for any period, the aggregate of the net income (loss) of such Person and its Restricted Subsidiaries for such period, on a consolidated basis and determined in accordance with IFRS as adjusted by excluding to the extent included in such net income (loss), without duplication:

(1) any gain (loss), together with any related provision for taxes on such gain (loss) realized in connection with: (a) any asset sale outside the ordinary course of business by any such Person or its Restricted Subsidiaries; or (b) the issuance or disposition of any securities by such Person or any of its Restricted Subsidiaries; or (c) the extinguishment of any Indebtedness of such Person or any of its Restricted Subsidiaries will be excluded;

(2) any extraordinary, exceptional, unusual or non-recurring gains or losses or income or expenses or charges (as determined in good faith by a responsible accounting or financial officer of the Issuer) (including, without limitation, pension expenses, casualty losses, severance expenses, redundancy expenses, integration expenses, relocation expenses, other reorganization and restructuring expenses and fees, expenses or charges or other costs related to any offering of Equity Interests of such Person, any Investment, acquisition, disposition, recapitalization or listing or incurrence of Indebtedness permitted to be incurred hereunder (in each case, whether or not successful) or any asset impairment charges or the financial impacts of natural disasters (including fire, flood and storm and related events)) shall be excluded, together with any related provision for taxes on such loss;

(3) the net income (loss) of any Person that is not a Restricted Subsidiary of the Issuer (including an Unrestricted Subsidiary or a joint venture that is not a Restricted Subsidiary of the Issuer) or that is accounted for by the equity method of accounting will be excluded; *except* that the specified Person's equity in the net income of that Person will be included to the extent of the amount of dividends or similar distributions actually paid in cash to the specified Person or a Restricted Subsidiary of the Person;

(4) solely for purposes of determining the amount available for Restricted Payments under clause (3)(a) of the second paragraph of the covenant described under the caption "Certain Covenants—Restricted Payments," the net income (loss) of any Restricted Subsidiary of the Issuer that is not a Guarantor will be excluded to the extent that the declaration or payment of dividends or similar distributions by that Restricted Subsidiary of that net income is not at the date of determination permitted without any prior governmental approval (that has not been obtained) or, directly or indirectly, by operation of the terms of its charter or any agreement, instrument, judgment, decree, order, statute, rule or governmental regulation applicable to that Restricted Subsidiary or its stockholders (other than (a) restrictions with respect to the payment of dividends or similar distributions that have been legally waived or released; or (b) restrictions listed under clauses (1) through (4), (12), (15) and (16) of the second paragraph of "Certain Covenants—Dividend and Other Payment Restrictions Affecting Subsidiaries");

(5) the cumulative effect of a change in accounting principles will be excluded;

(6) any unrealized foreign exchange gains (losses) will be excluded; and

(7) any increase in amortization or depreciation resulting from purchase accounting in relation to any acquisition of, or merger or consolidation with, another Person or business will be excluded.

"Consolidated Net Leverage" means, with respect to any Person, the sum of the aggregate outstanding Indebtedness of that Person and its Restricted Subsidiaries (excluding Subordinated Shareholder Debt), the aggregate outstanding amount of Disqualified Stock issued by the Issuer and the aggregate liquidation preference of any preferred equity issued by a Restricted Subsidiary of the Issuer, less cash and Cash Equivalents, in each case, as of the relevant date of calculation.

"Consolidated Net Leverage Ratio" means, with respect to any Person, as of any date of determination, the ratio of (a) the Consolidated Net Leverage of such Person on such date to (b) the Consolidated Cash Flow of such Person for

the most recently ended four-quarter period for which internal financial statements are available. In the event that the specified Person or any of its Restricted Subsidiaries incurs, assumes, guarantees, repays, repurchases, redeems, defeases or otherwise discharges any Indebtedness (other than ordinary working capital borrowings) or issues, repurchases or redeems Disqualified Stock or preferred stock subsequent to the commencement of the period for which the Consolidated Net Leverage Ratio is being calculated and on or prior to the date on which the event for which the calculation of the Consolidated Net Leverage Ratio is made (the "Calculation Date"), then the Consolidated Net Leverage Ratio will be calculated giving *pro forma* effect to such incurrence, assumption, guarantee, repayment, repurchase, redemption, defeasance or other discharge of Indebtedness, or such issuance, repurchase or redemption of Disqualified Stock or preferred stock, and the use of the proceeds therefrom, as if the same had occurred at the beginning of the applicable four-quarter reference period.

In addition, for purposes of calculating the Consolidated Cash Flow for such period:

(1) acquisitions that have been made by the specified Person or any of its Subsidiaries which are Restricted Subsidiaries, including through mergers or consolidations, or by any Person or any of its Subsidiaries which are Restricted Subsidiaries acquired by the specified Person or any of its Subsidiaries which are Restricted Subsidiaries, and including all related financing transactions and including increases in ownership of Subsidiaries which are Restricted Subsidiaries (including any Unrestricted Subsidiary that has been redesignated as a Restricted Subsidiary), during the four-quarter reference period or subsequent to such reference period and on or prior to the Calculation Date, or that are to be made on the Calculation Date, will be given *pro forma* effect (as determined in good faith by a responsible accounting or financial officer of the Issuer and may include anticipated expense and cost reduction synergies) as if they had occurred on the first day of the four-quarter reference period;

(2) the Consolidated Cash Flow attributable to discontinued operations, as determined in accordance with IFRS, and operations or businesses (and ownership interests therein) disposed of prior to the Calculation Date, will be excluded;

(3) any Person that is a Restricted Subsidiary of the Issuer (including any Unrestricted Subsidiary that has been redesignated as a Restricted Subsidiary) on the Calculation Date will be deemed to have been a Restricted Subsidiary of the Issuer at all times during such four-quarter period; and

(4) any Person that is not a Restricted Subsidiary of the Issuer on the Calculation Date will be deemed not to have been a Restricted Subsidiary of the Issuer at any time during such four-quarter period.

"Consolidated Total Assets" means, with respect to any specified Person at any time, the total assets of such Person and its Subsidiaries which are Restricted Subsidiaries, in each case as shown on the most recent balance sheet of such Person, determined on a consolidated basis in accordance with IFRS.

"Contingent Obligations" means, with respect to any Person, any obligation of such Person guaranteeing any leases, dividends or other obligations that do not constitute Indebtedness ("primary obligations") of any other Person in any manner, whether directly or indirectly, including, without limitation, any obligation of such Person, whether or not contingent:

(1) to purchase any such primary obligation or any property constituting direct or indirect security thereof;

(2) to advance or supply funds (A) for the purchase or payment of any such primary obligation; or (B) to maintain working capital or equity capital of the primary obligor or otherwise to maintain the net worth or solvency of the primary obligor; or

(3) to purchase property, securities or services primarily for the purpose of assuring the owner of any such primary obligation of the ability of the primary obligor to make payment of such obligation against loss in respect thereof.

"Credit Facilities" means any credit agreement, indentures or other agreements (including, without limitation, the Revolving Credit Facility Agreement, the Club Deal Facility Agreements, the Natixis Bilateral Facility Agreement and the Vallourec Star-Credit Agreement) between the Issuer or one or more of its Restricted Subsidiaries and a financial institution or institutions providing for the making of loans, on a term or revolving basis, the issuance of letters of credit, commercial paper facilities, notes, obligations, receivables financing (including through the sale of receivables to such lenders or to special purpose entities formed to borrow from such lenders against such receivables) or equipment financing facilities (including, without limitation, finance leases, asset-based lending, sale-and-leaseback transactions and similar arrangements), in each case, as amended, restated, modified, renewed, refunded, replaced or refinanced (including by means of a sale of debt securities) in whole or in part from time to time in one or more agreements or indentures (in each case with the same or new lenders or investors), including any agreement or indenture extending the maturity thereof or otherwise restructuring all or any portion of the Indebtedness thereunder or increasing the amount loaned or issued

thereunder or altering the maturity thereof and/or adding Subsidiaries of the Issuer as additional borrowers or guarantors thereunder or otherwise altering the terms and conditions thereof.

"Default" means any event that is, or with the passage of time or the giving of notice or both would be, an Event of Default.

"Designated Non-Cash Consideration" means the Fair Market Value of non-cash consideration received by the Issuer or any Restricted Subsidiary of the Issuer in connection with an Asset Sale that is designated as such on the closing date of such Asset Sale pursuant to an officer's certificate, setting forth the basis of such valuation. The aggregate Fair Market Value of the Designated Non-Cash Consideration at the time of receipt, taken together with the Fair Market Value (measured on the date of receipt) of all other Designated Non-Cash Consideration received by the Issuer or any Restricted Subsidiary of the Issuer since the Issue Date at any time outstanding, may not exceed the greater of €250.0 million and 3.50% of Consolidated Total Assets.

"Disqualified Stock" means any Capital Stock that, by its terms (or by the terms of any security into which it is convertible, or for which it is exchangeable, in each case, at the option of the holder of the Capital Stock), or upon the happening of any event, matures or is mandatorily redeemable, pursuant to a sinking fund obligation or otherwise, or redeemable at the option of the holder of the Capital Stock, in whole or in part, on or prior to the date that is 91 days after the date on which the Notes mature. Notwithstanding the preceding sentence, any Capital Stock that would constitute Disqualified Stock solely because the holders of the Capital Stock have the right to require the Issuer to repurchase such Capital Stock upon the occurrence of a change of control or an asset sale will not constitute Disqualified Stock if the terms of such Capital Stock provide that the Issuer may not repurchase or redeem any such Capital Stock pursuant to such provisions unless such repurchase or redemption complies with the covenant described above under the caption "Certain Covenants—Restricted Payments." The amount of Disqualified Stock deemed to be outstanding at any time for purposes of the Indenture will be the maximum amount that the Issuer and its Restricted Subsidiaries may become obligated to pay upon the maturity of, or pursuant to any mandatory redemption provisions of, such Disqualified Stock, exclusive of accrued dividends.

"Equity Interests" means Capital Stock and all warrants, options or other rights to acquire Capital Stock (but excluding any debt security that is convertible into, or exchangeable for, Capital Stock).

"Equity Offering" means any public or private offering of the Capital Stock (other than Disqualified Stock) of the Issuer; *provided* that any such offering shall exclude Capital Stock issued to an Affiliate of the Issuer or pursuant to a stock option or employment compensation program.

"Euro Equivalent" means, with respect to any monetary amount in a currency other than euro, at any time of determination thereof, the amount of euro obtained by converting such currency other than euro involved in such computation into euro at the spot rate for the purchase of euro with the applicable currency other than euro as published in the Financial Times in the "Currency Rates" section (or, if the Financial Times is no longer published, or if such information is no longer available in the Financial Times, such source as may be selected in good faith by the Issuer) on the date of such determination.

"European Union Member State" shall mean any country that was a member of the European Union as of January 1, 2004.

"Excluded Contribution" means net cash proceeds and Fair Market Value of property or assets received by the Issuer from:

(1) contributions to its common equity capital; and

(2) the sale (other than to a Subsidiary of the Issuer or to any management equity plan or stock option plan or any other management or employee benefit plan or agreement of the Issuer) of Capital Stock (other than Disqualified Stock) of the Issuer;

in each case designated as Excluded Contributions pursuant to an officer's certificate on or promptly after the date such capital contributions are made or the date such Equity Interests are sold, as the case may be, and which are excluded from the calculation set forth in clause (3) of the second paragraph of the covenant described above under the caption "Certain Covenants—Restricted Payments."

"Existing Indebtedness" means Indebtedness of the Issuer and its Restricted Subsidiaries in existence on the Issue Date.

"Existing Notes" means the 2019 Notes, the 2022 Notes, the 2024 Notes and the 2027 Notes.

"Fair Market Value" means the value that would be paid by a willing buyer to an unaffiliated willing seller in a transaction not involving distress or necessity of either party, determined in good faith by the chief executive officer, chief financial officer or responsible accounting or financial officer of the Issuer (unless otherwise provided in the Indenture). For the avoidance of doubt, the Trustee shall have no obligation to determine the Fair Market Value.

"Fixed Charge Coverage Ratio" means, with respect to any specified Person for any period, the ratio of the Consolidated Cash Flow of such Person for such period to the Fixed Charges of such Person for such period; *provided* that in calculating the Fixed Charge Coverage Ratio or any element thereof for any period, *pro forma* calculations will be made in good faith by a responsible financial or accounting officer of the Issuer (including any *pro forma* expenses and cost savings and cost reduction synergies that have occurred or are reasonably expected to occur within the next eighteen months following the date of such calculation, including, without limitation, as a result of, or that would result from any actions taken by the Issuer or any of its Restricted Subsidiaries in connection with, any cost reduction or cost savings plan or program or any acquisition, disposition, restructuring or corporate reorganization (regardless of whether these cost savings and cost reduction synergies could then be reflected in *pro forma* financial statements to the extent prepared)). In the event that the specified Person or any of its Restricted Subsidiaries incurs, assumes, guarantees, repays, repurchases, redeems, defeases or otherwise discharges any Indebtedness (other than ordinary working capital or capital expenditure borrowings) or issues, repurchases or redeems preferred stock subsequent to the commencement of the period for which the Fixed Charge Coverage Ratio is being calculated and on or prior to the date on which the event for which the calculation of the Fixed Charge Coverage Ratio is made (the "Calculation Date"), then the Fixed Charge Coverage Ratio will be calculated giving *pro forma* effect to such incurrence, assumption, Guarantee, repayment, repurchase, redemption, defeasance or other discharge of Indebtedness, or such issuance, repurchase or redemption of preferred stock, and the use of the proceeds therefrom, as if the same had occurred at the beginning of the applicable reference period; *provided, however*, that the *pro forma* calculation of the Fixed Charge Coverage Ratio shall not give effect to (i) any Indebtedness incurred on the date of determination pursuant to the provisions described in the definition of Permitted Debt (other than any such additional Indebtedness that is incurred on the date of determination under clause (15) of the definition of Permitted Debt, the incurrence of which itself requires the calculation of the Fixed Charge Coverage Ratio); or (ii) the discharge on the date of determination of any Indebtedness to the extent that such discharge results from the proceeds incurred on the date of determination pursuant to the provisions described in the definition of Permitted Debt.

In addition, for purposes of calculating the Fixed Charge Coverage Ratio:

(1) acquisitions that have been made by the specified Person or any of its Restricted Subsidiaries, including through mergers or consolidations, or any Person or any of its Restricted Subsidiaries acquired by the specified Person or any of its Restricted Subsidiaries, and including any related financing transactions and including increases in ownership of Restricted Subsidiaries (including any Unrestricted Subsidiary that has been redesignated as a Restricted Subsidiary), during the reference period or subsequent to such reference period and on or prior to the Calculation Date, or that are to be made on the Calculation Date, will be given *pro forma* effect as if they had occurred on the first day of the reference period;

(2) the Consolidated Cash Flow attributable to discontinued operations, as determined in accordance with IFRS, and operations or businesses (and ownership interests therein) disposed of prior to the Calculation Date, will be excluded;

(3) the Fixed Charges attributable to discontinued operations, as determined in accordance with IFRS, and operations or businesses (and ownership interests therein) disposed of prior to the Calculation Date, will be excluded, but only to the extent that the obligations giving rise to such Fixed Charges will not be obligations of the specified Person or any of its Restricted Subsidiaries following the Calculation Date;

(4) any Person that is a Restricted Subsidiary of the Issuer (including any Unrestricted Subsidiary that has been redesignated as a Restricted Subsidiary) on the Calculation Date will be deemed to have been a Restricted Subsidiary of the Issuer at all times during such period;

(5) any Person that is not a Restricted Subsidiary of the Issuer on the Calculation Date will be deemed not to have been a Restricted Subsidiary of the Issuer at any time during such period; and

(6) if any Indebtedness bears a floating rate of interest, the interest expense on such Indebtedness will be calculated as if the rate in effect on the Calculation Date had been the applicable rate for the entire period (taking into account any Hedging Obligation applicable to such Indebtedness if such Hedging Obligation has a remaining term as at the Calculation Date in excess of twelve months, or, if shorter, at least equal to the remaining term of such Indebtedness).

"Fixed Charges" means, with respect to any specified Person for any period, the sum, without duplication, of:

(1) the consolidated interest expense of such Person and its Restricted Subsidiaries on their Indebtedness for such period, net of consolidated interest income, whether paid or accrued, including, without limitation, amortization of original issue discount, non-cash interest payments, the interest component of any deferred payment obligations, the interest component of all payments associated with Capital Lease Obligations, commissions, discounts and other fees and charges incurred in respect of letter of credit or bankers' acceptance financings, and net of the effect of all payments made or received pursuant to Hedging Obligations in respect of interest rates (excluding non-cash interest expense on Subordinated Shareholder Debt); *plus*

(2) the consolidated interest expense of such Person and its Restricted Subsidiaries on their Indebtedness that was capitalized during such period; *plus*

(3) any interest on Indebtedness of another Person that is guaranteed by such Person or one of its Restricted Subsidiaries or secured by a Lien on assets of such Person or one of its Restricted Subsidiaries, whether or not such Guarantee or Lien is called upon; *plus*

(4) all dividends, whether paid or accrued and whether or not in cash, on any series of preferred stock of such Person or any of its Restricted Subsidiaries, other than dividends on Equity Interests payable solely in Equity Interests or Subordinated Shareholder Debt of the Issuer (other than Disqualified Stock) or to the Issuer or a Restricted Subsidiary of the Issuer; *plus*

(5) the Fixed Charges attributable to discontinued operations, as determined in accordance with IFRS, and operations or businesses (and ownership interests therein) disposed of prior to the Calculation Date, will be excluded, but only to the extent that the obligations giving rise to such Fixed Charges will not be obligations of the specified Person or any Restricted Subsidiary of the Issuer following the Calculation Date.

"Government Guaranteed Securities" means:

(1) securities issued or directly and fully guaranteed or insured by the U.S. government or any agency or instrumentality thereof (other than Cash Equivalents) and in each case with maturities not exceeding two years from the date of acquisition;

(2) corresponding instruments by any European Union Member State (*provided* that such member state has one of the two highest ratings obtainable from Moody's or S&P) or Switzerland or Norway or Japan, or any agency or instrumentality of any European Union Member State (*provided* that such member state has one of the two highest ratings obtainable from Moody's or S&P) or Switzerland or Norway or Japan and in each case with maturities not exceeding two years from the date of acquisition; and

(3) investments in any fund that invests exclusively in investments of the type described in (1) and (2) above which fund may also hold immaterial amounts of cash pending investment and/or distribution.

"Guarantee" means a guarantee other than by endorsement of negotiable instruments for collection in the ordinary course of business, direct or indirect, in any manner including, without limitation, by way of a pledge of assets or through letters of credit or reimbursement agreements in respect thereof, of all or any part of any Indebtedness (whether arising by virtue of partnership arrangements, or by agreements to keep-well, to purchase assets, goods, securities or services, to take or pay or to maintain financial statement conditions or otherwise).

"Guarantor" means any Subsidiary of the Issuer that executes a Note Guarantee in accordance with the provisions of the Indenture, and its respective successors and assigns, in each case, until the Note Guarantee of such Person has been released in accordance with the provisions of the Indenture.

"Hedging Obligations" means, with respect to any specified Person, the obligations of such Person under:

(1) interest rate swap agreements (whether from fixed to floating or from floating to fixed), interest rate cap agreements and interest rate collar agreements;

(2) other agreements or arrangements designed to manage interest rates or interest rate risk;

(3) other agreements or arrangements designed to protect such Person against fluctuations in currency exchange rates; and

(4) any commodity futures contract, forward contract, option or similar agreement or arrangement (including derivative agreements or arrangements) against fluctuations in commodities prices.

"Holder" means each Person in whose name the Notes are registered on the Registrar's books, which shall initially be the respective nominee of Euroclear or Clearstream, as applicable.

"IFRS" means the International Financial Reporting Standards (formerly, International Accounting Standards) as endorsed from time to time by the European Union; *provided* that at any date after the Issue Date the Issuer may make an irrevocable election to establish that "IFRS" shall mean IFRS as in effect on a date that is on or prior to the date of such election. The Issuer shall give notice of any such election to the Trustee. Notwithstanding the foregoing, the impact of IFRS 16 Leases and any successor standard thereto shall be disregarded with respect to all ratios, calculations and determinations based upon IFRS to be calculated or made, as the case may be, pursuant to the Indenture and (without limitation) any lease, concession or license of property that would be considered an operating lease under IFRS as of the Issue Date and any Guarantee given by the Issuer or any Restricted Subsidiary of the Issuer in the ordinary course of business solely in connection with, and in respect of, the obligations of the Issuer or any Restricted Subsidiary of the Issuer under any such operating lease shall be accounted for in accordance with IFRS as in the effect on the Issue Date.

"Indebtedness" means, with respect to any specified Person, any indebtedness of such Person (excluding accrued expenses and trade payables), whether or not contingent:

(1) in respect of borrowed money;

(2) evidenced by bonds, notes, debentures or similar instruments or letters of credit (or reimbursement agreements in respect thereof);

(3) in respect of banker's acceptances;

(4) representing Capital Lease Obligations;

(5) representing the balance deferred and unpaid of the purchase price of any property or services due more than one year after such property is acquired or such services are completed;

(6) representing any Hedging Obligations; or

(7) representing any Permitted Recourse Receivables Transactions,

if and to the extent any of the preceding items (other than letters of credit and Hedging Obligations) would appear as a liability upon a balance sheet of the specified Person prepared in accordance with IFRS. In addition, the term "Indebtedness" includes all Indebtedness of others secured by a Lien on any asset of the specified Person (whether or not such Indebtedness is assumed by the specified Person); *provided, however*, that the amount of such Indebtedness shall be the lesser of (x) the Fair Market Value of such asset as of such date of determination and (y) the amount of such Indebtedness of such other Person; and, to the extent not otherwise included, the Guarantee by the specified Person of any Indebtedness of any other Person.

Notwithstanding the foregoing, "Indebtedness" shall not include any:

(A) Contingent Obligations incurred in the ordinary course of business;

(B) in connection with the purchase by the Issuer or any Restricted Subsidiary of the Issuer of any business, any post-closing payment adjustments to which the seller may become entitled to the extent such payment is determined by a final closing balance sheet or such payment depends on the performance of such business after the closing; *provided, however*, that, at the time of closing, the amount of any such payment is not determinable and, to the extent such payment thereafter becomes fixed and determined, the amount is paid within 90 days thereafter;

(C) any contingent obligations in respect of workers' compensation claims, early retirement or termination obligations, pension fund obligations or contributions or similar claims, obligations or contributions or social security or wage Taxes;

(D) Subordinated Shareholder Debt;

(E) anything accounted for as an operating lease under IFRS in effect as of the Issue Date;

(F) any deposits or prepayments received by the Issuer or a Restricted Subsidiary of the Issuer for services or products to be provided or delivered;

(G) any pension obligations of the Issuer or a Restricted Subsidiary of the Issuer;

(H) liabilities in respect of reimbursement obligations (other than in connection with the borrowing of money) related to standby letters of credit, performance guarantees, warranty guarantees, advanced payment guarantees or bonds or surety bonds provided by or at the request of the Issuer or any Restricted Subsidiary in the ordinary course of business (whether or not secured) to the extent such reimbursement obligations are not drawn upon or, if and to the extent drawn upon are honored in accordance with their terms and if, to be reimbursed, are reimbursed no later than 10 days following the due date for reimbursement following payment on the letter of credit, guarantee or bond; *provided* that if such amounts due are not reimbursed at the latest on a date falling 10 days following the due date for reimbursement, then such amounts due shall become Indebtedness incurred on the date such amounts became due; and

(I) any obligations under any Permitted Non-Recourse Receivables Transaction.

No Indebtedness will be considered to be subordinate or junior in right of payment to any other Indebtedness by reason of any Liens or guarantees arising or created in respect of such other Indebtedness or by virtue of the fact that holders of any secured Indebtedness have entered into intercreditor agreements giving one or more holders priority over other holders in the collateral held by them.

"Investments" means, with respect to any Person, all direct or indirect investments by such Person in other Persons (including Affiliates) in the forms of loans (including Guarantees or other obligations), advances or capital contributions (excluding commission, travel and similar advances to directors, officers and employees made in the ordinary course of business), purchases or other acquisitions for consideration of Indebtedness, Equity Interests or other securities, together with all items that are or would be classified as investments on a balance sheet prepared in accordance with IFRS. If the Issuer or any Subsidiary of the Issuer sells or otherwise disposes of any Equity Interests of any direct or indirect Subsidiary of the Issuer such that, after giving effect to any such sale or disposition, such Person is no longer a Subsidiary of the Issuer, the Issuer will be deemed to have made an Investment on the date of any such sale or disposition equal to the Fair Market Value of the Issuer's Investments in such Subsidiary that were not sold or disposed of. Except as otherwise provided in the Indenture, the amount of an Investment will be determined at the time the Investment is made and without giving effect to subsequent changes in value. The amount of any Investment outstanding at any time shall be the original cost of such Investment, reduced (at the Issuer's option) by any dividend, distribution, interest payment, return of capital, repayment or other amount or value received in respect of such Investment; *provided*, that to the extent that the amount of Restricted Payments outstanding at any time pursuant to paragraph (a) of the covenant described under the caption "Certain Covenants—Restricted Payments" is so reduced by any portion of any such amount or value that would otherwise be included in the calculation of Consolidated Net Income, such portion of such amount or value shall not be so included for purposes of calculating the amount of Restricted Payments that may be made pursuant to paragraph (a) of the covenant described under the caption "Certain Covenants—Restricted Payments."

"Issue Date" means April 19, 2018.

"Lien" means, with respect to any asset, any mortgage, lien, pledge, charge, security interest or encumbrance of any kind in respect of such asset, whether or not filed, recorded or otherwise perfected under applicable law, including any conditional sale or other title retention agreement, any lease in the nature thereof, any option or other agreement to sell or give a security interest in and any filing of or agreement to give any financing statement under the Uniform Commercial Code (or equivalent statutes) of any jurisdiction.

"Management Advances" means, loans or advances made to, or guarantees with respect to loans or advances made to, directors, officers, employees or consultants of the Issuer or any Restricted Subsidiary of the Issuer:

(1) in respect of travel, entertainment or moving related expenses incurred in the ordinary course of business;

(2) in respect of moving related expenses incurred in connection with any closing or consolidation of any facility or office; or

(3) (in the case of this clause (3)) in the ordinary course of business or consistent with past practice not to exceed €5.0 million in the aggregate at any one time outstanding.

"Moody's" means Moody's Investors Service, Inc.

"Natixis Bilateral Facility Agreement" means the €90,000,000 revolving facility agreement dated June 25, 2015 entered into between the Issuer as borrower and Natixis as lender, as amended, restated, modified, renewed, refunded, replaced or refinanced in whole or in part from time to time.

"Net Proceeds" means the aggregate cash proceeds received by the Issuer or any of its Restricted Subsidiaries in respect of any Asset Sale (including, without limitation, any cash received upon the sale or other disposition of any non-cash consideration received in any Asset Sale), net of the direct costs relating to such Asset Sale, including, without limitation, legal, accounting and investment banking fees, and sales commissions, and any relocation expenses incurred as a result of the Asset Sale, taxes paid or payable as a result of the Asset Sale, in each case, after taking into account any available tax credits or deductions and any tax sharing arrangements and any reserve for adjustment in respect of the sale price of such asset or assets established in accordance with IFRS.

"Non-Recourse Debt" means Indebtedness as to which neither the Issuer nor any of its Restricted Subsidiaries (a) provides credit support of any kind (including any undertaking, agreement or instrument that would constitute Indebtedness); (b) is directly or indirectly liable as a guarantor or otherwise; or (c) constitutes the lender.

"Note Guarantee" means the Guarantee by each Guarantor of the Issuer's obligations under the Indenture and the Notes, executed pursuant to the provisions of the Indenture.

"Obligations" means any principal, interest, penalties, fees, indemnifications, reimbursements, damages and other liabilities payable under the documentation governing any Indebtedness.

"Pari Passu Indebtedness" means any Indebtedness of the Issuer or a Guarantor (other than Indebtedness that is a guarantee of the Indebtedness of another Person and other than Indebtedness owed to the Issuer or a Restricted Subsidiary of the Issuer or an Affiliate of the Issuer) that is not subordinated in right of payment to the Notes or the relevant Note Guarantee.

"Permitted Business" means any business in which the Issuer and its Subsidiaries were engaged on the Issue Date, and any business incidental, reasonably related, complementary or ancillary thereto, or which is a reasonable extension thereof.

"Permitted Investments" means:

(1) any Investment in the Issuer or in a Restricted Subsidiary of the Issuer;

(2) any Investment in cash, Cash Equivalents or Government Guaranteed Securities;

(3) any Investment by the Issuer or any Restricted Subsidiary of the Issuer in a Person, if as a result of such Investment:

  (a) such Person becomes a Restricted Subsidiary of the Issuer; or

  (b) such Person, in one transaction or a series of related transactions, is merged, consolidated or amalgamated with or into, or transfers or conveys substantially all of its assets to, or is liquidated into, the Issuer or a Restricted Subsidiary of the Issuer and, in each of cases (a) and (b), any Investment then held by such Person; *provided* that any such Investment was not made by such Person in connection with, or in anticipation or contemplation of, such Person becoming a Restricted Subsidiary of the Issuer or such merger, consolidation, amalgamation, transfer, conveyance or liquidation;

(4) any Investment made as a result of the receipt of non-cash consideration from an Asset Sale that was made pursuant to and in compliance with the covenant described above under the caption "Repurchase at the Option of Holders—Asset Sales;"

(5) any acquisition of assets or Capital Stock solely in exchange for the issuance of Equity Interests (other than Disqualified Stock) of the Issuer;

(6) any Investments received: (i) in compromise or resolution of (A) obligations of trade creditors or customers that were incurred in the ordinary course of business of the Issuer or any of its Restricted Subsidiaries, including pursuant to any plan of reorganization or similar arrangement upon the bankruptcy or insolvency of any trade creditor or customer or (B) litigation, arbitration or other disputes with Persons who are not Affiliates; or (ii) as a result of foreclosure by the Issuer or any of its Restricted Subsidiaries with respect to any secured Investment or other transfer or title with respect to any secured Investment in default;

(7) lease, utility and workers' compensation, performance and other similar deposits made in the ordinary course of business;

(8) Investments represented by Hedging Obligations;

(9) Management Advances;

(10) repurchases of the Notes, including any Additional Notes issued pursuant to the Indenture, and the Existing Notes;

(11) Investments in receivables owing to the Issuer or any Restricted Subsidiary of the Issuer created or acquired in the ordinary course of business;

(12) Investments acquired after the Issue Date as a result of the acquisition by the Issuer or any Restricted Subsidiary of the Issuer of another Person, including by way of a merger, amalgamation or consolidation with or into the Issuer or any of its Restricted Subsidiaries in a transaction that is not prohibited by the covenant described above under "Certain Covenants—Merger, Consolidation or Sale of Assets" to the extent that such Investments were not made in contemplation of such acquisition, merger, amalgamation or consolidation and were in existence on the date of such acquisition, merger, amalgamation or consolidation;

(13) other Investments in any Person having an aggregate Fair Market Value (measured on the date each such Investment was made and without giving effect to subsequent changes in value), when taken together with all other Investments made pursuant to this clause (13) that are at the time outstanding not to exceed the greater of (i) €75.0 million; or (ii) 1.0% of Consolidated Total Assets of the Issuer; *provided* that if an Investment is made pursuant to this clause in a Person that is not a Restricted Subsidiary of the Issuer and such Person subsequently becomes a Restricted Subsidiary of the Issuer or is merged into or with the Issuer or a Restricted Subsidiary of the Issuer or is subsequently designated a Restricted Subsidiary of the Issuer pursuant to the covenant described above under the caption "Certain Covenants—Restricted Payments," such Investment shall thereafter be deemed to have been made pursuant to clause (1) or (3) of the definition of Permitted Investments and not this clause;

(14) any Investment existing on, or made pursuant to written agreements existing on, the Issue Date and any Investment that replaces, refinances or refunds an existing Investment (or an Investment made pursuant to binding written commitments in existence on the Issue Date); *provided* that the amount of any such Investment may be increased (a) as required by the terms of such Investment as in existence on the Issue Date; or (b) as otherwise permitted under the Indenture;

(15) Investments by the Issuer or a Restricted Subsidiary of the Issuer in an amount at any time outstanding not to exceed the greater of €350.0 million and 5.0% of Consolidated Total Assets of the Issuer in one or more joint ventures engaged in a Permitted Business; *provided* that if an Investment is made pursuant to this clause in a Person that is not a Restricted Subsidiary of the Issuer and such Person subsequently becomes a Restricted Subsidiary of the Issuer or is merged into or with the Issuer or a Restricted Subsidiary of the Issuer or is subsequently designated a Restricted Subsidiary of the Issuer pursuant to the covenant described above under the caption "Certain Covenants—Restricted Payments," such Investment shall thereafter be deemed to have been made pursuant to clause (1) or (3) of the definition of Permitted Investments and not this clause; and *provided* that, to the extent any such Investment is in Equity Interests of such joint venture, the amount of the Investment deemed outstanding for the purposes of this clause (15) shall be equal to the proportionate share held by the Issuer or such Restricted Subsidiary of the Issuer, as the case may be, in the Fair Market Value of the net assets of such joint venture at the time of the Investment;

(16) guarantees of Indebtedness permitted to be incurred by the Issuer or its Restricted Subsidiaries by the covenant described under "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock" and keepwells and similar arrangements not prohibited by the covenant described under "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock;" and

(17) Investments made in connection with Permitted Receivables Transactions;

provided, however, that with respect to any Investment, the Issuer may in its sole discretion, allocate all or any portion of any Investment to one or more of the above clauses (1) through (17) so that the entire Investment would be a Permitted Investment.

"Permitted Liens" means:

(1) Liens in favor of the Issuer or any Restricted Subsidiary of the Issuer;

(2) Liens on property (including Capital Stock) of a Person existing at the time such Person becomes a Restricted Subsidiary of the Issuer or is merged with or into or consolidated with the Issuer or any Restricted Subsidiary of the Issuer; *provided* that such Liens were in existence prior to the contemplation of such Person becoming a Restricted Subsidiary of the Issuer or the Issuer or such merger or consolidation and do not extend to any assets other than those of the Person that becomes a Restricted Subsidiary of the Issuer or is merged into or consolidated

with the Issuer or the Subsidiary (plus improvements, accessions, proceeds or dividends or distributions in respect thereof);

(3) Liens on property or assets (including Capital Stock) existing at the time of acquisition of the property or assets by the Issuer or any Subsidiary of the Issuer (plus improvements, accessions, proceeds or dividends or distributions in respect thereof); *provided* that such Liens were in existence prior to, such acquisition, and not incurred in contemplation of, such acquisition;

(4) Liens or deposits to secure the performance of tenders, bids, statutory or regulatory obligations, surety, appeal, indemnity or performance bonds, letters of credit, banker's acceptances, warranty, contractual, netting or set-off requirements or other obligations of a like nature incurred in the ordinary course of business (including Liens to secure letters of credit issued to assure payment of such obligations);

(5) Liens to secure Productive Asset Financings permitted by clause (5) of the second paragraph of the covenant entitled "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock" covering only the assets acquired with or financed by such Productive Asset Financings;

(6) Liens existing on the Issue Date or provided for under written arrangements existing on the Issue Date;

(7) Liens for taxes, assessments or governmental charges or claims that are not yet delinquent or that are being contested in good faith by appropriate proceedings promptly instituted and diligently conducted or the non-payment of which in the aggregate would not reasonably be expected to have a material adverse effect on the Issuer and its Restricted Subsidiaries; *provided* that any reserve or other appropriate provision as is required in conformity with IFRS has been made therefor;

(8) Liens imposed by law, such as carriers', warehousemen's, landlord's, lessors', suppliers', banks', repairmen's and mechanics' Liens and Liens of landlords securing obligations to pay lease payments that are not yet due and payable or in default, in each case, incurred in the ordinary course of business;

(9) survey exceptions, easements or reservations (including severances, leases or reservations of oil, gas, coal, minerals or water rights) of, or rights of others for, licenses, rights-of-way, sewers, electric lines, telegraph and telephone lines and other similar purposes, or zoning or other restrictions as to the use of real property or title defects that were not incurred in connection with Indebtedness and that do not in the aggregate materially adversely affect the value of said properties (as such properties are used by the Issuer and its Subsidiaries) or materially impair their use in the operation of the business of the Issuer and its Subsidiaries;

(10) Liens created for the benefit of (or to secure) the Notes or any Note Guarantee;

(11) Liens securing Indebtedness under Hedging Obligations, which obligations are permitted by clause (9) of the second paragraph of the covenant described above under the caption "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock;"

(12) Liens to secure any Permitted Refinancing Indebtedness permitted to be incurred under the Indenture; *provided, however*, that:

  (a) the new Lien shall be limited to all or part of the same property and assets that secured or, under the written agreements pursuant to which the original Lien arose, could secure the original Lien (plus improvements and accessions to, such property or proceeds or distributions thereof); and

  (b) the Indebtedness secured by the new Lien is not increased to any amount greater than the sum of (x) the outstanding principal amount, or, if greater, committed amount, of the Permitted Refinancing Indebtedness and (y) an amount necessary to pay any fees and expenses, including premiums, related to such renewal, refunding, refinancing, replacement, defeasance or discharge;

  (c) Liens on cash, Cash Equivalents or other property arising in connection with the defeasance, discharge or redemption of Indebtedness;

(13) Liens on specific items of inventory or other goods (and the proceeds thereof) of any Person securing such Person's obligations in respect of bankers' acceptances issued or created in the ordinary course of business for the account of such Person to facilitate the purchase, shipment or storage of such inventory or other goods;

(14) leases, licenses, subleases and sublicenses of assets or property (including intellectual property) in the ordinary course of business;

(15) Liens arising out of conditional sale, title retention, extended title retention, consignment or similar arrangements for the sale of assets entered into in the ordinary course of business;

(16) (a) mortgages, liens, security interests, restrictions, encumbrances or any other matters of record that have been placed by any developer, landlord or other third party on property over which the Issuer or any Restricted Subsidiary of the Issuer has easement rights or on any real property leased by the Issuer or any Restricted Subsidiary of the Issuer and subordination or similar agreements relating thereto; and (b) any condemnation or eminent domain proceedings or compulsory purchase order affecting real property;

(17) Liens on property or assets under construction (and related rights) in favor of a contractor or developer or arising from progress or partial payments by a third party relating to such property or assets;

(18) Liens securing or arising by reason of any netting or set-off arrangement entered into in the ordinary course of banking or other trading activities;

(19) Liens incurred with respect to obligations that do not exceed the greater of €100.0 million and 1.50% of Consolidated Total Assets of the Issuer at any one time outstanding;

(20) Liens on (i) escrowed proceeds for the benefit of related holders of debt securities or other Indebtedness (or the underwriter or arrangers thereof); (ii) on cash set aside at the time of the incurrence of any Indebtedness or government securities purchased with such cash, in either case to the extent such cash or government securities prefund the payment of interest on such Indebtedness and are hold in escrow account or similar arrangement to be applied for such purpose; or (iii) on any guarantee or backstop commitment relating to any escrow shortfall;

(21) Liens on Receivables Assets incurred in connection with a Permitted Receivables Transaction;

(22) Liens arising out of judgments or awards not constituting an Event of Default and notices of *lis pendens* and associated rights related to litigation being contested in good faith by appropriate proceedings and for which adequate reserves have been made;

(23) Liens on assets or property of any direct or indirect Restricted Subsidiary that is not a Guarantor securing Indebtedness of any direct or indirect Restricted Subsidiary that is not a Guarantor permitted by the covenant described under "Certain Covenants—Incurrence of Indebtedness and Issuance of Preferred Stock;"

(24) Liens arising by way of set-off or pledge (in favor of the account holding bank), arising by operation of law or under standard banking terms and conditions; *provided* that the relevant bank account has not been set up nor has the relevant credit balance arisen in order to implement a secured financing; and

(25) any amendment, modification, extension, renewal, refinancing or replacement, in whole or in part, of any Lien described in the foregoing clauses (1) through (24).

"Permitted Non-Recourse Receivables Transaction" means any financing pursuant to which the Issuer or any Restricted Subsidiary of the Issuer may sell, convey or otherwise transfer to any other Person (including a Receivables Subsidiary) or grant a security interest in, any Receivables Assets in an aggregate principal amount equivalent to the Fair Market Value of such Receivables Assets of the Issuer or any Restricted Subsidiary of the Issuer; *provided* that (a) any covenants, events of default and other provisions applicable to such financing shall be customary for such transactions and shall be on market terms (as determined in good faith by the Issuer) at the time such financing is entered into; (b) the interest rate applicable to such financing shall be a market interest rate (as determined in good faith by the Issuer's chief financial officer) at the time such financing is entered into; and (c) such financing shall not appear as a liability on the Issuer's consolidated balance sheet (excluding the footnotes thereto) prepared in accordance with IFRS.

"Permitted Receivables Transaction" means any financing (whether or not resulting in any liabilities being reflected on the consolidated balance sheet of the Issuer) of Receivables Assets of the Issuer or any Restricted Subsidiary (including, for the avoidance of doubt, any Permitted Non-Recourse Receivables Transaction and any Permitted Recourse Receivables Transaction).

"Permitted Recourse Receivables Transaction" means any financing other than a Permitted Non-Recourse Receivables Transaction pursuant to which the Issuer or any Restricted Subsidiary of the Issuer may sell, convey or otherwise transfer to any other Person (including a Receivables Subsidiary) or grant a security interest in, any Receivables Assets in an aggregate principal amount equivalent to the Fair Market Value of such Receivables Assets of the Issuer or any Restricted Subsidiary of the Issuer; *provided* that (a) any covenants, events of default and other provisions applicable to such financing shall be customary for such transactions and shall be on market terms (as determined in good faith by the

Issuer) at the time such financing is entered into; and (b) the interest rate applicable to such financing shall be a market interest rate (as determined in good faith by the Issuer's chief financial officer) at the time such financing is entered into.

"Permitted Refinancing Indebtedness" means any Indebtedness of the Issuer or any of its Restricted Subsidiaries that serves to extend, renew, refund, refinance, replace, defease or discharge other Indebtedness of the Issuer or any of its Restricted Subsidiaries (other than intercompany Indebtedness) (including any other Permitted Refinancing Indebtedness); *provided* that:

(1) the principal amount (or accreted value, if applicable) of such Permitted Refinancing Indebtedness does not exceed the principal amount (or accreted value, if applicable) of the Indebtedness extended, renewed, refunded, refinanced, replaced, defeased or discharged (which, for the avoidance of doubt, may include Indebtedness under one or more separate agreements or instruments that will be refinanced with a single agreement or instrument, as well as Indebtedness under a single agreement or instrument that will be refinanced with multiple separate agreements or instruments) (plus any accrued interest and any premium required to be paid on the Indebtedness and the amount of all fees and expenses, including premiums, incurred in connection therewith);

(2) such Permitted Refinancing Indebtedness (a) has a final maturity date (i) later than the final maturity date of the Indebtedness being renewed, refunded, refinanced, replaced, defeased or discharged or (ii) after the final maturity date of the Notes; and (b) has a Weighted Average Life to Maturity equal to or greater than the Weighted Average Life to Maturity of, the Indebtedness being renewed, refunded, refinanced, replaced, defeased or discharged or, alternatively, a final maturity date that is later than the final Stated Maturity of the Notes;

(3) if the Indebtedness being extended, renewed, refunded, refinanced, replaced, defeased or discharged is subordinated in right of payment to the Notes, such Permitted Refinancing Indebtedness is subordinated in right of payment to the Notes on terms at least as favorable to the Holders of Notes as those contained in the documentation governing the Indebtedness being extended, renewed, refunded, refinanced, replaced, defeased or discharged; and

(4) such Indebtedness is incurred either by the Issuer or a Guarantor if the Issuer or a Guarantor was the obligor on the Indebtedness being extended, renewed, refunded, refinanced, replaced, defeased or discharged, or, if such Indebtedness was incurred on or after the Issue Date, by another Restricted Subsidiary of the Issuer that would, under the Indenture, have initially been capable of incurring the Indebtedness.

Permitted Refinancing Indebtedness in respect of any Indebtedness may be incurred from time to time prior to, at or after the termination, discharge or repayment of any such Indebtedness.

"Person" means any individual, corporation, partnership, joint venture, association, joint-stock company, trust, unincorporated organization, limited liability company or government or other entity.

"Receivables Assets" means any accounts receivable and related contract rights (including any related letters of credit) customarily transferred in a receivables securitization or otherwise used to raise financing by the creditor of such receivables or revenue streams from sales of inventory subject to a Permitted Receivables Transaction.

"Receivables Subsidiary" means a Subsidiary of the Issuer (or another Person formed for the purposes of engaging in a Permitted Receivables Transaction in which the Issuer or any of its Subsidiaries makes an Investment and to which the Issuer or any of its Subsidiaries transfers Receivables Assets and related assets) which engages in no activities other than in connection with the financing of Receivables Assets of the Issuer or its Subsidiaries, all proceeds thereof and all rights (contractual and other) collateral and other assets relating thereto, and any business or activities incidental or related to such business, and which is designated by the Board of Directors of the Issuer as a Receivables Subsidiary.

"Restricted Investment" means an Investment other than a Permitted Investment.

"Restricted Subsidiary" of a Person means any Subsidiary of the referent Person that is not an Unrestricted Subsidiary.

"Revolving Credit Facility Agreement" means the €1,100,000,000 multicurrency senior revolving credit facility agreement entered into on February 12, 2014, as amended, restated or otherwise modified or varied from time to time, entered into by among others, the Issuer and Banco Santander, S.A., Paris Branch, The Bank of Tokyo-Mitsubishi UFJ, Ltd, Banque Fédérative Du Crédit Mutuel (Groupe Crédit Mutuel—CIC), BNP Paribas, Commerzbank Aktiengesellschaft, Crédit Agricole Corporate and Investment Bank, Société Générale Corporate & Investment Banking, Sumitomo Mitsui Banking Corporation Europe Limited, Paris Branch, Bank of America Merrill Lynch International Limited, Barclays Bank Plc., Citigroup Global Markets Limited, Deutsche Bank Luxembourg S.A., HSBC France and Standard Chartered Bank, as amended, restated, modified, renewed, refunded, replaced or refinanced in whole or in part from time to time (and

whether or not with the original administrative agent and lenders or another administrative agent or agents or other lenders and whether provided under the original revolving credit facility or any other credit or other agreement or indenture).

"S&P" means Standard & Poor's Ratings Group and its successors and assigns.

"Significant Subsidiary" means any Subsidiary of the Issuer that together with its Subsidiaries which are Restricted Subsidiaries of the Issuer on the basis of the latest annual consolidated financial statements of the Issuer (i) for the most recent fiscal year, accounted for more than 10% of the consolidated revenues of the Issuer; or (ii) as of the end of the most recent fiscal year, was the owner of more than 10% of Consolidated Total Assets of the Issuer.

"Stated Maturity" means, with respect to any installment of interest or principal on any series of Indebtedness, the date on which the payment of interest or principal was scheduled to be paid in the documentation governing such Indebtedness as of the Issue Date, and will not include any contingent obligations to repay, redeem or repurchase any such interest or principal prior to the date originally scheduled for the payment thereof.

"Subordinated Obligations" means any Indebtedness (whether outstanding on the Issue Date or thereafter incurred) that is subordinated or junior in right of payment to the Notes.

"Subordinated Shareholder Debt" means, collectively, any funds provided to the Issuer by any of its shareholders in exchange for or pursuant to any security, instrument or agreement other than Capital Stock, together with any such security, instrument or agreement and any other security or instrument other than Capital Stock issued in payment of any obligation under any Subordinated Shareholder Debt; *provided, however*, that such Subordinated Shareholder Debt:

(1) does not (including upon the happening of any event) mature or require any amortization, redemption or other repayment of principal or any sinking fund payment prior to the first anniversary of the Stated Maturity of the Notes (other than through conversion or exchange of such funding into Capital Stock (other than Disqualified Stock) of the Issuer or any funding meeting the requirements of this definition);

(2) does not (including upon the happening of any event) require, prior to the first anniversary of the Stated Maturity of the Notes, payment of cash interest, cash withholding amounts or other cash gross-ups, or any similar cash amounts;

(3) contains no change of control or similar provisions and does not (including upon the happening of any event) accelerate and has no right (including upon the happening of any event) to declare a default or event of default or take any enforcement action or otherwise require any cash payment, in each case, prior to the first anniversary of the Stated Maturity of the Notes;

(4) does not provide for or require any security interest or encumbrance over any asset of the Issuer or any of its Restricted Subsidiaries and is not guaranteed by any Restricted Subsidiary of the Issuer;

(5) pursuant to its terms, is subordinated in right of payment to the prior payment in full in cash of the Notes and the Note Guarantees in the event of any default, bankruptcy, reorganization, liquidation, winding up or other disposition of assets of the Issuer;

(6) does not (including upon the happening of any event) restrict the payment of amounts due in respect of the Notes or the Note Guarantees or compliance by the Issuer with its obligations under the Indenture;

(7) does not (including upon the happening of an event) constitute Voting Stock; and

(8) is not (including upon the happening of any event) mandatorily convertible or exchangeable, or convertible or exchangeable at the option of the holder thereof; in whole or in part, prior to the date on which the Notes mature, other than into or for Capital Stock (other than Disqualified Stock) of the Issuer.

"Subsidiary" means, with respect to any specified Person:

(1) any corporation, association or other business entity of which more than 50% of the total voting power of shares of Capital Stock entitled (without regard to the occurrence of any contingency and after giving effect to any voting agreement or stockholders' agreement that effectively transfers voting power) to vote in the election of directors, managers or trustees of the corporation, association or other business entity is at the time owned or controlled, directly or indirectly, by that Person or one or more of the other Subsidiaries of that Person (or a combination thereof); and

(2) any partnership or limited liability company of which (a) more than 50% of the capital accounts, distribution rights, total equity and voting interests or general and limited partnership interests, as applicable, are owned or controlled, directly or indirectly, by such Person or one or more of the other Subsidiaries of that Person or a combination thereof, whether in the form of membership, general, special or limited partnership interests or otherwise; and (b) such Person or any Subsidiary of such Person is a controlling general partner or otherwise controls such entity.

"Unrestricted Subsidiary" means any Subsidiary of the Issuer that is designated by the Board of Directors of the Issuer as an Unrestricted Subsidiary pursuant to a resolution of the Board of Directors in compliance with the covenant described above under the caption "Certain Covenants—Designation of Restricted and Unrestricted Subsidiaries."

"U.S. Exchange Act" means the U.S. Securities Exchange Act of 1934, as amended.

"U.S. Securities Act" means the U.S. Securities Act of 1933, as amended.

"Vallourec Star-JPM Credit Agreement" means the USD80,000,000 credit agreement dated July 26, 2013 entered into between Vallourec Star, LP as borrower and JPMorgan Chase Bank, National Association as lender as amended and restated on March 29, 2016, as amended, restated, modified, renewed, refunded, replaced or refinanced in whole or in part from time to time.

"Voting Stock" of any specified Person as of any date means the Capital Stock of such Person that is at the time entitled to vote in the election of the Board of Directors of such Person.

"Weighted Average Life to Maturity" means, when applied to any Indebtedness at any date, the number of years obtained by dividing:

(1) the sum of the products obtained by multiplying (a) the amount of each then remaining installment, sinking fund, serial maturity or other required payments of principal, including payment at final maturity, in respect of the Indebtedness, *by* (b) the number of years (calculated to the nearest one-twelfth) that will elapse between such date and the making of such payment; *by*

(2) the then outstanding principal amount of such Indebtedness.

"Wholly Owned Restricted Subsidiary" means a Restricted Subsidiary all the Capital Stock of which (other than directors' qualifying shares and any *de minimis* number of shares held by other Persons to the extent required by applicable law to be held by a Person other than by its parent or a Subsidiary of its parent) is owned by the Issuer or one or more other Wholly Owned Subsidiaries.

BOOK-ENTRY, DELIVERY AND FORM

General

Notes sold within the United States to qualified institutional buyers in reliance on Rule 144A under the Securities Act will be represented by a global note in registered form without interest coupons attached (the "Rule 144A Global Notes"). Notes sold outside the United States in reliance on Regulation S under the Securities Act will be represented by a global note in registered form without interest coupons attached (the "Regulation S Global Notes" and, together with the Rule 144A Global Notes, the "Global Notes"). On the date the notes are delivered in book-entry form, as set forth on the cover page of this offering memorandum, the Global Notes will be deposited with a common depositary and registered in the name of the common depositary or its nominee for the accounts of Euroclear and Clearstream.

Ownership of interests in the Rule 144A Global Notes (the "Rule 144A Book-Entry Interests") and ownership of interests in the Regulation S Global Notes (the "Regulation S Book-Entry Interests" and, together with the Rule 144A Book-Entry Interests, the "Book-Entry Interests") will be limited to persons that have accounts with Euroclear and/or Clearstream or persons that may hold interests through such participants. Book-Entry Interests will be shown on, and transfers thereof will be effected only through, records maintained in book-entry form by Euroclear and Clearstream and their participants.

Except as set forth below under *"—Issuance of Definitive Registered Notes*", the Book-Entry Interests will not be held in definitive form. Instead, Euroclear and/or Clearstream will credit on their respective book-entry registration and transfer systems a participant's account with the interest beneficially owned by such participant. The laws of some jurisdictions, including certain states of the United States, may require that certain purchasers of securities take physical delivery of such securities in definitive form. The foregoing limitations may impair the ability to own, transfer or pledge Book-Entry Interests.

So long as the Notes are held in global form, the common depositary for Euroclear and /or Clearstream (or its nominee) will be considered the sole holder of Global Notes for all purposes under the indentures and "holders" of Book-Entry Interests will not be considered the owners or "holders" of Notes for any purpose. As such, participants must rely on the procedures of Euroclear and Clearstream and indirect participants must rely on the procedures of the participants through which they own Book-Entry Interests in order to transfer their interests in the Notes or to exercise any rights of holders under the indentures.

None of the Issuer, the Trustee, Paying Agent, Transfer Agent or Registrar or any of their respective agents will have any responsibility or be liable for any aspect of the records relating to the Book-Entry Interests.

Issuance of Definitive Registered Notes

Under the terms of the Indenture, to the extent permitted by Euroclear and/or Clearstream, owners of Book-Entry Interests will receive definitive notes in registered form without coupons ("Definitive Registered Notes"):

- if the common depositary for Euroclear and/or Clearstream notifies the Issuer that it is unwilling or unable to continue as the common depositary for the Global Notes and a successor depositary is not appointed by the Issuer in 120 days;
- if an Event of Default has occurred and is continuing with respect to the Notes and enforcement action in respect thereof is being taken under the Indenture; or
- if the issuance of such Definitive Registered Notes is necessary in order for a Holder or beneficial owner to present its Note or Notes to a paying agent in order to avoid any tax that is imposed on or with respect to a payment made to such holder or beneficial owner.

In such an event, the Issuer will issue Definitive Registered Notes, registered in the name or names and issued in any approved denominations, requested by or on behalf of Euroclear and/or Clearstream, as applicable (in accordance with their respective customary procedures and based upon directions received from participants reflecting the beneficial ownership of Book-Entry Interests), and such Definitive Registered Notes will bear the restrictive legend referred to in "*Transfer Restrictions*," unless that legend is not required by the Indenture or applicable law.

In the case of the issuance of Definitive Registered Notes, payment of principal of, and premium, if any, and interest on the Notes shall be payable at the place of payment designated by the Issuer pursuant to the Indenture; provided that, at the Issuer's option, payment of interest on a Note may be made by check mailed to the person entitled thereto at such address as shall appear on the note register.

If Definitive Registered Notes are issued and a holder thereof claims that such Definitive Registered Note has been lost, destroyed or wrongfully taken, or if such Definitive Registered Note is mutilated and is surrendered to the Registrar or at the office of a transfer agent, the Issuer will issue and the Trustee or an authenticating agent will authenticate a replacement Definitive Registered Note if the Trustee's and the Issuer's requirements are met. The Issuer or the Trustee may require a holder requesting replacement of a Definitive Registered Note to furnish an indemnity bond sufficient in the judgment of both to protect ourselves, the Trustee, the Registrar the Paying Agent or the Transfer Agent appointed pursuant to the Indenture from any loss which any of them may suffer if a Definitive Registered Note is replaced. The Issuer may charge for any expenses incurred by it in replacing a Definitive Registered Note.

In case any such mutilated, destroyed, lost or stolen Definitive Registered Note has become or is about to become due and payable, or is about to be redeemed or purchased by the Issuer pursuant to the provisions of the Indenture, the Issuer, in its discretion, may, instead of issuing a new Definitive Registered Note, pay, redeem or purchase such Definitive Registered Note, as the case may be.

So long as the Notes are listed on the Luxembourg Stock Exchange and the rules of such exchange so require, Vallourec will publish a notice of any issuance of Definitive Registered Notes in a daily leading newspaper having general circulation in Luxembourg (which Vallourec expects to be the Luxemburger Wort) or on the website of the Luxembourg Stock Exchange (www.bourse.lu).

To the extent permitted by law, the Issuer, the Trustee, the Paying Agents, the Transfer Agent and the Registrar shall be entitled to treat the registered holder as the absolute owner thereof.

Redemption of Global Notes

In the event any Global Note, or any portion thereof, is redeemed, the common depositary will distribute the amount received by it in respect of the Global Note so redeemed to Euroclear and/or Clearstream, as applicable, who will distribute such amount to the holders of the Book-Entry Interests in such Global Note. The redemption price payable in connection with the redemption of such Book-Entry Interests will be equal to the amount received by the common depositary, Euroclear or Clearstream, as applicable, in connection with the redemption of such Global Note (or any portion thereof). Vallourec understands that, under existing practices of Euroclear and Clearstream, if fewer than all of the Notes are to be redeemed at any time, Euroclear and Clearstream will credit their respective participants' accounts on a proportionate basis (with adjustments to prevent fractions) or on such other basis as they deem fair and appropriate.

Payments on Global Notes

Payments of any amounts owing in respect of the Global Notes (including principal, premium, interest and additional amounts) will be made by the Issuer in euro to the Paying Agent. The paying agent will, in turn, make such payments to the common depositary for Euroclear and Clearstream, which will distribute such payments to participants in accordance with their procedures. Vallourec will make payments of all such amounts without deduction or withholding for, or on account of, any present or future taxes, duties, assessments or governmental charges of whatever nature, except as may be required by law and as described under "*Description of the Notes—Additional Amounts*".

Under the terms of the Indenture, the Issuer and the Trustee will treat the registered holder of the Global Notes (*i.e.*, the common depositary or its nominee) as the owner thereof for the purpose of receiving payments and for all other purposes. Consequently, none of the Issuer, the Trustee, the Paying Agent, the Transfer Agent, the Registrar or any of their respective agents has or will have any responsibility or liability for:

- any aspect of the records of Euroclear, Clearstream or any participant or indirect participant relating to payments made on account of a Book-Entry Interest, for any such payments made by Euroclear, Clearstream or any participant or indirect participants, or for maintaining, supervising or reviewing any of the records of Euroclear, Clearstream or any participant or indirect participant relating to payments made on account of a Book-Entry Interest;
- Euroclear, Clearstream or any participant or indirect participant; or
- the records of the common depositary.

Payments by participants to owners of Book-Entry Interests held through participants are the responsibility of such participants, as is now the case with securities held for the accounts of customers registered in "street name."

Action by Owners of Book-Entry Interests

Euroclear and Clearstream have advised the Issuer that they will take any action permitted to be taken by a holder of Notes only at the direction of one or more participants to whose account the Book-Entry Interests in the Global Notes are credited and only in respect of such portion of the aggregate principal amount of Notes as to which such participant or participants has or have given such direction. Euroclear and Clearstream will not exercise any discretion in the granting of consents, waivers or the taking of any other action in respect of the Global Notes. If there is an Event of Default under the Notes, however, each of Euroclear and Clearstream reserves the right to exchange the Global Notes for Definitive Registered Notes in certificated form, and to distribute such Definitive Registered Notes to their participants.

Transfers

Transfers between participants in Euroclear and Clearstream will be effected in accordance with Euroclear and Clearstream's rules and will be settled in immediately available funds.

The Global Notes will bear a legend to the effect set forth under "*Transfer Restrictions*". Book-Entry Interests in the Global Notes will be subject to the restrictions on transfer discussed under "*Transfer Restrictions*".

Book-Entry Interests in the Rule 144A Global Note may be transferred to a person who takes delivery in the form of Book-Entry Interests in the Regulation S Global Note only upon delivery by the transferor of a written certification (in the form provided in the Indenture) to the effect that such transfer is being made in accordance with Regulation S under the Securities Act. See "*Notice to Investors*".

Subject to the foregoing, Book-Entry Interests in the Regulation S Global Note may be transferred to a person who takes delivery in the form of Book-Entry Interests in the Rule 144A Global Note only upon delivery by the transferor of a written certification (in the form provided in the Indenture) to the effect that such transfer is being made to a person who the transferor reasonably believes is a "qualified institutional buyer" within the meaning of Rule 144A in a transaction meeting the requirements of Rule 144A or otherwise in accordance with the transfer restrictions described under "*Notice to Investors*", and in accordance with any applicable securities laws of any state of the United States or any other relevant jurisdiction.

Subject to the foregoing, and as set forth in "*Transfer Restrictions*", Book-Entry Interests may be transferred and exchanged as described under "*Description of the Notes—Transfer and Exchange*". Any Book-Entry Interest in a Global Note that is transferred to a person who takes delivery in the form of a Book-Entry Interest in another Global Note will, upon transfer, cease to be a Book-Entry Interest in the first mentioned Global Note and become a Book-Entry Interest in the other Global Note and, accordingly, will thereafter be subject to all transfer restrictions, if any, and other procedures applicable to Book-Entry Interests in such other Global Note for as long as it retains such a Book-Entry Interest.

In the case of the issuance of Definitive Registered Notes, the holder of a Definitive Registered Note may transfer such Note by surrendering it to the Registrar. In the event of a partial transfer or a partial redemption of a holding of Definitive Registered Notes represented by one Definitive Registered Note, a Definitive Registered Note will be issued to the transferee in respect of the part transferred and a new Definitive Registered Note in respect of the balance of the holding not transferred or redeemed will be issued to the transferor or the holder, as applicable; provided that no Definitive Registered Note in a denomination less than €100,000 will be issued. The Issuer will bear the cost of preparing, printing, packaging and delivering the Definitive Registered Notes.

Global Clearance and Settlement under the Book-Entry System

The Notes represented by the Global Notes are expected to be listed on the Official List of the Luxembourg Stock Exchange and admitted for trading on the Euro MTF. Transfers of interests in the Global Notes between participants in Euroclear or Clearstream will be effected in the ordinary way in accordance with their respective system's rules and operating procedures.

Although Euroclear and Clearstream currently follow the foregoing procedures in order to facilitate transfers of interests in the Global Notes among participants in Euroclear or Clearstream, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued or modified at any time. None of the Issuer, the initial purchasers, the Trustee, the Registrar, the Transfer Agent or the Paying Agent will have any responsibility for the performance by Euroclear, Clearstream or their participants or indirect participants of their respective obligations under the rules and procedures governing their operations.

Initial Settlement

Initial settlement for the Notes will be made in euros. Book-Entry Interests owned through Euroclear or Clearstream accounts will follow the settlement procedures applicable to conventional eurobonds in registered form. Book-Entry Interests will be credited to the securities custody accounts of Euroclear and Clearstream holders on the business day following the settlement date against payment for value on the settlement date.

Secondary Market Trading

The Book-Entry Interests will trade through participants of Euroclear or Clearstream, and will settle in same-day funds. Since the purchaser determines the place of delivery, it is important to establish at the time of trading of any Book-Entry Interests where both the purchaser's and seller's accounts are located to ensure that settlement can be made on the desired value date.

Information Concerning Euroclear and Clearstream

All Book-Entry Interests will be subject to the operations and procedures of Euroclear and Clearstream, as applicable. Vallourec has provided the following summaries of those operations and procedures solely for the convenience of prospective investors. The operations and procedures of the settlement system are controlled by the settlement system and may be changed at any time.

Vallourec understands the following with respect to Euroclear and Clearstream: Euroclear and Clearstream hold securities for participating organizations. They facilitate the clearance and settlement of securities transactions between their participants through electronic book-entry changes in accounts of such participants. Euroclear and Clearstream provide various services to their participants, including the safekeeping, administration, clearance, settlement, lending and borrowing of internationally traded securities. Euroclear and Clearstream interface with domestic securities markets. Euroclear and Clearstream participants are financial institutions such as underwriters, securities brokers and dealers, banks, trust companies and certain other organizations. Indirect access to Euroclear and Clearstream is also available to others such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Euroclear and Clearstream participant, either directly or indirectly.

Although the foregoing sets out the procedures of Euroclear and Clearstream in order to facilitate the original issue and subsequent transfers of interests in the Notes among participants of Euroclear and Clearstream, neither Euroclear nor Clearstream is under any obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time.

None of the Issuer, the Trustee, the Paying Agent, the Transfer Agent, the Registrar, the initial purchasers or any of their respective agents will have responsibility for the performance of Euroclear or Clearstream or their respective participants of their respective obligations under the rules and procedures governing their operations, including, without limitation, rules and procedures relating to Book-Entry Interests.

Because Euroclear and Clearstream can only act on behalf of participants, who in turn act on behalf of indirect participants and certain banks, the ability of an owner of a beneficial interest to pledge such interest to persons or entities that do not participate in the Euroclear and/or Clearstream system, or otherwise take actions in respect of such interest, may be limited by the lack of a definitive certificate for that interest. The laws of some jurisdictions require that certain persons take physical delivery of securities in definitive form. Consequently, the ability to transfer beneficial interests to such persons may be limited. In addition, owners of beneficial interests through the Euroclear or Clearstream systems will receive distributions attributable to the Rule 144A Global Notes only through Euroclear or Clearstream participants.

TAXATION

French Taxation

The following is a summary of certain of the material French withholding tax consequences that may be relevant to holders of Notes who do not concurrently hold shares of the Issuer and certain other French tax considerations that may be relevant to holders of Notes who (i) are non-French residents and (ii) do not hold their Notes in connection with a business or profession conducted in France, or a permanent establishment or fixed base situated in France. This summary is based on the tax laws and regulations of France, as currently in effect and applied by the French tax authorities, and all of which are subject to change or to different interpretation. This summary is for general information only and does not address all of the French tax considerations that may be relevant to specific holders in light of their particular circumstances. Furthermore, this summary does not address any French estate or gift tax considerations.

Prospective investors are urged to consult their own tax advisors as to French tax considerations relating to the purchase, ownership and disposal of the notes in light of their particular circumstances.

Withholding Tax

Payments of interest and assimilated revenues made by the Issuer with respect to the Notes will not be subject to the withholding tax set out under Article 125 A-III of the French Tax Code unless such payments are made outside France in a non-cooperative State or territory (*Etat ou territoire non coopératif*) within the meaning of Article 238-0 A of the French Tax Code (a "Non-Cooperative State"), irrespective of the holder's residence for tax purposes or registered headquarters. If such payments under the Notes are made in a Non-Cooperative State, a 75% mandatory withholding tax will be due by virtue of Article 125 A-III of the French Tax Code (subject to certain exceptions certain of which are set forth below and to the more favorable provisions of any applicable double tax treaty). The list of Non-Cooperative States is published by a ministerial executive order, which may be updated at any time and in principle at least on a yearly basis. A draft law published by the French government on March 28, 2018 would, if adopted in its current form, expand the list of Non-Cooperative States as defined under Article 238-0 A of the French Tax Code to include states and jurisdictions included in the blacklist published by the Council of the European Union and, as a consequence, would expand this withholding tax regime to certain states and jurisdictions included in the blacklist.

Furthermore, according to Article 238 A of the French Tax Code, interest and other revenues on the Notes may not be deductible from the Issuer's taxable income if they are paid or accrued to persons domiciled or established in a Non-Cooperative State or paid to a bank account opened in a financial institution located in such a Non-Cooperative State. The draft law published by the French government on March 28, 2018 described above would, if adopted in its current form, expand this regime to the states and jurisdictions included in the blacklist published by the Council of the European Union. Under certain conditions, any such non-deductible interest and other revenues may be recharacterized as constructive dividends pursuant to Article 109 *et seq*. of the French Tax Code, in which case such non-deductible interest and other revenues may be subject to the withholding tax set out under Article 119 *bis* 2 of the French Tax Code at a rate of (i) 30% (to be reduced and aligned on the standard corporate income tax rate set forth in Article 219-I of the French Tax Code for fiscal years opened on or after January 1st, 2020) for holders of Notes who are non-French tax resident legal persons, (ii) 12.8% for holders of Notes who are non-French tax resident individuals, in each case (x) unless payments are made in a Non-Cooperative State (in which case the withholding tax rate would be equal to 75% and (y) subject to certain exceptions (certain of which are set forth below) and, to more favourable provisions of any applicable double tax treaties.

Notwithstanding the foregoing, neither the 75% withholding tax set out under Article 125 A-III of the French Tax Code nor, to the extent the relevant interest relate to genuine transactions and is not in an abnormal or exaggerated amount, the non-deductibility set out under Article 238 A of the French Tax Code nor the related withholding tax set out under Article 119 *bis* 2 of the French Tax Code that may be levied as a result of such non-deductibility, will apply in respect of the issue of the Notes if the Issuer can prove that the main purpose and effect of such issue of Notes is not to enable payments of interest or other similar revenues to be made in a Non-Cooperative State (the "Exception"). Pursuant to the *Bulletin Officiel des Finances Publiques-Impôts* (French administrative guidelines) referenced as BOI-INT-DG-20-50 dated February 11, 2014, BOI-RPPM-RCM-30-10-20-40, dated February 11, 2014, and BOI-IR-DOMIC-10-20-20-60, dated March 20, 2015, an issue of notes will be deemed not to have such a purpose and effect, and accordingly will be able to benefit from the Exception, without the Issuer having to provide any proof of the purpose and effect of such issue of the Notes if such Notes are:

i. offered by means of a public offer within the meaning of Article L.411-1 of the French Monetary and Financial Code or pursuant to an equivalent offer in a State which is not a Non-Cooperative State. For this purpose, an "equivalent offer" means any offer requiring the registration or submission of an offer document by or with a foreign securities market authority; or

ii. admitted to trading on a regulated market or a multilateral securities trading system provided that such market or system is not located in a Non-Cooperative State, and the operation of such market is carried out by a market operator or an investment services provider, or by such other similar foreign entity, provided further that such market operator, investment services provider or entity is not located in a Non-Cooperative State; or

iii. admitted, at the time of their issue, to the operations of a central depositary or of a securities clearing and delivery and payments systems operator within the meaning of Article L.561-2 of the French Monetary and Financial Code, or of one or more similar foreign depositaries or operators, provided that such depositary or operator is not located in a Non-Cooperative State.

The Notes, which will be (i) admitted to trading on the Luxembourg Stock Exchange in Luxembourg, which is not a Non-Cooperative State, and such market being operated by a market operator which is not located in a Non-Cooperative State and (ii) admitted, at the time of their issue, to the operations of Euroclear and Clearstream, will fall under the Exception. Accordingly, payments of interest and other assimilated revenues with respect to the Notes will be exempt from the withholding tax set out under Article 125 A-III of the French Tax Code. In addition, under the same conditions and to the extent that the relevant interest and other assimilated revenue relate to genuine transactions and are not in an abnormal or exaggerated amount, they will be subject neither to the non-deductibility set out under Article 238 A of the French Tax Code nor to the withholding tax set out under Article 119 *bis* 2 of the same Code solely on account of their being paid to a bank account opened in a financial institution located in a Non-Cooperative State or accrued or paid to persons established or domiciled in a Non-Cooperative State.

Withholding Tax applicable to French Tax Resident Individuals

Pursuant to Article 125 A of the French Tax Code *(i.e.* where the paying agent *(établissement payeur)* is located in France), subject to certain exceptions, interest received by French tax resident individuals is subject to a 12.8% levy withheld at source, which is deductible from their personal income tax liability in respect of the year in which the payment has been made. Social contributions (CSG, CRDS and other related contributions) are also levied at source at an aggregate rate of 17.2% on interest paid to French tax resident individuals. Holders of Notes who are French tax resident individuals are urged to consult with their usual tax advisor on the way the 12.8% levy and the 17.2% social contributions are collected, where the paying agent is not located in France.

Capital Gain Tax

A holder of Notes will not be subject to any income or withholding taxes in France in respect of the gains realized on the sale, exchange or other disposal of Notes, when such holder is not a French tax resident and does not hold his Notes in connection with a fixed base or a permanent establishment subject to tax in France.

Stamp Duties

Transfers of Notes are not subject to any stamp duty or other transfer taxes imposed in France, provided that such transfers are not recorded in a deed registered with the French tax authorities.

Certain U.S. Federal Income Tax Considerations

The following is a summary of certain U.S. federal income tax considerations that may be relevant to a holder of a Note. This summary is based on provisions of the Internal Revenue Code of 1986, as amended, applicable Treasury regulations, laws, rulings and decisions now in effect, all of which are subject to change, possibly with retroactive effect. This summary deals only with holders that will hold Notes as capital assets and acquired the Notes upon original issuance at their issue price. It does not address tax considerations applicable to investors that may be subject to special tax rules, such as banks, tax-exempt entities, insurance companies, regulated investment companies, dealers in securities or currencies, traders in securities electing to mark to market, entities taxed as partnerships or partners therein, non-U.S. holders present in the United States for 183 days or more during the taxable year, holders that have ceased to be U.S. citizens or lawful permanent residents of the United States, persons that will hold Notes as a position in a “straddle” or conversion transaction, or as part of a “synthetic security” or other integrated financial transaction or persons that have a “functional currency” other than the U.S. dollar. In addition, this discussion does not consider the effect of any applicable state, local or foreign tax laws, or any aspect of U.S. federal taxation other than income taxation (such as estate and gift tax laws, the alternative minimum tax or Medicare tax on net investment income).

For purposes of this discussion, “U.S. holder” means a beneficial owner of Notes that is an individual who is a citizen or resident of the United States or a domestic corporation or any person that is otherwise subject to U.S. federal income tax on a net income basis in respect of the Notes. A “non-U.S. holder” means a beneficial owner of Notes that is not a U.S. holder.

You should consult your tax advisor regarding the tax consequences of the acquisition, ownership and disposition of the Notes, including the relevance to your particular situation of the considerations discussed below, as well as the relevance to your particular situation of state, local or other tax laws.

U.S. Federal Income Tax Consequences to U.S. Holders

Accrual of Income

U.S. holders that use an accrual method of accounting for tax purposes ("accrual method holders") generally are required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements (the "book/tax conformity rule"). The application of the book/tax conformity rule thus may require the accrual of income earlier than would be the case under the general tax rules described below, although it is not clear to what types of income the book/tax conformity rule applies. This rule generally is effective for tax years beginning after December 31, 2017 or, for notes issued with original issue discount ("OID"), for tax years beginning after December 31, 2018. Accrual method holders should consult with their tax advisors regarding the potential applicability of the book/tax conformity rule to their particular situation.

Payments of Stated Interest

Payments of stated interest on the Notes, including any additional amounts paid with respect thereto generally will be taxable to a U.S. holder as ordinary interest income at the time that the payments accrue or are received, in accordance with the U.S. holder's method of accounting for U.S. federal income tax purposes. It is expected, and this discussion assumes, that the Notes will not be issued with more than a *de minimis* amount of OID. In general, however, if the Notes are issued with more than *de minimis* OID, a U.S. holder will be required to include OID in gross income, as ordinary income, under a "constant-yield method" before the receipt of cash attributable to such income, regardless of the U.S. holder's regular method of accounting for U.S. federal income tax purposes. OID generally will be accrued in euro and translated into dollars at the average exchange rate in effect during the interest accrual period (or portion thereof within the holder's taxable year). The U.S. holder generally will recognize foreign currency gain or loss to the extent the amount accrued differs from the U.S. dollar value of the euro amounts when received.

A U.S. holder that uses the cash method of accounting for U.S. federal income tax purposes and that receives a payment of interest will be required to include in ordinary income the U.S. dollar value of the euro interest payment determined on the date such payment is received, regardless of whether the payment is in fact converted to U.S. dollars. A U.S. holder that is an accrual method holder will accrue interest income on a note in euros and translate the amount accrued into U.S. dollars based on the average exchange rate in effect during the interest accrual period (or portion thereof within the holder's taxable year), or, at the holder's election, at the spot rate of exchange on the last day of the accrual period (or the last day of the taxable year within such accrual period if the accrual period spans more than one taxable year) or at the spot rate of exchange on the date of receipt, if such date is within five business days of the last day of the accrual period. A U.S. holder that makes such election must apply it consistently to all debt instruments from year to year and cannot change the election without the consent of the Internal Revenue Service (the "IRS").

An accrual method U.S. holder will recognize foreign currency gain or loss, as the case may be, on the receipt of an interest payment made with respect to a Note if the exchange rate in effect on the date the payment is received differs from the rate applicable to a previous accrual of that interest income. This foreign currency gain or loss will generally be treated as ordinary income or loss and will not be treated as an adjustment to interest income received on the Note.

It is possible that the book/tax conformity rule, discussed in "—Accrual of Income," may require accrual method holders to include *de minimis* OID in gross income as the *de minimis* OID accrues on their financial statements. The application of the book-tax conformity rule to *de minimis* OID is uncertain, and accrual method taxpayers should consult with their tax advisors on how the rule may apply to their investment in the Notes.

Stated interest and OID, if any, will generally be income from sources outside the United States for purposes of foreign tax credit rules.

Dispositions of the Notes

A U.S. holder generally will recognize gain or loss on the sale, exchange, redemption or other taxable disposition of the Notes in an amount equal to the difference between the amount realized on the disposition (less any amounts attributable to accrued but unpaid interest, which will be taxable as such) and the U.S. holder's adjusted tax basis in the Notes.

A U.S. holder's adjusted tax basis in a Note generally will be the U.S. dollar value of the purchase price of that Note on the date of purchase. The amount realized by a U.S. holder upon the sale, exchange or retirement of a Note will

be the U.S. dollar value of the currency received calculated at the exchange rate in effect on the date the instrument is sold or disposed of. In the case of a Note that is traded on an established securities market, a cash method U.S. holder, and if it so elects, an accrual method U.S. holder will determine the U.S. dollar value of the amount realized by translating such amount at the spot rate on the settlement date of the sale. The election available to accrual method U.S. holders in respect of the purchase and sale of Notes traded on an established securities market, discussed above, must be applied consistently to all debt instruments from year to year and cannot be changed without the consent of the IRS. U.S. holders should consult their own tax advisors about the availability of this treatment (and in the case of accrual basis U.S. holders, the advisability of making this election).

Subject to the foreign currency rules discussed below, gain or loss realized by a U.S. holder on such sale or other taxable disposition generally will be capital gain or loss and will be long-term capital gain or loss if, at the time of the sale or other disposition, the Notes have been held for more than one year. Certain non-corporate U.S. holders (including individuals) may be eligible for preferential rates of taxation in respect of long-term capital gains. The deductibility of capital losses is subject to limitations.

Gain or loss recognized by a U.S. holder on the sale, exchange or retirement of a Note generally will be treated as ordinary income or loss to the extent that the gain or loss is attributable to changes in exchange rates during the period in which the holder held such Note. This foreign currency gain or loss will not be treated as an adjustment to interest income received on the Notes. For an accrual method U.S. holder that does not make the election described above, the foreign currency gain or loss will include amounts attributable to changes in exchange rates between the trade date and the settlement date. In addition, upon the sale or other taxable disposition of a Note, an accrual method U.S. holder may realize foreign currency gain or loss attributable to amounts received in respect of accrued and unpaid stated interest. The amount of foreign currency gain or loss realized with respect to principal and accrued interest will, however, be limited to the amount of overall gain or loss realized on the disposition.

Reportable Transactions

A U.S. holder that participates in a "reportable transaction" will be required to disclose its participation to the IRS. Under the relevant rules, since the Notes are denominated in a foreign currency, a U.S. holder may be required to treat a foreign currency exchange loss from the Notes as a reportable transaction if this loss exceeds the relevant threshold in the regulations ($50,000 in a single taxable year, if the U.S. holder is an individual or trust, or higher amounts for other U.S. holders), and to disclose its investment by filing a Form 8886 with the IRS. A penalty in an amount not exceeding $10,000 in the case of a natural person, and $50,000 in all other cases, is generally imposed on any taxpayer that fails to timely file an information return with the IRS with respect to a transaction resulting in a loss that is treated as a reportable transaction. Prospective purchasers are urged to consult their tax advisors regarding the application of these rules.

U.S. Return Disclosure Requirements for Individual U.S. Holders

Certain U.S. holders that own "specified foreign financial assets" with an aggregate value in excess of $50,000 are generally required to file an information statement along with their tax returns, currently on Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include the Notes) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. U.S. holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors are encouraged to consult with their own tax advisors regarding the possible application of these rules, including the application of the rules to their particular circumstances.

Information Reporting and Backup Withholding

Payments in respect of the Notes that are paid within the United States or through certain U.S.-related financial intermediaries are generally subject to information reporting, unless the holder is a corporation (other than an S Corporation) or other exempt recipient. Payments to a U.S. holder that is not an exempt recipient may also be subject to backup withholding, unless the U.S. holder provides an accurate taxpayer identification number and certifies that it has not lost its exemption from backup withholding. Non-U.S. holders are generally exempt from backup withholding, but such holders may have to comply with certification procedures to prove entitlement to this exemption. The amount of any backup withholding collected from a payment to a holder will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that certain required information is timely furnished to the IRS. Holders should consult their tax advisors about these rules and any other reporting obligations that may apply to the ownership or disposition of Notes.

PLAN OF DISTRIBUTION

Subject to the terms and conditions set forth in a purchase agreement by and among the Issuer and the initial purchasers, the Issuer has agreed to sell to each initial purchaser, and each initial purchaser has agreed, severally and not jointly, to purchase from the Issuer, together with all other initial purchasers, the Notes in an aggregate principal amount of €400 million.

The initial purchasers propose to offer the Notes to purchasers at the price to investors indicated on the cover page of this offering memorandum. After the initial offering of the Notes, the initial purchasers may from time to time vary the offering price and other selling terms without notice. The offering of the Notes by the initial purchasers is subject to receipt and acceptance and subject to the initial purchasers' right to reject any order in whole or in part.

The Issuer has agreed to indemnify the initial purchasers against certain liabilities, including liabilities under the Securities Act, or to contribute to payments which the initial purchasers may be required to make in respect of any such liabilities. The Issuer will pay the initial purchasers a commission and pay certain expenses of the offering of the Notes.

The initial purchasers have agreed to resell the Notes (a) to QIBs in reliance on Rule 144A and (b) to non-U.S. persons outside the United States in compliance with Regulation S. See "Notice to Investors". The Notes will initially be offered at the price indicated on the cover page hereof. Depending on market conditions, the initial purchasers may decide to initially purchase and hold a portion of the Notes for their own account.

The Issuer has agreed that during the period from the date hereof through and including the date that is 60 days after delivery of the Notes is made against payment therefor (if the sale of the Notes by the Issuer to the initial purchasers shall have occurred), neither the Issuer nor any of its subsidiaries will, without the prior written consent of the initial purchasers, directly or indirectly, pledge, issue, sell, offer to sell, grant any option for the sale of, or otherwise dispose of any debt (including, without limitation, any debt securities, loans or other debt instruments) issued or guaranteed by the Issuer or any of its subsidiaries having a maturity of more than one year from the date of issue (other than the Notes).

No action has been or will be taken in any jurisdiction by Vallourec or the initial purchasers that would permit a public offering of the Notes, or the possession, circulation or distribution of this offering memorandum or any other material relating to Vallourec or the Notes in any jurisdiction where action for that purpose is required. Accordingly, the Notes may not be offered or sold, directly or indirectly, and neither this offering memorandum nor any other offering material or advertisements in connection with the Notes may be distributed or published, in or from any country or jurisdiction, except in compliance with any applicable rules and regulations of any such country or jurisdiction. This offering memorandum does not constitute an offer to purchase or a solicitation of an offer to sell in any jurisdiction where such offer or solicitation would be unlawful. Persons into whose possession this offering memorandum comes are advised to inform themselves about, and to observe, any restrictions relating to the offering of the Notes, the distribution of this offering memorandum and resales of the Notes. See "*Transfer Restrictions*".

The Notes are a new issue of securities with no established trading market. The Issuer has been advised by the initial purchasers that the initial purchasers intend to make a market in the Notes but are not obligated to do so and may discontinue market making at any time without notice. No assurance can be given as to the liquidity of the trading market for the Notes.

The Issuer expects that delivery of the Notes will be made against payment therefor on or about the date specified on the cover page of this offering memorandum, which will be the fifth business day following the date of pricing of the Notes (this settlement cycle being referred to as "T+5"). Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade Notes on the date of this offering memorandum or the next three succeeding business days will be required to specify an alternative settlement cycle at the time of any such trade to prevent a failed settlement. Purchasers of the Notes who wish to make such trades should consult their own advisors.

In connection with the offering of the Notes, the initial purchasers may purchase and sell Notes in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the initial purchasers of a greater number of Notes than they are required to purchase in the offering of the Notes. Stabilizing transactions consist of certain bids or purchases made for the purpose of preventing or retarding a decline in the market price of the Notes while the offering of the Notes is in progress.

These activities by the initial purchasers, as well as other purchases by the initial purchasers for their own accounts, may stabilize, maintain or otherwise affect the market price of the Notes. As a result, the price of the Notes may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the initial purchasers at any time. These transactions may be effected in the over-the-counter market or otherwise.

Persons who purchase Notes from the initial purchasers may be required to pay stamp duty, taxes, and other charges in accordance with the laws and practice of the country of purchase in addition to the offering price set forth on the cover page hereof.

The initial purchasers and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. The initial purchasers and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for the Issuer or its affiliates, for which they received or will receive customary fees and expenses. Certain of the initial purchasers or their affiliates are agents and/or lenders under certain of the Group's existing revolving credit facilities.

In the ordinary course of their various business activities, the initial purchasers and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve securities and instruments of the Issuer.

The Notes have not been and will not be registered under the Securities Act or the securities law of any U.S. state, and may not be offered or sold, directly or indirectly, in the United States or to, or for the account or benefit of, U.S. persons except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act (including pursuant to the exemption provided by Rule 144A) or such state securities laws. Accordingly, the Notes are being offered (a) in the United States only to Qualified Institutional Buyers, as defined in Rule 144A, in reliance on an exemption from the registration requirements of the Securities Act, and (b) outside the United States to non-U.S. Persons in "offshore transactions" in accordance with Regulation S. For a description of the relevant restrictions on transfer of the Notes by U.S. investors, see "*Notice to Investors*". Terms used in this paragraph have the meanings given to them by Regulation S under the Securities Act.

Each initial purchaser has agreed that:

(i) except as permitted by the Purchase Agreement, it will not offer, sell or deliver the Notes (x) as part of their distribution at any time or (y) otherwise until 40 days after the completion of the distribution of the Notes (the "Distribution Compliance Period"), within the United States or to, or for the account or benefit of, U.S. persons, except to qualified institutional buyers in a transaction exempt from the registration requirements of the Securities Act and

(ii) it will send to each dealer to which it sells the Notes during the Distribution Compliance Period a confirmation or other notice setting out the restrictions on offers and sales of the Notes within the United States or to, or for the account or benefit of, U.S. persons.

In addition, until 40 days after the commencement of the Offering, an offer or sale of Notes within the United States by a dealer (whether or not it is participating in the offering) may violate the registration requirements of the Securities Act.

Transfer of the Notes will be restricted and each purchaser of the Notes in the United States will be required to make certain acknowledgements, representations and agreements, as described under "*Transfer Restrictions*".

Any offer or sale in the United States will be made by affiliates of the initial purchasers who are broker dealers registered under the Exchange Act.

Each initial purchaser has represented and agreed that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes to any retail investor in the EEA. For the purposes of this provision, the expression "retail investor" means a person who is one (or more) of the following:

(i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, "MiFID II"); or

(ii) a customer within the meaning of Directive 2002/92/EC (as amended, the "Insurance Mediation Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II.

Transfer of the Notes will be restricted and each purchaser of the Notes in the United States will be required to make certain acknowledgements, representations and agreements, as described under "*Transfer Restrictions*".

Any offer or sale in the United States will be made by affiliates of the initial purchasers who are broker dealers registered under the Exchange Act.

TRANSFER RESTRICTIONS

Prospective investors are advised to consult legal counsel prior to making any offer, resale, pledge or other transfer of any of the Notes offered hereby.

Vallourec has not registered and will not register the Notes under the Securities Act and, therefore, the Notes may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. Accordingly, Vallourec is offering and selling the Notes to the initial purchasers for re-offer and resale only:

- in the United States to "qualified institutional buyers," commonly referred to as "QIBs," as defined in Rule 144A, in compliance with Rule 144A; and
- outside the United States in offshore transactions in accordance with Regulation S.

Vallourec uses the terms "offshore transaction" and "United States" with the meanings given to them in Regulation S.

Each purchaser of Notes will be deemed to have represented and agreed as follows (terms used in this paragraph that are defined in Rule 144A or Regulation S are used herein as defined therein):

(1) The purchaser (A) (i) is a qualified institutional buyer, (ii) is aware that the sale to it is being made in reliance on Rule 144A and (iii) is acquiring such Notes for its own account or for the account of a qualified institutional buyer or (B) is purchasing such Notes outside of the United States in an offshore transaction pursuant to Regulation S.

(2) The purchaser understands that the Notes are being offered in a transaction not involving any public offering in the United States within the meaning of the Securities Act, that such Notes have not been and will not be registered under the Securities Act or any state securities law, and that (A) if in the future it decides to offer, resell, pledge or otherwise transfer any of the Notes, such Notes may be offered, resold, pledged or otherwise transferred only (i) to the Issuer, (ii) in the United States to a person whom the seller reasonably believes is a qualified institutional buyer in a transaction meeting the requirements of Rule 144A, (iii) outside the United States in a transaction complying with the provisions of Rule 903 or Rule 904 under the Securities Act, (iv) pursuant to an exemption from registration under the Securities Act provided by Rule 144 (if available), (v) pursuant to another available exemption from registration under the Securities Act, or (vi) pursuant to an effective registration statement under the Securities Act, in each of cases (i) through (vi) in accordance with any applicable securities laws of any State of the United States; and (B) the purchaser will, and each subsequent holder is required to, notify any subsequent purchaser of the Notes from it of the resale restrictions referred to in (A) above. Investors should be aware that they may be required to bear the financial risks of this investment for an indefinite period of time.

(3) The foregoing transfer restrictions will remain applicable to the earlier of payment in full of the Notes outstanding, registration of the Notes under the Securities Act and the date or dates on which the Notes are fully transferable without registration of the Notes under the Securities Act.

(4) The purchaser has been afforded an opportunity to ask questions to Vallourec, and to request from Vallourec and to review, and has received and reviewed, all additional information considered by it to be necessary to verify the accuracy of the information in this offering memorandum and has not relied on the initial purchasers or any person affiliated with the initial purchasers in connection with its investigation of the accuracy of the information contained in this offering memorandum or any additional information or in connection with its investment decision. The purchaser acknowledges that neither the initial purchasers nor any person representing the initial purchasers has made any representation to it with respect to either Vallourec or the offering of the Notes. The initial purchasers reserve the right to reject any offer to purchase Notes, in whole or in part, for any reason.

(5) It is purchasing the Notes for its own account, or for one or more investor accounts for which it is acting as a fiduciary or agent, in each case for investment, and not with a view to, or for offer or sale in connection with, any distribution thereof in violation of the Securities Act or any state securities laws, subject to any requirement of law that the disposition of its property or the property of such investor account or accounts be at all times within its or their control and subject to its or their ability to resell such Notes pursuant to Rule 144A, Regulation S or any other exemption from registration available under the Securities Act.

(6) If the purchaser is a purchaser of Notes offered in reliance on the exemption from registration provided by Rule 144A (the "Rule 144A Notes" or "Restricted Notes"), such purchaser acknowledges and agrees that, until the expiration of the applicable holding period with respect to such Notes set forth in Rule 144(d) of the Securities Act, such Notes may be offered, sold or otherwise transferred only:

A) to the Issuer or a subsidiary thereof;

B) pursuant to an effective registration statement under the Securities Act (the Issuer having no obligation to effect any such registration);

C) to a QIB in compliance with Rule 144A;

D) in an offshore transaction complying with Rule 903 or Rule 904 of Regulation S; or

E) pursuant to any other available exemption from registration requirements of the Securities Act;

provided that as a condition to registration of transfer of such Notes, Vallourec, the Trustee, the Registrar or the Transfer Agent may require delivery of any documents or other evidence that the Issuer, in its discretion, deems necessary or appropriate to evidence compliance with one of the exemptions referred to above, and, in each case, in accordance with the applicable securities laws of the states of the United States and other jurisdictions.

Such purchaser also acknowledges that each Rule 144A Note will contain a legend substantially to the following effect:

THIS LEGEND SHALL BE REMOVED SOLELY AT THE OPTION OF THE ISSUER.

THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND THIS NOTE MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN APPLICABLE EXEMPTION THEREFROM. EACH PURCHASER OF THIS NOTE IS HEREBY NOTIFIED THAT THE SELLER OF THIS NOTE MAY BE RELYING ON THE EXEMPTION FROM THE PROVISIONS OF SECTION 5 OF THE SECURITIES ACT PROVIDED BY RULE 144A THEREUNDER. BY ITS ACQUISITION HEREOF OR OF A BENEFICIAL INTEREST HEREIN, THE ACQUIRER:

(1) REPRESENTS THAT IT, AND ANY ACCOUNT FOR WHICH IT IS ACTING, IS A "QUALIFIED INSTITUTIONAL BUYER" (WITHIN THE MEANING OF RULE 144A UNDER THE SECURITIES ACT) AND THAT IT EXERCISES SOLE INVESTMENT DISCRETION WITH RESPECT TO EACH SUCH ACCOUNT;

(2) AGREES FOR THE BENEFIT OF THE ISSUER THAT THIS NOTE MAY BE OFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED, ONLY (I) TO THE ISSUER OR A SUBSIDIARY OF THE ISSUER, (II) IN THE UNITED STATES TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (III) OUTSIDE THE UNITED STATES IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 903 OR RULE 904 UNDER THE SECURITIES ACT, (IV) PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT PROVIDED BY RULE 144 THEREUNDER (IF AVAILABLE), (V) PURSUANT TO ANOTHER AVAILABLE EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT, OR (VI) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH OF CASES (I) THROUGH (VI) IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES.

PRIOR TO THE REGISTRATION OF ANY TRANSFER IN ACCORDANCE WITH THE FOREGOING, THE ISSUER, THE TRUSTEE, THE REGISTRAR AND THE TRANSFER AGENT RESERVE THE RIGHT TO REQUIRE THE DELIVERY OF SUCH LEGAL OPINIONS, CERTIFICATIONS, OR OTHER EVIDENCE AS MAY REASONABLY BE REQUIRED IN ORDER TO DETERMINE THAT THE PROPOSED TRANSFER IS BEING MADE IN COMPLIANCE WITH THE SECURITIES ACT AND APPLICABLE STATE SECURITIES LAWS. NO REPRESENTATION IS MADE AS TO THE AVAILABILITY OF ANY EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT."

(7) If the purchaser is a purchaser of Notes offered in reliance on the exemption from registration provided by Regulation S (the "Regulation S Notes"), such purchaser acknowledges and agrees that the Regulation S Notes will, unless otherwise agreed by the Issuer and the holder thereof, bear a legend substantially to the following effect (the "Regulation S Legend"):

THIS NOTE (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND MAY NOT BE TRANSFERRED IN THE UNITED STATES EXCEPT PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND ALL APPLICABLE STATE SECURITIES LAWS. TERMS USED ABOVE HAVE THE MEANINGS GIVEN TO THEM IN REGULATION S UNDER THE SECURITIES ACT.

(8) The purchaser acknowledges that the Issuer, the initial purchasers and others will rely upon the truth and accuracy of the above acknowledgments, representations and agreements. The purchaser agrees that if any of the acknowledgments, representations or agreements it is deemed to have made by its purchase of Notes is no longer accurate, it will promptly notify the Issuer and the initial purchasers. If such purchaser is purchasing any Notes as a fiduciary or agent for one or more investor accounts, such purchaser represents that it has sole investment discretion with respect to each of those accounts and that it has full power to make the above acknowledgments, representations and agreements on behalf of each account.

Rule 144A Notes may be exchanged for notes not bearing the Restricted Notes Legend but bearing the Regulation S Legend upon certification by the transferor in the form set forth in the Indenture that the transfer of any such Restricted Note has been made in accordance with Rule 903 or Rule 904 under the Securities Act, provided that as a condition to registration of transfer of such Notes, Vallourec, the Trustee, the Registrar or the Transfer Agent may require delivery of any documents or other evidence that the Issuer or the Trustee each, in their discretion, deem necessary or appropriate to evidence compliance with one of the exemptions referred to above.

LEGAL MATTERS

The validity of the Notes to be issued pursuant to this offering will be passed on for Vallourec by Cleary Gottlieb Steen & Hamilton LLP, who are acting as Vallourec's special United States counsel and Vallourec's French legal advisors. Certain United States and French legal matters will be passed on for the initial purchasers by Latham & Watkins.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRMS AND STATUTORY AUDITORS OF THE COMPANY

Vallourec's consolidated financial statements as of and for the years ended December 31, 2015, 2016 and 2017 included in this offering memorandum have been audited by KPMG S.A. and Deloitte & Associés, in each case, independent registered public accounting firms, as stated in their reports appearing therein.

SERVICE OF PROCESS AND ENFORCEMENT OF LIABILITIES

Vallourec S.A. is a company organized under the laws of France with its registered office and principal place of business in France. A majority of Vallourec's directors and officers named herein are not residents of the United States, and all or a substantial portion of their assets are located outside the United States. The majority of Vallourec's assets are located outside the United States. It may not be possible for prospective investors to effect service of process within the United States Vallourec's Supervisory Board and management board members or to enforce against these persons, or Vallourec, judgments of the United States courts predicated upon civil liability provisions of the federal securities laws of the United States.

Vallourec has been advised by its French counsel, Cleary Gottlieb Steen & Hamilton LLP, Paris, France, that if an original action is brought in France, predicated solely upon United States federal securities laws, French courts may not have the requisite jurisdiction to grant the remedies sought. Actions for enforcement in France of a U.S. judgment rendered against any of the French persons referred to in the second sentence of the preceding paragraph would require (i) that the dispute is substantially connected with the United States and that French courts do not have exclusive jurisdiction over the matter, (ii) that the judgment is not contrary to the principles of French international public policy and (iii) that neither the choice of applicable law nor the choice of jurisdiction is fraudulent. In addition, actions in the United States under United States federal securities laws could be affected under certain circumstances by the French Law of July 16, 1980, which may preclude or restrict the obtaining of evidence in France or from French persons in connection with such actions.

CERTAIN INSOLVENCY LAW CONSIDERATIONS

European Union

The Issuer is organized under the laws of France, a Member State of the European Union.

Pursuant to Council Regulation (EU) 2015/848 of 20 May 2015 on insolvency proceedings (recast) (the "EU Insolvency Regulation") which became fully effective on 26 June 2017 (except for the obligations relating to the registers of insolvency proceedings discussed below) and applies within the European Union (other than Denmark), the courts of the Member State in which a debtor's "center of main interests" (as that term is used in Article 3(1) of the EU Insolvency Regulation) is situated have jurisdiction to commence main insolvency proceedings relating to such debtor. The determination of where a debtor has its center of main interests is a question of fact on which the courts of the different Member States may have differing and even conflicting views.

Article 3(1) of the EU Insolvency Regulation provides that the center of main interests, or "COMI" of a "debtor shall be the place where the debtor conducts the administration of its interests on a regular basis and which is ascertainable by third parties". It sets forth, as explained by Recital (30), a rebuttable presumption that a debtor has its COMI in the Member State in which it has its registered office in the absence of proof to the contrary. This presumption shall only apply if the registered office of the legal person has not been moved to another Member State within the 3-month period prior to the request for the opening of insolvency proceedings. Recital (30) provides that it should be possible to rebut this presumption if a debtor's central administration is located in a Member State other than that of its registered office and a comprehensive assessment of all the relevant factors establishes, in a manner that is ascertainable by third parties, that the debtor's actual centre of management and supervision and the management of its interests is located in that other Member State. Under the previous EU insolvency regulation (Council Regulation (EC) 1346/2000 of 29 May 2000), which defined the COMI in similar terms, the courts have taken into consideration a number of factors in determining the center of main interests of a debtor, including in particular where board meetings are held, the location where the debtor conducts the majority of its business or has its head office and the location where the majority of the debtor's creditors are established. A debtor's center of main interests is not a static concept and may change from time to time but is determined for the purposes of deciding which courts have competent jurisdiction to commence insolvency proceedings at the time of the filing of the insolvency petition.

If the center of main interests of a debtor is and will remain located in the Member State (other than Denmark) in which it has its registered office, the main insolvency proceedings in respect of the debtor under the EU Insolvency Regulation would be commenced in such jurisdiction and accordingly a court in such jurisdiction would be entitled to commence the types of insolvency proceedings referred to in Annex A to the EU Insolvency Regulation. Insolvency proceedings commenced in one Member State under the EU Insolvency Regulation are to be recognized in the other EU Member States (other than Denmark), although secondary proceedings may be commenced in another Member State.

If the center of main interests of a debtor is in a Member State (other than Denmark), under Article 3(2) of the EU Insolvency Regulation, the courts of another Member State (other than Denmark) have jurisdiction to commence secondary (territorial) insolvency proceedings against that debtor only if such debtor has an "establishment" (within the meaning and as defined in Article 2(10) of the EU Insolvency Regulation) in the territory of such other Member State or had an establishment in such EU Member State in the 3-month period prior to the request for commencement of main insolvency proceedings. An "establishment" is defined to mean "any place of operations where the debtor carries or has carried out in the 3-month period prior to the request to commence mains insolvency proceedings a non-transitory economic activity with human means and assets".

Where main proceedings have been commenced in the Member State in which the debtor has its center of main interests, any proceedings commenced subsequently in another Member State in which the debtor has an establishment shall be secondary proceedings. The effects of those territorial proceedings are restricted to the assets of the debtor situated in the territory of such other Member State. Where main proceedings in the Member State in which the debtor has its center of main interests have not yet been commenced, territorial insolvency proceedings may only be commenced in another Member State where the debtor has an establishment where either (a) insolvency proceedings cannot be commenced in the Member State in which the debtor's center of main interests is situated under that Member State's law; or (b) the territorial insolvency proceedings are commenced at the request of (i) a creditor which is domiciled, habitually resident or has its registered office in the other Member State or whose claim arises from the operation of the establishment or (ii) a public authority that has the right to make such a request under the law of the Member State in which the establishment is located. Irrespective of whether the insolvency proceedings are main or secondary insolvency proceedings, such proceedings will, subject to certain exceptions, be governed by the *lex fori concursus*, i.e., the local insolvency law of the court that has assumed jurisdiction over the insolvency proceedings of the debtor.

The courts of all Member States (other than Denmark) must recognize the judgment of the court commencing main proceedings, which will be given the same effect in the other Member States so long as no secondary proceedings

have been commenced there. The insolvency practitioner appointed by a court in a Member State which has jurisdiction to commence main proceedings (because the debtor's center of main interests is there) may exercise the powers conferred on it by the laws of that Member State in another Member State (such as to remove assets of the debtor from that other Member State) subject to certain limitations, as long as no insolvency proceedings have been commenced in that other Member State or no preservation measures have been taken to the contrary further to a request to commence insolvency proceedings in that other Member State where the debtor has assets.

Annex A of the EU Insolvency Regulation lists safeguard, accelerated safeguard, accelerated financial safeguard, judicial reorganization and judicial liquidation proceedings as insolvency proceedings within the meaning of the EU Insolvency Regulation. Any company of our group having its COMI in France would be subject to French main insolvency proceedings and any company of our group having an establishment in France and its COMI in another EU Member State (other than Denmark) could be subject to French secondary insolvency proceedings.

In order to facilitate the coordination of main and secondary insolvency proceedings, the EU Insolvency Regulation provides for cooperation between (i) insolvency practitioners, (ii) jurisdictions and (iii) jurisdictions and insolvency practitioners. It also provides for specific cooperation, communication and coordination measures in order to ensure the efficient administration of insolvency proceedings relating to different companies forming part of the same group. As from 26 June 2018, the Member States shall establish and maintain a register of insolvency proceedings and, as from 26 June 2019, the European Commission shall establish a decentralised system for the interconnection of such insolvency registers.

France

Insolvency

Vallourec conducts part of its business activity in France and, to the extent that the center of main interests of the Issuer is deemed to be in France, it would be subject to French proceedings affecting creditors, including court-assisted proceedings (*mandat ad hoc* or *conciliation* proceedings, which do not fall within the scope of the EU Insolvency Regulation) and court-administered proceedings being either safeguard proceedings, accelerated safeguard proceedings or accelerated financial safeguard proceedings (*sauvegarde*, *sauvegarde accélérée* or *sauvegarde financière accélérée*), judicial reorganization proceedings (*redressement judiciaire*) or judicial liquidation proceedings (*liquidation judiciaire*). In general, French insolvency legislation favors the continuation of a business and protection of employment over the payment of creditors and could limit your ability to enforce your rights under the Notes.

Under the European Insolvency Regulation proceedings, if a debtor is located in the European Union (other than Denmark), French courts shall have jurisdiction over the main insolvency proceedings if the debtor's center of main interests is situated in France. In the case of a debtor that is a legal person, the place of the registered office shall be presumed to be its center of main interests in the absence of proof to the contrary. In determining whether the center of main interests of a debtor is in France, French courts will take into account a broad range of factual elements.

Specialized courts exist for conciliation or insolvency proceedings with respect to (i) debtors that exceed (directly or through the companies under their control) (*y*) 20 million euros in turnover and 250 employees or (*z*) 40 million euros in turnover, (ii) commencement of proceedings with respect to which the court's international jurisdiction is determined pursuant to the EU Insolvency Regulation or (iii) commencement of proceedings with respect to which the court's international jurisdiction results from the debtor having its main center of interests therein.

In addition, the court that commences insolvency proceedings with respect to the member of a corporate group has jurisdiction over all the other members of the group; accordingly, a court can supervise the insolvency proceedings of the whole group and may, for this purpose, appoint the same administrator and creditors' representative (*mandataire judiciaire*) for all proceedings in respect of members of the group.

The following is a general discussion of insolvency proceedings governed by French law for informational purposes only and does not address all the French legal considerations that may be relevant to holders of the Notes.

Grace Periods

In addition to insolvency laws discussed below, you could, like any other creditors, be subject to Article 1343-5 of the French Civil Code (*Code civil*).

Pursuant to the provisions of this article, French courts may, in any civil or commercial proceedings involving the debtor, whether initiated by the debtor or the creditor, taking into account the debtor's financial position and the creditor's needs, defer or otherwise reschedule over a maximum period of two years the payment dates of payment obligations and decide that any amounts, the payment date of which is thus deferred or rescheduled, will bear interest at a rate that is lower

than the contractual rate (but not lower than the legal rate, as published annually by the French government) or that payments made shall first be allocated to repayment of principal. A court order made under Article 1343-5 of the French Civil Code will suspend any pending enforcement measures, and any contractual default interest or penalty for late payment will not accrue or be due during the grace periods ordered by the relevant judge.

With respect to grace periods under Articles 1343-5 of the French Civil Code, pursuant to Article L. 611-10-1 of the French Commercial Code, the judge having commenced conciliation proceedings may, during the execution period of a conciliation agreement, impose grace periods on creditors having participated in the conciliation proceedings (other than the tax and social security administrations) for their claims that were not dealt with in the conciliation agreement.

Insolvency Test

Under French law, a debtor is considered to be insolvent (*en état de cessation des paiements*) when it is unable to pay its due debts with its immediately available assets taking into account available credit lines, existing debt rescheduling agreements and moratoria.

The date of insolvency (*état de cessation des paiements*) is generally deemed to be the date of the court ruling commencing the insolvency proceedings, unless the court sets an earlier date, which may be carried back up to 18 months before the date of such court ruling. Except for fraud, the date of insolvency may not be fixed at an earlier date than the date of the final court decision that approved an agreement (*homologation*) in the context of conciliation proceedings. The date of insolvency marks the beginning of the hardening period (see below).

Court-assisted Proceedings

A French debtor facing difficulties may in certain conditions request the commencement of court-assisted proceedings (*mandat ad hoc* or *conciliation*), the aim of which is to reach an agreement with the debtor's main creditors and stakeholders e.g., an agreement to reduce or reschedule its indebtedness.

Mandat ad hoc proceedings may only be initiated by the debtor itself, in its sole discretion. In practice, *mandat ad hoc* proceedings are used by debtors that are facing any type of difficulties but are not insolvent (see "—*Insolvency test*" above). The proceedings are informal and confidential by law (save for the disclosure of the court decision appointing the *mandataire ad hoc* to the statutory auditors, if any). They are carried out under the aegis of a court-appointed officer (*mandataire ad hoc*), whose name may be suggested by the debtor itself, under the supervision of the president of the court. The proceedings are not limited in time. The duties of the *mandataire ad hoc* are determined by the competent court (usually the commercial court) that appoints him or her, usually to facilitate negotiations with creditors. Any agreement between the debtor and its creditors will be negotiated on a purely consensual and voluntary basis: those creditors not willing to take part cannot be bound by the agreement nor forced to accept it. *Mandat ad hoc* proceedings do not automatically stay any pending proceedings and creditors are not barred from taking legal action against the debtor to recover their claims but those that have accepted to take part in the proceedings usually accept not to do so. In any event, the debtor retains the right to petition the relevant judge for a grace period under Article 1343-5 of the French Civil Code (see "—*Grace periods*" above). The agreement reached is reported to the president of the court but is not formally approved by it. The order of the president of the court appointing a *mandataire ad hoc* is notified for information purposes to the debtor's auditors.

Conciliation proceedings may only be initiated by the debtor itself if it faces actual or foreseeable difficulties of a legal, economic or financial nature and is not insolvent (see "—*Insolvency test*" above) or has not been insolvent for more than 45 calendar days. The proceedings are confidential by law (save for the disclosure of the court decision appointing the *mandataire ad hoc* to the statutory auditors, if any). They are carried out under the aegis of a court-appointed conciliator (*conciliateur*), whose name may be suggested by the debtor itself, under the supervision of the president of the court. The proceedings may last up to four months (with the *conciliateur* being able to request a one month extension). The duties of the *conciliateur* are to assist the debtor in negotiating an agreement with all or part of its creditors and/or trade partners that puts an end to its difficulties, e.g. providing for the restructuring of its indebtedness. Any agreement between the debtor and its creditors will be negotiated on a purely consensual and voluntary basis: those creditors not willing to take part cannot be bound by the agreement nor forced to accept it. *Conciliation* proceedings do not automatically stay any pending proceedings and creditors are not barred from taking legal action against the debtor to recover their claims but those that have accepted to take part in the proceedings usually accept not to do so. In any event, the debtor retains the right to petition the judge which commenced the conciliation proceedings for a grace period under Article 1343-5 of the French Civil Code (see "—*Grace periods*" above), such decision being taken after hearing the *conciliateur*. The judge may condition the duration of the grace period it orders to reaching an agreement in the conciliation proceedings.

Additionally, pursuant to Article L. 611-10-1 of the French Commercial Code, the judge having commenced conciliation proceedings may, during the execution period of a conciliation agreement (whether it has been acknowledged or approved as described below), impose grace periods on creditors who were asked to participate in the conciliation

proceedings (other than the tax and social security administrations) for their claims that were not dealt with in the conciliation agreement, such decision being taken after hearing the *conciliateur* if he/she has been appointed to monitor the implementation of the agreement.

The conciliation agreement reached between the parties may be acknowledged (*constaté*) by the president of the Commercial Court at the request of the parties, which makes the agreement binding upon them (in particular, performance of the conciliation agreement prevents any action by the creditors party thereto against the debtor to obtain payment of claims governed by the conciliation agreement) and enforceable without further recourse to a judge (*force exécutoire)*, but the conciliation proceedings remain confidential.

Alternatively, the conciliation agreement may be approved (*homologué*) by the Commercial Court at the request of the debtor following a hearing held for that purpose which will have to be attended by the works council or employee representatives, as the case may be, if (i) the debtor is not insolvent (*en état de cessation des paiements*) or the conciliation agreement has the effect of putting an end to the debtor's insolvency, (ii) the conciliation agreement effectively ensures that the company will survive as a going concern and (iii) the conciliation agreement does not impair the rights of the non-signatory creditors. Such approval will have the same effect as its acknowledgement (*constatation*) as described above, and, in addition:

- creditors that, in the context of the conciliation proceedings, provide new money, goods or services designed to ensure the continuation of the business of the debtor (other than shareholders providing new equity in the context of a capital increase) will enjoy a priority of payment over all pre-commencement and post-proceedings claims (except with respect to certain pre-commencement employment claims and procedural costs) (the "New Money Lien"), in the event of subsequent safeguard proceedings, judicial reorganization proceedings or judicial liquidation proceedings;

- in the event of subsequent safeguard proceedings, judicial reorganization or judicial liquidation proceedings, the claims benefiting from the New Money Lien may not, without their holders' consent, be written off or rescheduled to a date later than the date on which the safeguard or reorganization plan is adopted, not even by the creditors' committees although the powers of the bondholder general meeting in this respect are uncertain;

- the works council or employee representatives are informed of the content of the conciliation agreement and may have access to the full conciliation agreement at the clerk's office (*greffe*) of the Court. The publicly available Court decision approving such agreement should however only disclose the amount of any New Money Lien and the guarantees and security interests granted to secure the same;

- when the debtor is submitted to statutory auditing, the conciliation agreement is transmitted to its statutory auditors; and

- in the event of subsequent judicial reorganization proceedings or judicial liquidation proceedings, the date of insolvency (see "*—Insolvency test*" above), and therefore the starting date of the hardening period (as defined below—see "*—The hardening period (période suspecte) in judicial reorganization and liquidation proceedings*"), cannot be set by the court as of a date earlier than the date of the approval (*homologation*) of the agreement by the court (except in case of fraud).

Whether the conciliation agreement is acknowledged or approved, the court may, at the request of the debtor, appoint the *conciliateur* to monitor the implementation of the agreement (*mandataire à l'exécution de l'accord*) during its execution and, while the agreement is in force:

- interest accruing on the claims that are the subject to the conciliation agreement may not be compounded;

- the debtor retains the right to petition the judge having commenced the conciliation proceedings for a grace period pursuant to Article L. 611-10 of the French Commercial Code as explained above; and

- a third party which had previously granted credit support (a guarantee or security interest) with respect to the debtor's obligations may benefit from the provisions of the conciliation agreement.

If the debtor breaches the terms of the conciliation agreement, any party to it may petition the president of the court or the court (depending on whether the agreement was acknowledged or approved) for its termination. If such termination is granted, grace periods granted in relation to the conciliation proceedings may be revoked. Conversely, provided the conciliation agreement is duly performed, any individual proceedings by creditors with respect to obtaining payment of the claims dealt with by the conciliation agreement are suspended and/or forbidden. The commencement of

subsequent insolvency proceedings will automatically put an end to the conciliation agreement, in which case the creditors will recover their claims (decreased by the payments already received) and pre-existing security interests or guarantees.

Conciliation proceedings in which a draft plan is supported by a large majority of creditors which is likely to meet the threshold requirements for creditors' consent in safeguard, will be a mandatory preliminary step of accelerated safeguard proceedings or accelerated financial safeguard proceedings, as described below.

At the request of the debtor and after the creditors taking part in the conciliation proceedings have been consulted on the matter, the *conciliateur* may be appointed with a mission to organize the partial or total sale of the debtor, in particular through a "plan for the disposal of the business" (*plan de cession*) which could be implemented in the context of subsequent safeguard, judicial reorganization or liquidation proceedings. Provided that they comply with certain requirements, any offers received in this context by the *conciliateur* may be directly considered by the court in the context of safeguard, reorganization or liquidation proceedings after consultation of the State prosecutor.

As a matter of law, any contractual provision that (i) modifies the conditions for the continuation of an ongoing contract by reducing the debtors' rights or increasing its obligations simply by reason of the designation of a *mandataire ad hoc* or of the commencement of conciliation proceedings or of a request submitted to this end or (ii) requires the debtor to bear, by reason only of the appointment of a *mandataire ad hoc* or of the commencement of conciliation proceedings, more than three-quarters of the fees of the professional advisers retained by creditors in connection with these proceedings, is deemed null and void.

Where the maximum time period allotted to court-assisted proceedings expires without an agreement being reached, the proceedings will end. The termination of such proceedings does not, in and of itself entail any specific legal consequences for the debtor, in particular it does not result in the automatic commencement of insolvency proceedings. New conciliation proceedings cannot be commenced before 3 months have elapsed as from the end of the previous one.

Court-administered Proceedings—Safeguard

A debtor which experiences difficulties that it is not able to overcome may, in its sole discretion, initiate safeguard proceedings (*procédure de sauvegarde*) with respect to itself, *provided* that it is not insolvent (see "*—Insolvency test*" above). Creditors of the debtor are not notified of, nor invited to attend the hearing before the court at which the commencement of safeguard proceedings is requested. Following the commencement of safeguard proceedings, a court-appointed administrator (*administrateur judiciaire*) is appointed (except for small companies where the court considers that such appointment is not necessary) to investigate the business of the debtor during an "observation period" (being the period starting on the date of the court decision commencing the proceedings and ending on the date on which the court takes a decision on the outcome of the proceedings), which may last up to 18 months. The role of the court-appointed administrator is also to assist the debtor in preparing a draft safeguard plan (*projet de plan de sauvegarde*) that it will circularize to its creditors. Creditors do not have effective control over the proceedings, which remain in the hands of the debtor assisted by the court-appointed administrator. The court-appointed administrator will, in accordance with the terms of the judgment appointing him or her, exercise *ex post facto* control over decisions made by the debtor ("*mission de surveillance*") or assist the debtor to make all or some of the management decisions ("*mission d'assistance*"), all under the supervision of the court.

In addition, the court may convert such proceedings into judicial reorganization proceedings (i) after commencement of the proceedings, at the request of the debtor, the administrator, the creditors' representative or the Public Prosecutor, if it appears that the debtor was insolvent (*en état de cessation des paiements*) before commencement of the proceedings or (ii) at any time during the observation period upon its own initiative or upon request of the debtor, the judicial administrator, the creditors' representative or the Public Prosecutor in the case where the debtor is insolvent or (iii) upon request of the debtor, the administrator, the creditors' representative or the Public Prosecutor in case no plan has been adopted by the relevant creditors' committees and, if any, the bondholders' assembly (as described below), if the approval of a safeguard plan is manifestly impossible and if the company would shortly become insolvent should safeguard proceedings end. At any time during the observation period, the court may also convert such proceedings into liquidation proceedings if the debtor is insolvent and its recovery is manifestly impossible.

As soon as safeguard proceedings are commenced, any unpaid amount of share capital of the debtor becomes immediately due and payable.

During safeguard proceedings, payment by the debtor of any debts incurred (i) prior to the commencement of the proceedings or (ii) after the commencement of the proceedings if not incurred for the purposes of the proceedings or the observation period or in consideration of services rendered/goods delivered to the debtor, is prohibited, subject to very limited exceptions. For example, the court can authorize payments for prior debts in order to discharge a lien on property needed for the continued operation of the debtor's business or to recover goods or rights transferred as collateral in a fiduciary estate (*patrimoine fiduciaire*).

Creditors must be consulted on the manner in which the debtor's liabilities will be settled under the safeguard plan (debt forgiveness, payment terms or debt-for-equity-swaps) prior to the plan being approved by the court. The rules governing consultation will vary depending on the size of the business.

Standard consultation: this applies to debtors whose accounts are not certified by a statutory auditor or prepared by a chartered accountant or, if they are, who have 150 employees or less or a turnover of €20 million or less.

In such case, the administrator notifies the proposals for the settlement of debts to the court-appointed creditors' representative, who obtains the agreement of each creditor who filed a claim, regarding the debt remissions and payment times proposed. Creditors are consulted individually or collectively.

French law does not state whether the debt settlement proposals can vary according to the creditor and whether the principle of equal treatment of creditors is applicable at this consultation stage. According to legal commentaries and established practice, differing treatment as between creditors is possible, *provided* that it is justified by the difference in situation of the creditors and approved by the court-appointed creditors' representative. In practice, it is also possible at the consultation stage to make a proposal for a partial payment of claims over a shorter time period instead of a full payment of such claims over the maximum possible length of the plan (ten years).

Creditors whose payment terms are not affected by the plan or who are paid in cash in full as soon as the plan is approved are not required to be consulted.

Creditors which do not respond within 30 days of their receipt of the debt settlement proposal (other than debt-for-equity-swap) made to them are deemed to have accepted it. The creditors' representative keeps a list of the responses from creditors, which is notified to the debtor, the court-appointed administrator and the controllers.

Within the framework of a standard consultation, if the creditors refuse the proposals that were submitted to them, the court that approves the safeguard plan (*plan de sauvegarde*) can impose on them a uniform rescheduling of their claims (subject to the specific regime of claims benefiting from the New Money Lien) over a maximum period of ten years (except for claims with maturity dates of more than the deferral period set by the court, in which case the maturity date shall remain the same), but no waiver of any claim or debt-for-equity swap may be imposed without the relevant creditor's individual acceptance.

Following a court imposed rescheduling, the first payment must be made within a year of the judgment adopting the plan (in the third and subsequent years, the amount of each annual instalment must be of at least 5% of the amount of each debt claim (except for agricultural businesses)) or on the first payment date following the initial maturity of the claim if it is later than the first payment date provided for by the plan, in which case the amount of such first payment is equal to what the creditor would have received had he been paid in accordance with the uniform payment rescheduling applying to the other creditors.

Committee-based consultation: This applies to large companies, whose accounts are certified by a statutory auditor (*commissaire aux comptes*) or established by a chartered-accountant (*expert-comptable*) and with more than 150 employees or a turnover greater than €20 million), or upon the debtor's or the administrator's request and with the consent of the court in the case of debtors that do not exceed the aforementioned thresholds.

The consultation involves the submission of a proposed safeguard plan for consideration by two creditors' committees which are established by the court-appointed administrator on the basis of the claims that arose prior to the judgment commencing the proceedings:

- one for credit institutions or assimilated institutions and entities having granted credit or advances in favor of the debtor (the "credit institutions committee"); and
- the other one for suppliers having a claim that represents more than 3% of the total amount of the claims of all the debtor's suppliers and other suppliers invited to participate in such committee by the court-appointed administrator (the "major suppliers committee").

If there are any outstanding debt securities in the form of *obligations* (such as bonds or notes and including capital market debt instruments such as the Notes), a single general meeting of all holders of such debt securities will be established (the "bondholders general meeting"), in which all such holders are to take part irrespective of whether or not there are different issuances or of the governing law(s) of those *obligations*.

As a general matter, only the legal owner of the debt claim will be invited onto the committee. Accordingly, a person holding only an economic interest therein will not itself be a member of the committee.

The proposed plan:

- must "take into account" subordination agreements entered into by the creditors before the commencement of the proceedings;

- may treat creditors differently if it is justified by their differences in situation; and

- may, *inter alia*, include a rescheduling or cancellation of debts (subject to the specific regime of claims benefiting from the New Money Lien), and/or debt-for-equity swaps (debt-for-equity swaps requiring the relevant shareholder consent).

If the plan provides for a share capital increase, the shareholders may subscribe to such share capital increase by way of a set-off against their claims against the debtor (as reduced according to the provisions of the plan, where applicable).

Creditors which are members of the credit institutions committee or of the major suppliers committee may also prepare an alternative safeguard plan that will also be put to the vote of the committees and of the general bondholders meeting, it being specified that approval of any such alternative plan is subject to the same two-thirds majority vote in each committee and in the bondholders general meeting and gives rise to a report by the court-appointed administrator (*administrateur judiciaire*). Bondholders are not permitted to present their own alternative plan.

The committees must approve or reject the safeguard plan within 20 to 30 days of its submission. The period may be extended or shortened but may never be shorter than 15 days. The plan must be approved by a majority vote of each committee (two-thirds of the outstanding claims of the creditors casting a vote).

Each member of a creditors committee or of the bondholders general meeting must, if applicable, inform the court-appointed administrator of the existence of any agreement relating to (i) the exercise of its vote or (ii) the full or total payment of its claim by a third party as well as of any subordination agreement. The court-appointed administrator shall then submit to such person a proposal for the computation of its voting rights in the creditors committee/bondholders general meeting. In the event of disagreement, the matter may be ruled upon by the president of the Commercial Court in summary proceedings at the request of the creditor or of the court-appointed administrator.

The amounts of claims secured by a trust (*fiducie*) granted by the debtor do not give rise to voting rights. In addition, creditors whose repayment schedule is not modified by the plan, or for which the plan provides for a payment of their claims in cash in full as soon as the plan is adopted or as soon as their claims are admitted, do not need to be consulted on the plan nor take part in the vote.

Following the approval of the plan by the two creditors' committees, the plan will be submitted for approval to the bondholders general meeting at the same two-thirds majority vote. Following approval by the creditors' committees and the bondholders general meeting, and determination of the rescheduling of the claims of creditors that are not members of the committees or bondholders, the plan has to be approved (*arrêté*) by the court. The court must verify that the interests of all creditors are "sufficiently protected" and that required shareholder consent (if applicable) has been obtained. Once so approved by the relevant court, the safeguard plan will be binding on all the members of the committees and all bondholders (including those who did not vote or voted against the adoption of the plan).

Creditors outside the creditors' committees or the bondholders general meeting are consulted in accordance with the standard consultation process referred to above.

If the debtor's proposed plan is not approved by both committees and the bondholders general meeting within the first six months of the observation period (either because they do not vote on the plan or because they reject it), this six month period may be extended by the court at the request of the court-appointed administrator for a period not exceeding the duration of the observation period, in order for the plan to be approved through the committee-based consultation process. Absent such extension, the court can still adopt a safeguard plan within the time remaining until the end of the observation period. In such a case, the rules are the same as the ones applicable for the standard consultation process described above.

If the draft plan provides for a modification of the share capital or the by-laws, the court may decide that the shareholders general meeting and, as the case may be, the general meetings of the holders of securities giving access to the share capital of the company shall vote, the first time the relevant meeting is convened, at a simple majority of the votes of the shareholders attending, or represented at, the meeting, provided that they hold at least half of the shares with voting rights. The second time the meeting is convened, the usual provisions relating to quorum and majority shall apply.

If no proposed safeguard plan whatsoever is adopted by the committees and, if applicable, the general bondholders meeting, at the request of the debtor, the court-appointed administrator, the *mandataire judiciaire* or the State prosecutor, the court may convert the safeguard proceedings into judicial reorganization proceedings if it appears that the adoption of a safeguard plan is impossible and if the end of the safeguard proceedings would certainly lead to the debtor shortly becoming insolvent.

Specific case—Creditors that are public institutions: public creditors (financial administrations, social security and unemployment insurance organizations) may agree to grant debt remissions under conditions that are similar to those that would be granted under normal market conditions by a private economic operator placed in a similar position. Public creditors may also decide to enter into subordination agreements for liens or mortgages, or relinquish these security interests. Public creditors examine possible remissions within the framework of a local administrative committee (*Commission des Chefs de Services Financiers*). The tax administrations may grant relief from all direct taxes. As regards indirect taxes, relief may only be granted from default interest, adjustments, penalties or fines.

Court-administered Proceedings—Accelerated Safeguard and Accelerated Financial Safeguard

A debtor which is the subject of conciliation proceedings may request the commencement of accelerated safeguard proceedings (*procédure de sauvegarde accélérée*) or accelerated financial safeguard proceedings (*procédure de sauvegarde financière accélérée*).

The accelerated safeguard proceedings and accelerated financial safeguard proceedings have been designed to "fast-track" difficulties faced by large companies, i.e. those:

- which publish consolidated accounts in accordance with Article L. 233-16 of the French Commercial Code; or
- which publish accounts certified by a statutory auditor or established by a certified public accountant and have (i) more than 20 employees or (ii) a turnover greater than €3 million (excluding VAT) or (iii) whose total balance sheet exceeds €1.5 million.

The regime applicable to standard safeguard proceedings is broadly applicable to accelerated safeguard or accelerated financial safeguard proceedings, to the extent compatible with the accelerated timing, since the maximum duration of accelerated safeguard proceedings is three months and the maximum duration of accelerated financial safeguard proceedings is two months. However, certain provisions relating to ongoing contracts and provisions relating to the recovery of assets by their owners do not apply in accelerated safeguard or accelerated financial safeguard proceedings.

In particular, the creditors' committees and the bondholders general meeting are required to vote on the proposed safeguard plan within a minimum period of 15 days of its being notified to them in the case of accelerated safeguard proceedings, or within eight days in the case of accelerated financial safeguard proceedings.

The plan in the context of accelerated safeguard proceedings or accelerated financial safeguard proceedings is adopted following the same majority rules as in standard safeguard proceedings and may in particular provide for rescheduling, debt cancellation and conversion of debt into equity capital of the debtor (debt-for-equity swaps requiring relevant shareholder consent). No debt rescheduling or cancellation may be imposed, without their consent, on creditors that do not belong to one of the committees or are not bondholders.

While accelerated safeguard proceedings apply to all creditors (except employees), accelerated financial safeguard proceedings apply only to "financial creditors" (i.e., creditors that belong to the credit institutions committee and bondholders general meeting), the payment of whose debt is suspended until adoption of a plan through accelerated financial safeguard proceedings. The debtor will be prohibited from paying, to any creditor to whom the accelerated safeguard or accelerated financial safeguard proceedings (as the case may be) apply, any amounts (including interest) relating to debts incurred (i) prior to the commencement of the proceedings or (ii) after the commencement of the proceedings if not incurred for the purposes of the proceedings or the observation period or in consideration of services rendered/goods delivered to the debtor (post-commencement non-privileged debts). Such amounts may be paid only after the judgment of the court approving the safeguard plan and in accordance with its terms. Creditors other than financial creditors (such as public creditors, the tax or social security administration and suppliers) are not directly impacted by accelerated financial safeguard proceedings. Their debts will continue to be due and payable in the ordinary course of business according to their contractual or legal terms.

To be eligible to accelerated safeguard proceedings or accelerated financial safeguard proceedings, the debtor must fulfil the following conditions:

- the debtor must not have been insolvent for more than 45 days when it initially requested the opening of conciliation;

- the debtor must be subject to ongoing conciliation proceedings when it applies for the commencement of the proceedings;

- as is the case for regular safeguard proceedings, the debtor must face difficulties which it is not in a position to overcome;

- the debtor must exceed the thresholds provided for to constitute creditors' committees (see above) or the court shall have authorized such constitution in the opening decision; and

- the debtor must have prepared a draft safeguard plan ensuring the continuation of its business as a going concern which is supported by enough of its creditors involved in the conciliation proceedings to render likely its adoption by the relevant committees (credit institutions' committee only for financial accelerated safeguard proceedings) and bondholders general assembly, if any, within a maximum of three months following the commencement of accelerated safeguard proceedings (or within a maximum of two months following the commencement of accelerated financial safeguard proceedings).

If a plan is not adopted by the creditors and approved by the court within the applicable deadline, the court shall terminate the proceedings.

The list of claims of creditors party to the conciliation proceedings certified by the statutory auditor shall be deemed to constitute the filing of such claims for the purpose of accelerated safeguard proceedings or, as applicable, accelerated financial safeguard proceedings (see below) unless the creditors otherwise elect to make such a filing (see below).

Judicial Reorganization or Liquidation Proceedings

Judicial reorganization (*redressement judiciaire*) or liquidation (*liquidation judiciaire*) proceedings may be initiated against or by a debtor only if it is insolvent and, in the case of liquidation proceedings only, if the debtor's recovery is manifestly impossible. The debtor is required to petition for judicial reorganization or liquidation proceedings (or for conciliation proceedings, as discussed above) within 45 days of becoming insolvent; *de jure* managers (including directors) and, as the case may be, *de facto* managers that would have deliberately failed to file such a petition within the deadline are exposed to civil sanction in the event that judicial reorganization or liquidation proceedings should be commenced against the debtor.

Where the debtor requested the commencement of judicial reorganization proceedings and the court, after having heard the debtor, considers that judicial liquidation proceedings would be more appropriate, it may order the commencement of the proceedings which it determines to be most appropriate. The same would apply if the debtor requested the commencement of judicial liquidation proceedings and the court considered that judicial reorganization proceedings would be more appropriate. In addition, at any time during the observation period, upon request of the debtor, the court-appointed administrator, the creditors' representative (*mandataire judiciaire*) or the State prosecutor, the court may convert the judicial reorganization proceedings into liquidation proceedings if it appears that the debtor's recovery is manifestly impossible. In all cases, the court's decision is only taken after having heard the debtor, the court-appointed administrator, the creditors' representative, the State prosecutor and the workers' representatives (if any).

The objectives of judicial reorganization proceedings are the sustainability of the business, the preservation of employment and the payment of creditors, in that order.

As soon as judicial reorganization or judicial liquidation proceedings are commenced, any unpaid amount of share capital of the debtor becomes immediately due and payable.

In the event of judicial reorganization proceedings, an administrator (*administrateur judiciaire*) is usually appointed by the court to investigate the business of the debtor during an observation period, which may last up to 18 months, and make proposals either for the reorganization of the debtor (by helping the debtor to elaborate a reorganization plan, which is similar to a safeguard plan), or the sale of the business or the liquidation of the debtor. The court-appointed administrator will assist the debtor in making management decisions (*mission d'assistance*) or may be empowered by the court to take over the management and control of the debtor (*mission d'administration*). Most of the rules applicable to safeguard proceedings apply to judicial reorganization proceedings. In particular, the rules relating to creditor consultation, especially the powers of the court adopting the judicial reorganization plan (*plan de redressement)*

in the event of rejection by the creditors of proposals made to them, are the same (see above). At the end of the observation period, the outcome of the proceedings is decided by the court.

In judicial reorganization proceedings, in case a shareholders' meeting needs to vote to bring the shareholders' equity to a level equal to at least one half of the share capital as required by Article L. 626-3 of the French Commercial Code, the administrator may appoint a trustee (*mandataire de justice*) to convene a shareholders' meeting and to vote on behalf of the shareholders which refuse to vote in favor of such a resolution if the draft restructuring plan provides for a modification of the equity to the benefit of a third party(ies) undertaking to comply with the reorganization plan.

If the proposed reorganization plans are manifestly not likely to ensure that the debtor will recover or if no reorganization plan is proposed, the court, upon the request of the court-appointed administrator, can order the total or partial transfer of the business.

In judicial reorganization proceedings if (i) the company has at least 150 employees, or if it controls (within the meaning of the French labor code) one or more companies having together at least 150 employees, (ii) the disappearance of the company is likely to cause serious harm to the national or regional economy and to local employment and (iii) the modification of the company's share capital appears—after review of the options for a total or partial sale of the business—the only credible way to avoid harm to the national or regional economy and allows the continued operation of the business as a going concern, then at the request of the court-appointed administrator or of the State prosecutor and if at least 3 months have elapsed as from the court decision commencing the proceedings, provided that the shareholders meetings required to approve the modification of the company's share capital required for adoption of the reorganization plan have refused such modification, the court may either:

- appoint a court officer (*mandataire*) in order to convene the shareholders meeting and vote the share capital increase in lieu of the shareholders having refused to do so, up to the amount provided for in the reorganization plan; or

- order, in favor of the persons who have undertaken to perform the reorganization plan, the sale of all or part of the share capital held by the shareholders having refused the share capital increase and holding, directly or indirectly, a portion of the share capital providing them with a majority of the voting rights (including as a result of an agreement with other shareholders) or a blocking minority in the company's shareholder meetings (any consent clause being deemed unwritten); the other shareholders have the right to withdraw from the company and request that their shares be purchased by the transferees.

In the event of a sale ordered by the court, the price of the shares shall, failing agreement between the parties, be set by an expert designated by the court in summary proceedings.

In either of the above cases, the reorganization plan shall be subject to the undertaking of the new shareholders to hold their shares for a certain time period set by the court which may not exceed the duration of the reorganization plan.

If the court decides to order the judicial liquidation of the debtor, the court will appoint a liquidator, which is generally the former creditors' representative (*mandataire judiciaire*). There is no observation period in judicial liquidation proceedings nor does the law limit their duration. The liquidator is vested with the power to represent the debtor and perform the liquidation operations (mainly liquidate the assets and settle the liabilities to the extent the proceeds from the liquidated assets are sufficient, in accordance with the creditors' priority order for payment). The liquidator will take over the management and control of the debtor and the managers of the debtor are no longer in charge of its management.

Concerning the liquidation of the assets of the debtor, there are two possible outcomes:

- an asset sale plan (in which case a court-appointed administrator (*administrateur judiciaire*) will usually be appointed to manage the debtor and organize such sale of the business as a going-concern), any third party being entitled to present a bid on all or part of the debtor's business; or

- a sale of the individual assets of the debtor, in which case the liquidator may decide to:

    - launch auction sales (*vente aux enchères* (or *adjudication amiable* for real estate assets only));

    - sell on an amicable basis (*vente de gré à gré*) each asset for which spontaneous purchase offers have been received, (the formal authorization of the bankruptcy judge being necessary to conclude the sale agreement with the bidder); or

- in practice, request, under the supervision of the bankruptcy judge, all potential interested purchasers to bid on each asset, as the case may be, by way of a private competitive process whereby the bidders submit their offers only at the hearing without the proposed prices being disclosed before such hearing (*procédure des plis cachetés*). However the possibility to implement such process is questioned by certain legal authors and case-law in this respect has varied.

The court will end the proceedings when either no due liabilities remain, the liquidator has sufficient funds to pay off the creditors (*extinction du passif*), or continuation of the liquidation process becomes impossible due to insufficiency of assets (*insuffisance d'actif*).

The court may also terminate the proceedings:

- when the interest of the continuation of the liquidation process is disproportionate compared to the difficulty of selling the assets;

- in the event where there are insufficient funds to pay off the creditors, by appointing a *mandataire* in charge of continuing ongoing lawsuits and allocating the amounts received from these lawsuits between the remaining creditors.

The "hardening period" (période suspecte) in judicial reorganization and liquidation proceedings

The date of insolvency (*cessation des paiements*) of a debtor is deemed to be the date of the court order commencing the proceedings, unless the court sets an earlier date, which may be no earlier than 18 months before the date of such court order. Also, except in the case of fraud, the insolvency date may not be set at a date earlier than the date of the final court decision that approved an agreement (*homologation*) in the context of conciliation proceedings (see above). The insolvency date is important because it marks the beginning of the hardening period ("*période suspecte*"), being the period from the insolvency date of the debtor to the court decision commencing the judicial reorganization or liquidation proceedings affecting it.

Certain transactions entered into during the hardening period are automatically void or voidable by the court.

- Automatically void transactions include transactions or payments entered into that may constitute voluntary preferences for the benefit of some creditors to the detriment of other creditors. These include transfers of assets for no consideration or for a nominal consideration, contracts under which the obligations of the debtor significantly exceed the reciprocal obligations of the other party, payments of debts not due at the time of payment, payments of debts that are due made in a manner which is not commonly used in the ordinary course of business, security granted for debts previously incurred, provisional attachment or seizure measures (*mesure conservatoire*) (unless the attachment or seizure predates the date of insolvency), operations relating to stock options, the transfer of any assets or rights to a trust arrangement (*fiducie*) (unless such transfer is made as security for a debt simultaneously incurred), any amendment to a trust arrangement (*fiducie*) that affects assets or rights already transferred in the trust as security for debt incurred prior to such amendment, and notarized declarations of exemption of assets from seizure (*déclaration d'insaisissabilité*).

- Transactions which are voidable by the court include payments made on debts that are due, transactions for consideration and notices of attachments made to third parties (*avis à tiers détenteur*), seizures (*saisie attribution*) and oppositions, in each case if the court determines that the party dealing with the debtor knew that the debtor was insolvent at the relevant time. Transactions relating to the transfer of assets for no consideration are also voidable when entered into during the six-month period prior to the beginning of the hardening period.

There is no hardening period prior to the opening of safeguard, accelerated safeguard or accelerated financial safeguard proceedings.

Status of Creditors during Safeguard, Accelerated Safeguard, Accelerated Financial Safeguard, Judicial Reorganization or Judicial Liquidation Proceedings

Contractual provisions pursuant to which the commencement of the safeguard or judicial reorganization proceedings triggers the acceleration of the debt (for safeguard or judicial reorganization proceedings) or the termination or cancellation of an ongoing contract are not enforceable against the debtor. Nor are "*contractual provisions modifying the conditions of continuation of an ongoing contract, diminishing the rights or increasing the obligations of the debtor solely upon the opening of judicial reorganization proceedings*" (in accordance with a decision of the French Supreme

Court dated January 14, 2014, n° 12-22.909, which case law is likely to be extended to safeguard, accelerated safeguard or accelerated financial safeguard proceedings). However, the court-appointed administrator can unilaterally decide to terminate ongoing contracts (*contrats en cours*) which it believes the debtor will not be able to continue to perform. Conversely, the court-appointed administrator can require that other parties to a contract continue to perform their obligations even though the debtor may have been in default, but on the condition that the debtor fully performs its post-commencement contractual obligations (and provided that, in the case of reorganization proceedings, absent consent to other terms of payment, the debtor pays cash on delivery). The commencement of liquidation proceedings, however, automatically accelerates the maturity of all of a debtor's obligations unless the court orders the continued operation of the business with a view to the adoption of a "plan for the sale of the business" (*plan de cession*) (which it may do for a period of three months, renewable once); in such case, the acceleration of the obligations will only occur on the date of the court decision adopting the "plan for the sale of the business" or on the date on which the continued operation of the business ends.

As from the court decision commencing the proceedings:

- accrual of interest is suspended, except in respect of loans for a term of at least one year, or of contracts providing for a payment which is deferred by at least one year (however, accrued interest can no longer be compounded);

- the debtor is prohibited from paying debts incurred prior to the commencement of the proceedings, subject to specified exceptions (which essentially cover the set-off of related (*connexes*) debts and payments authorized by the insolvency judge (*juge commissaire*) to recover assets required for the continued operation of the business);

- the debtor is prohibited from paying debts having arisen after the commencement of the proceedings unless they were incurred for the purposes of the proceedings or of the observation period or in consideration of services rendered/goods provided to the debtor;

- debts duly arising after the commencement of the proceedings and which were incurred for the purposes of the proceedings or of the observation period, or in consideration of services rendered/goods provided to the debtor during this period, must be paid as and when they fall due and, if not, will be given priority over debts incurred prior to the commencement of the proceedings (with certain limited exceptions, such as claims secured by a New Money Lien), provided that they are duly filed within one year of the end of the observation period;

- creditors may not pursue any individual legal action against the debtor (or a guarantor of the debtor where such guarantor is a natural person and the proceedings are safeguard, accelerated safeguard or accelerated financial safeguard proceedings) with respect to any claim arising prior to the court decision commencing the proceedings, if the objective of such legal action is:

- to obtain an order for payment of a sum of money by the debtor to the creditor (however, the creditor may require that a court determine the amount due in order to file a proof of claim, as described below);

- to terminate a contract for non-payment of amounts owed by the creditor; or

- to enforce the creditor's rights against any assets of the debtor except (i) in judicial liquidation proceedings, by way of the applicable specific process for judicial foreclosure (*attribution judiciaire*) of the pledged assets or (ii) where such asset—whether tangible or intangible, movable or immovable—is located in another Member State within the European Union, in which case the rights *in rem* of creditors thereon would not be affected by the insolvency proceedings, in accordance with the terms of Article 8 EU Insolvency Regulation;

- in the context of reorganization or liquidation proceedings only, absent consent to other terms of payment, immediate cash payment for services rendered pursuant to an ongoing contract (*contrat en cours*), will be required.

In accelerated financial safeguard proceedings, the above rules only apply to the creditors that fall within the scope of the proceedings (see above). Debts owed to other creditors, such as suppliers, continue to be payable in the ordinary course of business.

As a general rule, creditors domiciled in France whose debts arose prior to the commencement of proceedings must file a claim with the court-appointed creditors' representative within two months of the publication of the court

decision in an official gazette (*Bulletin Officiel des annonces civiles et commerciales*); this period is extended to four months for creditors domiciled outside France. Creditors must also file a claim for the post-commencement non-privileged debts, with respect to which the two or four month period referred to above starts to run as from their maturity date. Creditors whose claims have not been submitted during the relevant period are, except for limited exceptions, barred from receiving distributions made in connection with the proceedings. Employees are not subject to such limitations and are preferred creditors under French law.

At the beginning of the proceedings, the debtor must provide the judicial administrator and the creditors' representative with the list of all its creditors and all of their claims. Where the debtor has informed the creditors' representative of the existence of a claim, the claim as reported by the debtor is deemed to be a filing of the claim with the creditors' representative on behalf of the creditor. Creditors are allowed to ratify or amend a proof of claim so made on their behalf until the insolvency judge rules on the admissibility of the claim. They may also file their own proofs of claim.

In accelerated safeguard and accelerated financial safeguard proceedings however, the debtor draws a list of the claims of its creditors having taken part in the conciliation proceedings, which is certified by its statutory auditors or accountant. Although such creditors may file proofs of claim as part of the regular process, they may also avail themselves of this simplified alternative and merely adjust if necessary the amounts of their claims as set forth in the list prepared by the debtor (within the above two or four months' time limit). Creditors which did not take part in the conciliation proceedings must file their proofs of claim within the aforementioned deadlines.

If the court adopts a safeguard plan, accelerated safeguard plan, accelerated financial safeguard plan or reorganization plan, claims of creditors included in the plan will be paid according to the terms of the plan.

If the court adopts a plan for the sale of the business (*plan de cession*) of the debtor in judicial reorganization or judicial liquidation proceedings, the proceeds of the sale will be allocated towards the repayment of its creditors according to the ranking of the claims. The court can also set a time period during which the assets included in the sale plan that it deems to be essential to the continuation of the business of the debtor may not be sold without its consent.

French insolvency law assigns priority to the payment of certain preferred creditors, including employees, post-commencement legal costs (essentially, court officials fees), creditors who benefit from a New Money Lien (see above), post-commencement privileged creditors and the French State (taxes and social charges). In the event of judicial liquidation proceedings only, certain pre-commencement secured creditors whose claim is secured by real estate are paid prior to post-commencement privileged creditors. This order of priority does not apply to all creditors, for example it does not apply to creditors benefiting from a retention right over assets with respect to their claim related to such asset.

As soon as insolvency proceedings are commenced, any unpaid amount of share capital of the debtor becomes immediately due and payable.

Creditors' Liability

Pursuant to Article L. 650-1 of the French Commercial Code (as interpreted by case law), where safeguard, judicial reorganization or judicial liquidation proceedings have been commenced, creditors may only be held liable for the losses suffered as a result of facilities granted to the debtor, if the granting of such facilities was wrongful, in the case of (i) fraud, (ii) interference with the management of the debtor or (iii) if the security or guarantees taken to support the facilities are disproportionate to such facilities. In addition, any security or guarantees taken to support facilities in respect of which a creditor is found liable on any of these grounds can be cancelled or reduced by the court.

Trust

The Trustee has certain assigned duties and rights under the Indenture that become particularly important following Defaults or Events of Default, and acts as trustee in a fiduciary capacity in the best interests of the holders of the Notes.

The concept of "*trust*" has been recognized by the French Tax Code and the French Supreme Court (*Cour de cassation*), which has held, in a published decision (Cass. com. September 13, 2011 n°10-25533 *Belvédère*) that a trustee validly appointed under a trust governed by the laws of the State of New York could validly be regarded as a creditor in safeguard proceedings commenced in France. However, while substantial comfort may be derived from the above, France has not ratified the Hague Convention of July 1, 1985 on the law applicable to trusts and on their recognition, so that the concept of "trust" has not been generally recognized under French law.

Fraudulent Conveyance

French law contains specific, "*action paulienne*" provisions dealing with fraudulent conveyance both in and outside insolvency proceedings. The *action paulienne* offers creditors protection against a decrease in their means of recovery. A legal act performed by a debtor (including, without limitation, an agreement pursuant to which such debtor guarantees the performance of the obligations of a third party or agrees to provide or provides security for any of such debtor's or a third party's obligations, enters into additional agreements benefiting from existing security or any other legal act having similar effect) can be challenged in or outside insolvency proceedings of the relevant debtor by the creditors' representative (*mandataire judiciaire*), the commissioner of the safeguard or reorganization plan (*commissaire à l'exécution du plan*) insolvency proceedings of the relevant debtor, or by any of the creditors of the relevant debtor outside the insolvency proceedings or any creditor who was prejudiced in its means of recovery as a consequence of the act in or outside insolvency proceedings. Any such legal act may be declared unenforceable against third parties if: (i) the debtor performed such act without an obligation to do so; (ii) the relevant creditor or (in the case of the debtor's insolvency proceedings) any creditor was prejudiced in its means of recovery as a consequence of the act; and (iii) at the time the legal act was performed, both the debtor and the counterparty to the transaction knew or should have known that one or more of such debtor's creditors (existing or future) would be prejudiced in their means of recovery (where the legal act was entered into for no consideration (*à titre gratuit*), no such knowledge of the counterparty is necessary). If a court found that the issuance of the Notes involved a fraudulent conveyance that did not qualify for any defense under applicable law, then the issuance of the Notes could be declared unenforceable against third parties or declared unenforceable against the creditor who lodged the claim in relation to the relevant act. As a result of such successful challenges, holders of the Notes may not enjoy the benefit of the Notes and the value of any consideration that holders of the Notes received with respect to the Notes could also be subject to recovery from the holders of the Notes and, possibly, from subsequent transferees. In addition, under such circumstances, holders of the Notes might be held liable for any damages incurred by prejudiced creditors of the Issuer as a result of the fraudulent conveyance.

GENERAL INFORMATION

Listing

Vallourec will apply to admit the Notes to listing on the Official List of the Luxembourg Stock Exchange in accordance with the rules of that exchange and for trading on the Euro MTF. Notice of any optional redemption, change of control or any change in the rate of interest payable on the Notes will be published in a Luxembourg daily newspaper of general circulation, which is expected to be the *Luxemburger Wort*, or posted on the official website of the Luxembourg Stock Exchange at www.bourse.lu and may also be published on the official website of Vallourec, www.vallourec.com.

For so long as the Notes are listed on the Luxembourg Stock Exchange and the rules of that exchange require, this offering memorandum will be published on the official website of the Luxembourg Stock Exchange at www.bourse.lu and copies of the following documents, including any future amendments, may be inspected and obtained free of charge at the specified office of the listing agent in Luxembourg during normal business hours on any weekday:

- Vallourec's most recent audited annual consolidated financial statements;
- Vallourec's most recent unaudited half-year consolidated financial statements;
- copies of Vallourec's articles of association (*statuts*);
- this offering memorandum; and
- the Indenture, which includes the form of the Notes.

Vallourec has appointed BNY Mellon Corporate Trustee Services Limited as Trustee, The Bank of New York Mellon, London Branch as Paying Agent and The Bank of New York Mellon SA/NV, Luxembourg Branch as Listing Agent and Registrar for the Notes. Vallourec reserves the right to vary such appointment and will publish notice of such change of appointment in a newspaper having a general circulation in Luxembourg, which is expected to be the *Luxemburger Wort*, or will post on the official website of the Luxembourg Stock Exchange at www.bourse.lu.

Vallourec accepts responsibility for the information contained in this offering memorandum. To Vallourec's best knowledge, except as otherwise noted, the information contained in this offering memorandum is in accordance with the facts and does not omit anything likely to affect the import of this offering memorandum. This offering memorandum may only be used for the purposes for which it has been published.

Organizational Information

Vallourec is a *société anonyme* formed in 1899 and incorporated under the laws of the Republic of France and registered within the Nanterre (Hauts-de-Seine) Trade and Companies Registry under number 552 142 200. Vallourec's principal executive offices are located at 27, avenue du Général Leclerc, 92100 Boulogne-Billancourt (France), and Vallourec's phone number is +33 (0)1 49 09 35 00. Vallourec's website is www.vallourec.com. Information contained on, or accessible through, Vallourec's website is not a part of this offering memorandum other than as specifically provided herein. See "*Incorporation by Reference*".

As of the date of this offering memorandum, Vallourec's authorized share capital is €915,975,520, divided into 457,987,760 shares of a par value of 2.00 euros.

Vallourec has obtained all necessary consents, approvals and authorizations in its jurisdiction of incorporation in connection with the issuance and performance of the Notes. The issue of the Notes was authorized pursuant to a resolution of the Management Board Meeting of Vallourec, adopted on April 6, 2018.

Significant Change

Except as disclosed herein, there has been no material adverse change in Vallourec's financial trading position that is material in the context of the issue and offering of the Notes since December 31, 2017, the date of Vallourec's last reviewed consolidated financial statements.

Except as disclosed herein, Vallourec is not involved in, and does not have knowledge of a threat of, any litigation, administrative proceedings or arbitration that is or may be material in the context of the issue and offering of the Notes.

Clearing of the Notes

The Notes have been accepted for clearance and settlement through the facilities of Euroclear and Clearstream under the following securities codes.

The Notes sold pursuant to Regulation S and Rule 144A will have a Common Code of 180743502 and 180743553, respectively. The ISIN for the Notes sold pursuant to Regulation S will be XS1807435026 and the ISIN for the Notes sold pursuant to Rule 144A will be XS1807435539.

INDEX TO VALLOUREC'S CONSOLIDATED FINANCIAL STATEMENTS

	Page
Consolidated Financial Statements as of and for Year Ended December 31, 2017	
Vallourec Group's statement of financial position	F-2
Consolidated income statement	F-3
Statement of comprehensive income	F-4
Statement of changes in equity, Group share	F-5
Statement of changes in non-controlling interests	F-6
Statement of cash flows	F-7
Summary notes to the consolidated financial statements	F-9
Report of the Statutory Auditors	F-108
Consolidated Financial Statements as of and for the Year Ended December 31, 2016	
Vallourec Group's statement of financial position	F-112
Consolidated income statement	F-113
Statement of comprehensive income	F-114
Statement of changes in equity, Group share	F-115
Statement of changes in non-controlling interests	F-116
Statement of cash flows	F-117
Notes to the consolidated financial statements	F-119
Report of the Statutory Auditors	F-197
Consolidated Financial Statements as of and for the Year Ended December 31, 2015	
Vallourec Group's statement of financial position	F-199
Consolidated income statement	F-201
Statement of comprehensive income	F-202
Statement of changes in equity, Group share	F-203
Statement of changes in non-controlling interests	F-204
Statement of cash flows	F-205
Notes to the consolidated financial statements	F-207
Report of the Statutory Auditors	F-289

Consolidated financial statements

Vallourec Group's statement of financial position

In € thousand	Notes	31/12/2016	31/12/2017
NON-CURRENT ASSETS			
Net intangible assets	1	124,982	88,695
Goodwill	1	382,684	348,200
Gross property, plant and equipment	2.1	6,351,197	5,734,621
Less: accumulated amortization, depreciation and provisions	2.1	(2,733,583)	(2,757,732)
Net property, plant and equipment	2.1	3,617,614	2,976,889
Biological assets	2.2	88,411	71,494
Associates	3	124,800	101,529
Other non-current assets	4	348,571	137,163
Deferred taxes—assets	5	190,269	242,440
TOTAL		**4,877,331**	**3,966,410**
CURRENT ASSETS			
Inventories and work in progress	6	1,034,749	1,003,833
Trade and other receivables	7	546,218	567,923
Derivatives—assets	8	57,985	32,451
Other current assets	9	283,019	230,612
Cash and cash equivalents	10	1,286,722	1,021,035
TOTAL		**3,208,693**	**2,855,854**
Assets held for sale and discontinued operations	11	46,327	64,119
TOTAL ASSETS		**8,132,351**	**6,886,383**
EQUITY	13		
Capital		902,476	915,976
Additional paid-in capital		1,404,786	1,417,897
Consolidated reserves		1,993,343	1,190,448
Reserves, financial instruments		(33,482)	6,694
Foreign currency translation reserve		(176,574)	(564,461)
Net income for the period		(758,016)	(536,691)
Treasury shares		(49,003)	(3,833)
Equity—Group share		**3,283,530**	**2,426,030**
Non-controlling interests	15	**494,432**	**458,545**
TOTAL EQUITY		**3,777,962**	**2,884,575**
Shareholder loan	34	83,172	71,702
NON-CURRENT LIABILITIES			
Bank loans and other borrowings	16	1,120,648	1,817,119
Employee benefit commitments	19	226,763	208,565
Provisions	17	95,688	50,552
Deferred taxes—liabilities	5	80,494	18,284
Other long-term liabilities	18	25,712	10,571
TOTAL		**1,549,305**	**2,105,091**
CURRENT LIABILITIES			
Provisions	17	280,296	148,799
Overdrafts and other short-term borrowings	16	1,453,096	746,220
Trade payables		530,391	581,622
Derivatives—liabilities	8	105,293	12,894
Tax liabilities		10,163	16,945
Other current liabilities	20	299,462	305,881
TOTAL		**2,678,701**	**1,812,361**
Liabilities held for sale and discontinued operations	11	43,211	12,654
TOTAL EQUITIES AND LIABILITIES		**8,132,351**	**6,886,383**

Consolidated income statement

In € thousand	Notes	2016	2017
Revenue	23	2,965,061	3,749,641
Cost of sales[(a)]	24	(2,726,709)	(3,297,148)
Administrative, sales and research costs[(a)]	25	(447,602)	(439,587)
Others	26	(9,466)	(10,676)
EBITDA		**(218,716)**	**2,230**
Depreciation of industrial assets	28	(283,274)	(297,020)
Other depreciation and amortization	28	(48,522)	(44,457)
Impairment of assets and goodwill	29	(71,391)	(65,105)
Asset disposals, restructuring costs and non-recurring items	29	(127,471)	(79,236)
OPERATING INCOME/(LOSS)		**(749,374)**	**(483,588)**
Financial income		29,764	26,007
Interest expenses		(124,922)	(155,129)
Net interest expenses		(95,158)	(129,122)
Other financial income and expenses		(26,313)	(32,010)
Other discounting expenses		(8,864)	(12,451)
FINANCIAL INCOME/(LOSS)	**30**	**(130,335)**	**(173,583)**
PRE-TAX INCOME/(LOSS)		**(879,709)**	**(657,171)**
Income tax	31	80,166	100,615
Share in net income/(loss) of associates	33	(8,003)	(3,173)
NET INCOME/(LOSS) FROM CONTINUING OPERATIONS		**(807,546)**	**(559,729)**
CONSOLIDATED NET INCOME/(LOSS)		**(807,546)**	**(559,729)**
Attributable to non-controlling interests		(49,530)	(23,038)
Group share		**(758,016)**	**(536,691)**
Group share:			
Net earnings per share	14	(2.3)	(1.2)
Net diluted earnings per share	14	(2.3)	(1.2)

(a) Before depreciation and amortization.

Statement of comprehensive income

In € thousand	2016	2017
CONSOLIDATED NET INCOME/(LOSS)	**(807,546)**	**(559,729)**
Other comprehensive income:		
Actuarial gains and losses on post-employment benefits	(9,015)	12,738
Tax attributable to actuarial gains and losses on post-employment benefits	(1,070)	(2,443)
Items that will not be reclassified to profit or loss	**(10,085)**	**10,295**
Exchange differences on translating net assets of foreign entities	340,411	(452,178)
Change in fair value of hedging financial instruments	13,791	29,716
Change in fair value of available-for-sale securities	9,343	8,665
Tax attributable to the change in fair value of hedging financial instruments	(3,827)	1,836
Tax attributable to the change in fair value of available-for-sale securities	—	—
Items that may be reclassified subsequently to profit or loss	**359,718**	**(411,961)**
OTHER COMPREHENSIVE INCOME/(LOSS) (NET OF TAX)	**349,633**	**(401,666)**
TOTAL COMPREHENSIVE INCOME/(LOSS)	**(457,913)**	**(961,395)**
Attributable to non-controlling interests	(31,954)	(88,539)
Group share	**(425,959)**	**(872,856)**

Statement of changes in equity, Group share

In € thousand	Capital	Additional paid-in capital	Consolidated reserves	Foreign currency translation reserve	Reserves— changes in fair value of financial instruments— net of tax	Treas sha
POSITION AS AT 31 DECEMBER 2015	**271,377**	**1,058,872**	**2,794,668**	**(500,575)**	**(54,279)**	**(59,**
Change in foreign currency translation reserve	—	—	—	322,704	—	
Financial instruments	—	—	—	—	10,393	
Actuarial gains and losses on retirement commitments	—	—	(10,383)		—	
Available-for-sale financial assets	—	—	—	—	9,343	
Other comprehensive income (loss)	—	—	*(10,383)*	*322,704*	*19,736*	
2016 NET INCOME/ (LOSS)	**—**	**—**	**—**	**—**	**—**	
Comprehensive Income	—	—	*(10,383)*	*322,704*	*19,736*	
Appropriation of 2015 net income/(loss)	—	—	(864,753)	—	—	
Change in share capital and additional paid-in capital	631,099	345,914		—	—	
Change in treasury shares	—	—	(10,403)	—	—	10,
Dividends paid			(207)	—	—	
Share-based payments	—	—	4,164	—	—	
Changes in consolidation scope and other (see Note 34)	—	—	80,257	1,297	1,061	
POSITION AS AT 31 DECEMBER 2016	**902,476**	**1,404,786**	**1,993,343**	**(176,574)**	**(33,482)**	**(49,**
Change in foreign currency translation reserve	—	—	—	(387,388)	—	
Financial instruments	—	—	—	—	31,947	
Actuarial gains and losses on retirement commitments	—	—	10,611		—	
Available-for-sale financial assets	—	—	—	—	8,665	
Other comprehensive income (loss)	—	—	*10,611*	*(387,388)*	*40,612*	
2017 NET INCOME/ (LOSS)						
Comprehensive Income	—	—	*10,611*	*(387,388)*	*40,612*	
Appropriation of 2016 net income/(loss)	—	—	(758,016)	—	—	
Change in share capital and additional paid-in capital	13,500	13,111	—	—	—	
Change in treasury shares	—	—	(34,222)	—	—	45,
Dividends paid			—	—	—	
Share-based payments	—	—	10,571	—	—	
Changes in consolidation scope and other (see Note 16)	—	—	(31,839)	(499)	(436)	
POSITION AS AT 31 DECEMBER 2017	**915,976**	**1,417,897**	**1,190,448**	**(564,461)**	**6,694**	**(3,**

Statement of changes in non-controlling interests

In € thousand	Consolidated reserves	Foreign currency translation reserve	Reserves—changes in fair value of financial instruments—net of tax	Net income or loss for the period	Non-controlling interests
POSITION AS AT 31 DECEMBER 2015	**349,565**	**74,749**	**828**	**(33,201)**	**391,941**
Change in foreign currency translation reserve	—	17,707	—	—	17,707
Financial instruments	—	—	(429)	—	(429)
Actuarial gains and losses on retirement commitments	298	—	—	—	298
Available-for-sale financial assets	—	—	—	—	—
Other comprehensive income (loss)	*298*	*17,707*	*(429)*	—	*17,576*
2016 NET INCOME/(LOSS)	**—**	**—**	**—**	**(49,530)**	**(49,530)**
Comprehensive Income	*298*	*17,707*	*(429)*	*(49,530)*	*(31,954)*
Appropriation of 2015 net income/(loss)	(33,201)	—	—	33,201	—
Dividends paid	(2,162)	—	—	—	(2,162)
Changes in scope and other	135,422	614	571	—	136,607
POSITION AS AT 31 DECEMBER 2016	**449,922**	**93,070**	**970**	**(49,530)**	**494,432**
Change in foreign currency translation reserve	—	(64,790)	—	—	(64,790)
Financial instruments	—	—	(395)	—	(395)
Actuarial gains and losses on retirement commitments	(316)	—	—	—	(316)
Available-for-sale financial assets	—	—	—	—	—
Other comprehensive income (loss)	*(316)*	*(64,790)*	*(395)*	—	*(65,501)*
2017 NET INCOME/(LOSS)	**—**	**—**	**—**	**(23,038)**	**(23,038)**
Comprehensive Income	*(316)*	*(64,790)*	*(395)*	*(23,038)*	*(88,539)*
Appropriation of 2016 net income/(loss)	(49,530)	—	—	49,530	—
Dividends paid	(262)	—	—	—	(262)
Changes in scope and other	53,888	(997)	23	—	52,914
POSITION AS AT 31 DECEMBER 2017	**453,702**	**27,283**	**598**	**(23,038)**	**458,545**

Statement of cash flows

In € thousand	Notes	2016	2017
Consolidated net income (including non-controlling interests)		**(807,546)**	**(559,729)**
Net amortization, depreciation and provisions		448,807	319,814
Unrealized gains and losses linked to changes in fair value		5,902	18,509
Income and expenses linked to share options and equivalent		4,164	10,571
Capital gains and losses on disposals		43,281	17,668
Share of net income in associates	3	8,003	3,173
Dividends reclassified as other flows linked to investing activities		(1,050)	(1,726)
Cash flow from operating activities after net financial cost and taxes		**(298,439)**	**(191,720)**
Net financial cost	30	95,158	129,122
Tax expense (including deferred taxes)	31	(80,166)	(100,615)
Cash flow from operating activities before net financial cost and taxes		**(283,447)**	**(163,213)**
Interest paid		(124,922)	(155,129)
Tax paid		(20,481)	(40,063)
Interest received		29,762	25,995
Cash flow from operating activities		**(399,088)**	**(332,410)**
Change in operating working capital requirements	12	179,631	60,555
NET CASH FLOW FROM OPERATING ACTIVITIES (1)		**(219,457)**	**(271,855)**
Cash outflows for acquisitions of property, plant and equipment and intangible assets	2.1	(168,802)	(145,343)
Cash outflows for acquisitions of biological assets	2.1	(6,584)	(6,184)
Cash inflows from disposals of property, plant and equipment and intangible assets		2,857	1,404
Impact of acquisitions (changes in consolidation scope)	34	(162,341)	(1,253)
Cash of subsidiaries acquired (changes in consolidation scope)		30,510	—
Impact of disposals (changes in consolidation scope)		29,139	(17,914)
Cash of subsidiaries sold (changes in consolidation scope)		1,018	(1,193)
Other cash flows from investing activities		11,349	75,384
Impact of reclassification to assets held for sale and discontinued operations		(4,646)	—
NET CASH FLOW FROM (USED IN) INVESTING ACTIVITIES (2)		**(267,500)**	**(95,099)**
Increase or decrease in equity		979,647	26,611
Dividends paid during the year			
• Dividends paid in cash to shareholders in the parent company			
• Dividends paid to non-controlling interests		(2,427)	(262)
Movements in treasury shares		236	10,948
Proceeds drawn from new borrowings	12	719,823	926,758
Repayments of borrowings	12	(585,601)	(825,043)
Change in percentage interest in controlled companies		—	—
Other cash flows from financing activities		(16,269)	(8,730)
CASH FLOW FROM FINANCING ACTIVITIES (3)		**1,095,409**	**130,282**
IMPACT OF CHANGES IN EXCHANGE RATES (4)		**44,103**	**(30,119)**
CHANGE IN CASH (1 + 2 + 3 + 4)		**652,555**	**(266,791)**
Opening net cash		**624,559**	**1,277,114**
Closing net cash		**1,277,114**	**1,010,323**
Change		652,555	(266,791)

Net cash represents cash and cash equivalents less bank overdrafts with an initial maturity of less than three months.

Statement of cash flows (Continued)

Statement of changes in net debt in 2017

In € thousand		31/12/2016	Change	31/12/2017
Gross cash (1)	10	1,286,722	(265,687)	1,021,035
Bank current accounts in debit and overdrafts (2)	16	9,608	1,104	10,712
CASH (3) = (1) − (2)		**1,277,114**	**(266,791)**	**1,010,323**
Gross financial debt (4)	16	2,564,136	(11,509)	2,552,627
NET FINANCIAL DEBT = (4) − (3)		**1,287,022**	**255,282**	**1,542,304**

Statement of changes in net debt in 2016

In € thousand		31/12/2015	Change	31/12/2016
Gross cash (1)	10	630,540	656,182	1,286,722
Bank current accounts in debit and overdrafts (2)	16	5,981	3,627	9,608
CASH (3) = (1) − (2)		**624,559**	**652,555**	**1,277,114**
Gross financial debt (4)	16	2,143,816	420,320	2,564,136
NET FINANCIAL DEBT = (4) − (3)		**1,519,257**	**(232,235)**	**1,287,022**

Notes to the consolidated financial statements for the year ended 31 December 2017
In € thousand (€k) unless stated otherwise.

A—Consolidation principles

1. Basis of preparation and presentation of the financial statements

The consolidated financial statements for the year ended 31 December 2017, including the related notes to the consolidated financial statements, were approved by Vallourec's Management Board on 20 February 2018 and will be submitted for approval at the Shareholders' Meeting.

Pursuant to EC Regulation No.1606/2002 adopted on 19 July 2002 for all listed companies in the European Union, Vallourec has prepared its consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union, using the standards and interpretations applicable as at 31 December 2017. These financial statements are available on the Company's website: www.vallourec.fr.

The IFRS framework covers the standards issued by the International Accounting Standards Board (IASB), as well as the International Accounting Standards (IAS) and their interpretations as issued by the Standing Interpretations Committee (SIC) and the International Financial Reporting Interpretations Committee (IFRIC).

The accounting principles and measurement methods have been applied consistently to the periods presented, with the exception of:

New mandatory standards

The texts adopted by the European Union, which must be applied as from 1 January 2017, concern:

- the amendments to IAS 12 relating to the recognition of deferred tax assets under unrealized losses. The application of these texts has had no impact for the Group;
- the amendments to IAS 7 relating to information on the cash flow statements. The application of these texts led the Group to provide in the notes to the consolidated statements a reconciliation between the financing flows and the changes in the balance sheet items in an effort to distinguish between the variations that had an impact on cash flow.

New standards not applied early

The IASB issued IFRS 15—Revenue from Contracts with Customers, which introduced a new model of accounting for these revenues for contracts with customers and will replace IAS 11, IAS 18 and the IFRIC and SIC interpretations related to revenue recognition.

The Group will apply this standard as from 1 January 2018, according to the retrospective method. An analysis of the contract underway on the date of first application was conducted with regard to the provisions of the new standard. The Group does not anticipate there being an impact on equity at the date of application or on the recognition of revenue.

The IASB completed its project to replace IAS 39—Financial Instruments: Recognition and Measurement by publishing the final version of IFRS 9—Financial Instruments. IFRS 9 specifically introduces changes to the classification and evaluation of financial assets, the impairment model, and hedge accounting. The Group will apply this standard as from 1 January 2018, and is not anticipating any significant impact.

The IASB issued IFRS 16—Leases, which introduces a new accounting model for lease agreements and which will be mandatory as of 1 January 2019. The Group is currently finalizing (i) the review and analysis of its leases, in particular considering items recorded as off-balance sheet commitments, (ii) as well as an estimate of the discount rates to be used.

In this context, the Group is continuing to assess any effects prompted by the first application of this text, and is not planning to apply it early.

The Group has not opted for early application of any other standards or interpretations that will be mandatory for fiscal years beginning on or after 1 January 2018.

2. Accounting principles and methods

2.1 General measurement principles

The consolidated financial statements are prepared using the historical cost convention, except for biological assets, derivative financial instruments that are measured at fair value, as well as financial assets measured at fair value through profit and loss or equity (see paragraph 2.16).

2.2 Use of estimates and judgment

The preparation of the financial statements under IFRS leads Vallourec's management to use estimates and formulate assumptions that affect the carrying amount of certain assets and liabilities, income and expenses, and some of the information in the notes to the financial statements.

Such assumptions are inherently uncertain, and actual results could differ from these estimates. The Group regularly reviews its estimates and assumptions in order to take into account past experience and any factors deemed relevant in prevailing economic conditions. In the current economic climate (uncertainty about business trends, a highly competitive international environment and volatility in costs of raw materials and energy), the uncertain nature of some estimates may be more pronounced.

Accounts and information subject to significant estimates include the measurement of the following items:

- property, plant and equipment, intangible assets and goodwill (see paragraphs 2.5, 2.7 and 2.8);
- financial assets (see paragraph 2.16.1);
- derivative financial instruments (see paragraph 2.16.4);
- inventories and work in progress (see paragraph 2.10);
- provisions (see paragraph 2.12);
- biological assets (see paragraph 2.5.6);
- assets held for sale and discontinued operations (see paragraph 2.11); and
- deferred taxes (see paragraph 2.17).

The Group must use assumptions and judgments to evaluate the level of control in certain associates, notably to define relevant activities and identify substantive rights, as well as the type of joint arrangement in question for a jointly controlled business. These judgments are revised if facts and circumstances change.

2.3 Consolidation of subsidiaries

The consolidated financial statements include the financial statements of Vallourec and its subsidiaries for the period from 1 January to 31 December 2017.

2.3.1 CONTROLLED ENTITIES

Subsidiaries are fully consolidated from the date of acquisition. They cease to be consolidated when control is transferred outside the Group.

Definition

There is control when the Group (i) holds power over an entity, (ii) is exposed to or is entitled to variable returns due to its connections with the entity and (iii) has the capacity to exercise its power over the entity so as to influence the amount of the returns it obtains.

Accounting method

The consolidated financial statements include all of the assets, liabilities and comprehensive income of the subsidiary.

Non-controlling interests represent the share of interest which is not directly or indirectly attributable to the Group. The results and other items of comprehensive income are divided between the Group and

2. Accounting principles and methods (Continued)

non-controlling interests. The comprehensive income of the subsidiaries is divided between the Group and the non-controlling interests, including when this distribution results in allocating a loss to the non-controlling interests.

Changes in the percent interest in subsidiaries that do not result in a change of control are considered transactions impacting equity, as they are transactions that are performed with shareholders acting in this capacity.

The effects of these transactions are recorded in equity for the net tax amount and thus do not have an impact on the Group's consolidated income statement.

These transactions are moreover presented in the cash flow statement under financing or investment operations, as applicable.

The financial results of acquired companies are included in the consolidated income statement from their effective acquisition dates. The results of companies sold are included until the date control ceases.

Cash flows on the income statement and statement of financial position related to intra-Group commercial and financial transactions are eliminated.

2.3.2 CONSOLIDATION OF JOINT OPERATIONS

Definition

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.

Joint operations

The Group, as a co-participant in a joint operation, records the following items as concerns its interests in the joint operation:

- its assets, including its share of the assets that are jointly held, where applicable;
- its liabilities, including its share of the liabilities that are jointly held, where applicable;
- the income it has drawn from the sale of its share of the production that is generated by the joint operation;
- the expenses it has incurred, including its share of the expenses jointly incurred, where applicable.

The consolidated financial statements include, line-by-line, the representative portion of the Group's interests in each item of the assets, liabilities and comprehensive income, established in compliance with IFRS.

Over the course of 2016, the Group took control of its main joint operation, conducted in partnership with Nippon Steel Sumitomo Metal Corp. (NSSMC) in the Vallourec & Sumitomo Tubos do Brasil (VSB) entity. Up until 1 October 2016, the qualification of this entity as a joint operation was underpinned by the legal form and the terms of the partnership agreement.

2.3.3 INTERESTS IN JOINT VENTURES AND ASSOCIATES

Definition

Associates are companies in which the Group exercises significant influence over operating and financial policies without having control.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement.

The Group's investments in joint ventures and associates are accounted for using the equity method.

2. Accounting principles and methods (Continued)

Equity Associates

The equity method provides for an investment in an associate being initially recorded at cost, and then subsequently adjusted for the change in the Group's share in the income and other comprehensive income of the associate.

An investment is recorded under the equity method as of the date when the entity becomes an associate or joint venture. When an associate or joint venture is acquired, the difference between the cost of the investment and the Group share in the net fair value of the identifiable assets and liabilities of the entity is recorded under goodwill. In the event that the net fair value of the identifiable assets and liabilities of the entity is higher than the cost of the investment, the difference is recorded under income.

Shares in the net income of associates are incorporated in the net income of the activities pursued, whether or not their activities are an extension of the Group's activities.

Impairment testing

The provisions of IAS 39—Financial Instruments: Recognition and Measurement apply to determine whether or not it is necessary to perform an impairment test for its investment in an associate. If necessary, the total book value of the investment (including goodwill) undergoes impairment testing according to the provisions prescribed by IAS 36—Impairment of Assets.

2.3.4 CHANGE OF CONTROL

Loss of significant influence or joint control

When the investment no longer constitutes an associate, the equity method is no longer applied. Any retained interest in the former associate that constitutes a financial asset is measured at fair value on the date the interest ceases to be an associate or joint venture.

Acquisition of a joint operation or equity-accounted company

Pursuant to IFRS 3, the previously held equity interests are remeasured at fair value, giving rise to gains and losses on disposals ("Assets disposals, restructuring costs and non-recurring items"), and the assets acquired and liabilities assumed are accounted for at fair value as at the acquisition date.

2.4 Foreign currency translation

2.4.1 TRANSLATION OF SUBSIDIARIES' FOREIGN CURRENCY FINANCIAL STATEMENTS

The presentation currency of the consolidated financial statements is the euro.

Assets and liabilities of foreign subsidiaries, including goodwill, are translated at the official exchange rates on the reporting date. The income statements of foreign subsidiaries are translated at the average exchange rate for the period.

The ensuing translation differences are recorded in equity. The Group's share of such differences is recorded on the separate line, "Foreign currency translation reserve".

2.4.2 TRANSLATION OF FOREIGN CURRENCY TRANSACTIONS

Foreign currency transactions are translated into the company's functional currency. When the transaction is subject to a hedge (see paragraph 2.16.4), it is translated at the spot rate on the day the hedging instrument is set up. In the absence of a hedge, foreign currency transactions are translated at the prevailing exchange rates on the transaction date.

Monetary assets and liabilities denominated in foreign currencies are translated at the closing exchange rates prevailing on that date. Translation differences resulting from differences between these rates and the rates at which the transactions were initially recorded are included in financial income or loss.

2. Accounting principles and methods (Continued)

2.5 Property, plant and equipment and biological assets

2.5.1 MEASUREMENT AT COST NET OF DEPRECIATION AND IMPAIRMENT

Except when acquired as part of a business combination, property, plant and equipment are recorded at their acquisition or production cost. They are not subject to remeasurement. At each reporting date, the acquisition cost is reduced by accumulated depreciation and any provisions for impairment determined in accordance with IAS 36—Impairment of Assets (see paragraph 2.9).

2.5.2 COMPONENT APPROACH

The main components of an asset having a useful life different from that of the main asset (furnaces, heavy industrial equipment, etc.) are identified by the technical departments and depreciated over their own useful lives.

Subsequent expenditure on replacement of the component (i.e. the cost of the new component) is capitalized, provided that future economic benefits are still expected to be derived from the main asset.

The component approach is also applied to expenditure on major overhauls that are planned and carried out at intervals of over one year. Such expenditure is identified as a component of the asset's acquisition price, and is depreciated over the period between two overhauls.

2.5.3 MAINTENANCE AND REPAIR COSTS

Recurring maintenance and repair costs that do not meet the criteria for the component approach are expensed when they are incurred.

2.5.4 AMORTIZATION AND DEPRECIATION

Depreciation of property, plant and equipment is calculated on a straight-line basis over the useful lives summarized below. Land is not depreciated.

Main categories of property, plant and equipment	Straight-line depreciation Useful life
Buildings	
Administrative and commercial buildings	40
Industrial buildings/Infrastructure	30
Fixtures and fittings	10
Technical plant, equipment and tools	
Industrial plant	25
Specific production equipment	20
Standard production equipment	10
Other (automated equipment, etc.)	5
Other tangible assets	
Motor vehicles	5
Office equipment and furniture	10
Computer equipment	3

Depreciation of new industrial sites in the development stage is calculated according to the production-units method for assets used directly in the production process, and the straight-line depreciation method for other assets.

2.5.5 PROPERTY, PLANT AND EQUIPMENT ACQUIRED AS PART OF A BUSINESS COMBINATION

Property, plant and equipment acquired as part of a business combination are measured at fair value on the acquisition date. They are depreciated using the straight-line method over the remaining useful life at the acquisition date.

2. Accounting principles and methods (Continued)

2.5.6 BIOLOGICAL ASSETS

The Group owns biological assets in Brazil, which mainly consist of eucalyptus plantations cultivated for the Group's coke requirements. They are valued according to the principles defined by IAS 41—Agriculture. The existence of an active market in Brazil requires the Group to measure these assets at fair value less selling costs upon initial recognition and at each reporting date.

2.6 Leases

Assets financed by finance leases, which transfer almost all of the risks and rewards of ownership to the Group, are capitalized on the statement of financial position at the lesser of the fair value of the leased property or the present value of the minimum lease payments. The corresponding liability is recorded under financial liabilities.

Lease payments are split between interest expense and amortization of the obligation so as to obtain a constant interest rate on the balance of the loan liability.

Assets leased under finance leases are depreciated over their useful life in accordance with Group rules (see paragraph 2.5) or the lease term, whichever is shorter.

Leases under which the lessor retains almost all of the risks and rewards of ownership are operating leases. Payments on operating leases are expensed on a straight-line basis over the term of the contract.

2.7 Goodwill

The Group measures goodwill as the surplus of:

- the total of:
  - the fair value of the consideration transferred,
  - the amount of any non-controlling interests in the acquired entity,
  - in the case of a step acquisition, the fair value at the acquisition date of the acquirer's previously held interest in the acquiree;
- as well as the net fair value at the acquisition date of the identifiable assets acquired and liabilities assumed.

For major acquisitions, fair value measurements are done with the help of independent experts.

The decision to apply the partial or total goodwill method is made separately for each business combination.

Pursuant to IAS 36—Impairment of Assets, they are tested for impairment at least once a year, or more frequently if there is an indication of impairment. The testing procedures are designed to ensure that the recoverable amount of the cash-generating unit to which the goodwill is assigned or allocated is at least equal to its net carrying amount (see paragraph 2.9—Impairment of property, plant and equipment and intangible assets). If an impairment loss is recognized, an irreversible provision is recorded in operating profit under "Impairment of assets and goodwill".

Pursuant to IFRS 3 and IAS 10.22, the Group recognizes in equity the difference between the price paid and the share of non-controlling shareholders acquired or sold in controlled companies.

Acquisition costs incurred by the Group in carrying out the business combination, such as referral agents' commissions, legal and due diligence fees and other professional or consultancy fees, are expensed when they are incurred.

2. Accounting principles and methods (Continued)

2.8 Intangible assets

2.8.1 RESEARCH AND DEVELOPMENT COSTS

In accordance with IAS 38—Intangible Assets, research costs are expensed and development costs are capitalized as intangible assets if the company can show:

- its intention, and its financial and technical capability, to bring the development project to completion;
- that it is probable that the future economic benefits attributable to the development expenditure will flow to the company;
- its ability to reliably measure the cost of the intangible asset during its development phase;
- its ability to use or sell the intangible asset.

Significant R&D projects are reviewed based on information available from the corporate departments coordinating the research in order to identify and analyze any current projects that have entered the development phase, as defined under IAS 38.

The Group's development projects to design new or improved products and manufacturing processes, particularly in its oil and energy-related activities, are already at a very advanced stage before they qualify for capitalization as assets under IAS 38 criteria. It is very difficult to show the existence of long-term additional future economic benefits that can be clearly distinguished from the normal costs of maintaining and upgrading production plants and products to preserve the Group's technological and competitive edge. As a result, in 2017 as in 2016, no costs incurred on major projects were identified that met the standard's criteria.

2.8.2 OTHER INTANGIBLE ASSETS

Intangible assets acquired separately are recognized at cost. They are mainly patents and trademarks, which are amortized on a straight-line basis over their useful lives.

Intangible assets acquired as part of a business combination are recorded separately from goodwill if their fair value can be measured during the acquisition phase. Those with a finite life are amortized over their estimated useful lives for the Company.

Greenhouse gas emission allowances received free of charge are recognized at nil value (in accordance with IAS 20). A provision is recognized when allowances granted by the government are inadequate to cover actual emissions. Notes 17 and 22 to the financial statements contain information about the methods used to value unused allowances at the end of the reporting period.

2.8.3 IMPAIRMENT

Intangible assets are tested for impairment in accordance with the provisions of IAS 36—Impairment of Assets (see paragraph 2.9).

2.9 Impairment of property, plant and equipment and intangible assets

To perform impairment tests, property, plant and equipment and intangible assets are grouped into Cash-Generating Units (CGUs). CGUs are standard groups of assets whose on-going use generates cash inflows which are largely independent of the cash inflows generated by other groups of assets.

The recoverable value of a CGU is the higher of the following:

- its value in use, which corresponds to the present value of the forecast future cash flows it generates, without taking into account planned investment into capacity and expected gains in terms of productivity;
- its fair value less costs of disposal.

The test base of a CGU is comprised of net current and non-current operating assets.

2. Accounting principles and methods (Continued)

An impairment test is carried out:

- at least once a year for CGUs with indefinite useful lives, a category that, for the Group, is limited to goodwill;
- for the other CGUs, if indications of impairment appear.

A Group stock market value that is less than its consolidated net assets during a business cycle, or a negative outlook associated with the economic, legislative or technological environment or with the business sector constitutes general indications of impairment liable to result in impairment tests on all the Group's CGUs.

Impairment tests involve comparing the recoverable amount of the CGU with its test base. An impairment is recognized if the value in use is lower than the carrying amount.

When the recoverable amount of the CGU is less than its carrying amount, an impairment loss is recognized on a separate line in the income statement. When a CGU includes goodwill, the impairment loss is first deducted from goodwill and then, where applicable, the CGU's other assets.

2.10 Inventories and work in progress

Inventories are valued at the lesser of cost or net realizable value, and provisions for impairment are recognized if necessary.

Net realizable value is the estimated selling price in the ordinary course of business less estimated costs of completion and the estimated costs necessary to make the sale.

Inventory costs of raw materials, goods for resale and other supplies comprises the purchase price excluding taxes, less discounts, rebates and other payment deductions obtained, plus incidental costs of purchase (transportation, unloading expenses, customs duties, buying commissions, etc.). These inventories are measured at weighted average cost.

The cost of work in progress and intermediate and finished goods consists of the production cost excluding financial expenses. Production costs comprise raw materials, factory supplies and labor, and direct and indirect industrial overheads attributable to processing and production, based on normal capacity. General and administrative expenses are excluded from this measurement.

With the exception of safety reserves recorded in property, plant and equipment, spare parts and consumables are recorded in inventory, including in the event of a consumption forecast beyond one year.

2.11 Assets held for sale and discontinued operations

A non-current asset or group of related assets and liabilities is considered to be held for sale, in accordance with IFRS 5—Non-current Assets Held for Sale and Discontinued Operations, when:

- it is available for immediate sale in its current condition; and
- its sale is highly probable. This is the case when management is committed to a plan to sell the asset and an active program to locate a buyer at a reasonable price, and the sale is expected to take place in less than one year.

Non-current assets, groups of assets or activities held for sale are measured at the lower of their carrying amount and their fair value (estimated selling price), net of selling costs. They are presented on a separate line in assets and liabilities and are no longer amortized or depreciated.

Only entire business lines of discontinued operations are disclosed separately in the income statement.

2.12 Provisions

A provision is recognized when, at the reporting date, the Group has a present obligation (legal or constructive) as a result of a past event and it is probable that an outflow of resources embodying future economic benefits will be required to settle the obligation.

2. Accounting principles and methods (Continued)

Provisions are discounted to present values if the time value of money is material (for example, in the event of provisions for environmental risks or site clean-up costs). The increase in the provisions associated with the passage of time is recognized as a financial expense.

In the case of restructuring, a provision may be recognized only if, at the reporting date, the Company has announced the restructuring and drawn up a detailed plan or started to implement the plan.

Provisions are booked with regard to disputes (technical, guarantees, tax audits, etc.) if the Group has an obligation to a third party at the reporting date. They are determined based on the best estimate of the expense likely to be required to settle the obligation.

2.13 Retirement commitments and similar obligations

The Group participates in the funding of supplementary retirement plans and other long-term employee benefits, in accordance with constructive or legal requirements. The Group offers these benefits by means of either defined contribution or defined benefit plans.

In the case of defined contribution plans, the Group's only obligation is the payment of premiums. Contributions paid to the plans are recognized as expenses for the period. If applicable, provisions are recognized for outstanding contributions at the reporting date.

Provisions are recognized for retirement commitments and similar obligations arising from defined benefit plans and are measured based on an actuarial calculation performed at least once a year by independent actuaries. The projected unit credit method is applied as follows: each period of service creates an additional unit of benefit entitlement, and each of these units is measured separately to determine the Group's employee benefit obligations.

The calculations take into account the specific features of the various plans and assumptions for the retirement date, career advancement, salary increases, as well as the probability of the employee still being employed by the Group at retirement age (turnover rates, mortality tables, etc.). The obligation is discounted based on the interest rates of long-term bonds of prime issuers.

Retirement commitments and similar obligations mainly relate to the Group's French subsidiaries and its subsidiaries in Germany, the United Kingdom, the United States and Brazil.

Other employee benefits for which the Group recognizes provisions are:

- in the case of French and foreign subsidiaries, benefits in connection with long-service awards;
- in the case of certain subsidiaries in the United States and Brazil, coverage of medical expenses.

The obligation is presented on the statement of financial position, net of plan assets measured at fair value (if applicable).

2.14 Share-based payments

IFRS 2 "Share-based Payment" requires the measurement and recognition of the benefits arising from share option and performance share allocation plans that are equivalent to compensation of the beneficiaries: these are recognized as payroll costs spread over the vesting period, with a corresponding increase in equity.

Changes in value after the award date have no impact on the option's initial measurement. The number of options taken into account in measuring the plan is adjusted at each reporting date to reflect the probability of the beneficiaries' continued service at the end of the vesting period.

- Some members of executive management and employees benefit from the share subscription or share purchase options that entitle them to purchase an existing share or to subscribe to a capital increase at an agreed price. Options must be measured using the Black & Scholes model on the date they are awarded.

2. Accounting principles and methods (Continued)

- Some members of executive management and employees benefit from share allocation plans where vesting conditions are related to performance criteria (percentage of consolidated EBITDA). These plans are measured using a binomial model to project share prices.
- Vallourec offers employee shareholding plans reserved for its employees. These plans are measured using a binomial model to project share prices.

2.15 Treasury shares

Treasury shares held by the Group are recognized at their acquisition cost as a deduction from equity. Proceeds from the sale of these shares are booked directly as an increase in equity so that gains or losses on disposal do not affect consolidated profit.

2.16 Financial instruments

Financial instruments include financial assets and liabilities as well as derivatives.

The presentation of financial instruments is defined by IFRS 7 and IAS 32. The measurement and recognition of financial instruments are governed by IAS 39 and IFRS 13.

Changes in the fair value of derivatives are recognized in the financial statements. Changes in the fair value of hedged items are also recognized at each reporting date (see paragraph 2.16.4—Derivative instruments and hedge accounting).

In addition, in accordance with IAS 32, the sale of puts to non-controlling interest shareholders of a company under exclusive control results in the recognition of a financial liability equal to the discounted fair value of the estimated repurchase amount. The Group recognizes this financial liability by deducting it from the amount attributable to non-controlling interests and, for the remaining portion of the liability, by deducting it from equity, Group share.

2.16.1 FINANCIAL ASSETS (EXCLUDING HEDGE DERIVATIVES)

Financial assets include:

- non-current financial assets: other equity interests and associated receivables, construction participation loans and guarantees;
- current financial assets, including accounts receivable and other trade receivables, short-term derivative instruments and cash and cash equivalents (investment securities).

Initial measurement

Non-derivative financial assets are initially measured at fair value on the transaction date, including transaction costs, except for assets measured at fair value through profit or loss.

In most cases, the fair value on the transaction date is the historical cost, (i.e. the acquisition cost of the asset).

2. Accounting principles and methods (Continued)

Classification and measurement at the end of the reporting period

Financial assets (excluding hedging derivatives) are classified according to IAS 39 in one of the following four categories for their measurement on the balance sheet:

Category	Measurement	Recognition of changes in value
Financial assets measured at fair value through profit or loss	Fair value	Changes in fair value recognized in profit or loss
Held-to-maturity assets	Amortized cost	Not applicable
Loans and receivables	Amortized cost	Not applicable
Available-for-sale financial assets	General convention: fair value But amortized cost for equity instruments whose fair value cannot be reliably estimated (e.g. shares not listed on an active market)	Changes in fair value recognized in other comprehensive income Not applicable

Financial assets for which changes in fair value are recognized in profit or loss

This category of assets includes:

- assets held for transactional purposes, i.e. that have been acquired by the business with the aim of generating short-term income; in the Group, the assets concerned are all cash assets (investment securities, cash and cash equivalents, etc.).

  Investment securities (French SICAV and FCP mutual funds, etc.) are measured at fair value at the reporting date, and changes in fair value are recognized in financial income/(loss). They are therefore not tested for impairment. Fair value is determined mainly by reference to market quotations;
- asset derivative instruments that are not expressly designated as hedging instruments.

Held-to-maturity assets

These are non-derivative financial assets with fixed or determinable payments and fixed maturities that the Company has the intention and ability to hold to maturity, other than loans and receivables and financial assets classified by the Company in the other two categories (measured at fair value through profit or loss; available-for-sale).

In the Group, the only assets in this category are security deposits and guarantees.

Loans and receivables

These are mainly non-derivative financial assets with fixed or determinable payments that are not listed on an active market.

In the Group, this category includes:

- receivables associated with participating interests, long-term loans and construction participation loans;
- accounts receivable and other trade receivables.

The amortized cost of short-term receivables such as trade receivables is usually equal to their historical cost.

Loans to employees are measured using the effective interest rate method applied to estimated future cash flows until the maturity dates of the loans.

2. Accounting principles and methods (Continued)

Available-for-sale financial assets

Available-for-sale financial assets are mainly those that have not been classified in any of the other three categories.

In the Group, the main assets in this category are investments in equity instruments. In general, these are:

- unlisted shares whose fair value cannot be reliably estimated. They are recorded at their cost and undergo impairment testing when the consolidated financial statements are prepared;
- listed shares measured at their fair value at the reporting date. This fair value is determined based on the stock market price at the reporting date.

Changes in fair value are recognized directly in equity, unless a significant or long-term fall in fair value below the acquisition cost is recorded. In this case, the corresponding loss is definitively recorded in the income statement.

The "significant or long-term" nature is defined in Note 4—Other non-current assets, on a case-by-case basis.

Impairment testing of financial assets

Financial assets measured at amortized cost and available-for-sale financial assets measured at cost must be tested for impairment at each reporting date if there is any indication of impairment, such as:

- significant financial difficulties or a high probability that the counterparty will suffer bankruptcy or restructuring;
- a high risk of non-recovery of receivables;
- the lender, for economic or legal reasons relating to the borrower's financial difficulties, granting the borrower payment facilities not initially provided for;
- an effective breach of contract, such as the failure to make a payment (of interest, principal or both);
- the disappearance of an active market for the financial asset concerned.

In the case of assets measured at amortized cost, the amount of impairment is equal to the difference between the carrying amount of the asset and the present value of the estimated future cash flows, taking into account the counterparty's situation, and determined on the basis of the financial instrument's original effective interest rate.

The impairment thus determined is recognized in financial income or loss for the period.

As regards held-to-maturity assets and loans and receivables, if, during subsequent financial years, the conditions that led to the impairment cease to exist, the impairment must be reversed, although the reversal must not result in a carrying amount that, on the date the impairment is reversed, exceeds what the amortized cost would have been had the impairment not been recognized.

As regards unlisted equity interests classified as available-for-sale whose fair value cannot be reliably determined, no impairment previously recognized in the income statement may be reversed in subsequent periods, even in the event of an increase in the value of the securities concerned.

2.16.2 CASH AND CASH EQUIVALENTS

This item consists of current bank account balances and investment securities (units in short-term cash UCITS and mutual and investment funds) that are immediately available (not pledged), risk-free and have a low volatility level.

The cash flow statement is drawn up on the basis of the cash as defined above, net of overdrafts and other short-term bank borrowings that mature in less than three months.

The net debt referred to in the cash flow statement corresponds to total financial debt less cash and cash equivalents.

2. Accounting principles and methods (Continued)

2.16.3 FINANCIAL LIABILITIES

The Group's financial liabilities include bank loans which bear interest, bond issues, Bonds Convertible into New Shares and/or Exchangeable for Existing Shares (OCEANE) and finance leases, as well as liability derivatives.

Borrowings are classified as current liabilities for the portion to be repaid within 12 months after the reporting date and as non-current liabilities for payments due in more than 12 months.

Interest-bearing borrowings are initially recorded at fair value less associated transaction costs. These costs (loan issue expenses and premiums) are taken into account in the calculation of the amortized cost using the effective interest rate method. They are recognized in financial profit or loss on an actuarial basis over the life of the liability.

OCEANE are initially recorded by distinguishing between two components: a debt component recorded under amortized cost, calculated using an estimated market interest rate for an equivalent non-convertible bond issue, and a conversion option component, recorded under equity for an amount that is equal to the difference between the OCEANE issue value and the debt component. Issue expenses are allocated between the two components, pro rata of their respective values.

At each reporting date, financial liabilities are then measured at amortized cost using the effective interest rate method, in addition to the specific procedures associated with hedge accounting (see below).

Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of swaps, linked to movements in interest rates, are recognized in equity for the effective portion, with the balance being recognized in financial profit or loss.

2.16.4 DERIVATIVE INSTRUMENTS AND HEDGE ACCOUNTING

Group exposure to foreign exchange risk on commercial transactions

In addition to the hedging of certain financial liabilities (see paragraph 2.16.3), the Group enters into hedging contracts mainly to manage its exposure to foreign exchange risks arising from the orders and sales of certain subsidiaries in currencies other than their functional currency. In particular, a significant share of Vallourec's revenue is invoiced by European companies in US dollars. Exchange rate fluctuations between the euro and the dollar may therefore affect the Group's operating margin.

The Group manages its exposure to foreign exchange risk by setting up hedges based on regularly updated forecasts of customer orders. Operating receivables and incomes that will be generated by the orders are thus hedged by financial instruments, mainly forward currency sales.

To a lesser extent, the Group also enters into forward currency purchases to hedge its foreign currency purchase commitments.

Measurement and presentation of derivatives

Changes in the value of derivatives with respect to their date of implementation are measured at each reporting date.

The fair value of forward currency contracts is calculated on the basis of market data and conditions. Since they hedge commercial transactions, these derivatives are presented on the statement of financial position under current assets and current liabilities.

Hedge accounting

Hedging of commercial transactions falls within the category of cash flow hedges.

The Group applies hedge accounting in strict compliance with the criteria of IAS 39:

- documentation of the hedging relationship: nature of the underlying hedged item, term of the hedge, hedging instrument used, spot rate of the hedge, forward points, etc.;

2. Accounting principles and methods (Continued)

- in the case of cash flow hedges, carrying out an effectiveness test on implementation of the derivative and updating the test at least once per quarter.

Hedge accounting within the Group is as follows:

At the reporting date, changes in the hedging instrument with respect to its date of implementation are measured at fair value and recognized on the statement of financial position as derivative assets or liabilities. The following are shown separately:

- the change in the intrinsic value of the hedging instrument (difference between the spot rate on the date of implementation of the hedge and the spot rate on the measurement date, i.e. the reporting date).

  If the hedge is effective, and as long as the revenue (or purchase) hedged is not recognized, changes in the intrinsic value are recognized in equity, in accordance with the principles of cash-flow hedge accounting.

  If the hedging instrument is not effective (a rare occurrence, given the procedures introduced by the Group), the change in the intrinsic value of the derivative is recognized in financial income or loss;
- the change in the time value (premium/discount). This change is systematically recognized in financial profit or loss, since this component is not included in the hedging relationship.

The revenue (purchase) corresponding to the sales forecasts (purchase orders) hedged is recognized at the spot rate on the date of implementation of the hedging contract. The account receivable (account payable) is initially recognized at the same spot rate.

At the end of each reporting period, hedged foreign currency accounts receivable and accounts payable are measured and recognized at the exchange rate applicable on the reporting date. The difference between that rate and the rate used on initial recognition (spot rate on the date of implementation of the hedge) or the rate applicable on the last reporting date constitutes an exchange gain or loss recognized in financial profit or loss for the period.

Once the hedged item (foreign currency receivable or payable) is recorded on the statement of financial position, the change in the intrinsic value of the hedging instrument previously recognized in equity is recorded in financial income or loss. Changes in the value of the hedging instrument and the receivable or debt covered then have a symmetrical impact on financial income or loss.

2.17 Income tax

Income tax expense comprises current tax and deferred tax.

In accordance with IAS 12, deferred taxes are recognized, using the liability method, for temporary differences existing at the reporting date between the tax bases of assets and liabilities and their carrying amounts and unused tax losses, under the conditions set out below.

The main types of deferred tax recognized are:

- long-term deferred tax assets (provisions for retirement commitment of French companies), which are likely to be recovered in the foreseeable future;
- deferred tax assets for short-term recurring items (provision for paid time off, etc.) or non-recurring items (employee profit-sharing, provisions for liabilities that are not deductible for tax purposes, etc.) when they are likely to be recovered in the foreseeable future;
- deferred tax associated with the cancellation of entries made solely for tax purposes in local financial statements (regulated provisions, etc.) and any restatements to ensure the consistency and comparability of the parent company or consolidated financial statements;
- tax loss carryforwards.

2. Accounting principles and methods (Continued)

The rates used to calculate deferred taxes are the tax rates expected to apply during the period in which the asset will be realized or the liability settled, based on tax regulations that have been adopted or substantially adopted at the reporting date.

Deferred taxes are not discounted to present value.

Current and deferred tax expenses are recognized as income or expenditure in the income statement unless they relate to a transaction or event that is recognized under other comprehensive income or directly in equity (see hedge accounting in paragraph 2.16.4 and actuarial gains and losses on post-employment obligations in 2.13—Retirement commitments and similar obligations).

Deferred taxes are presented on separate lines in the statement of financial position under non-current assets and non-current liabilities.

Net deferred tax assets are recognized only for those companies and tax groups that, based on a review at each reporting date, appear reasonably likely to recover these assets in the foreseeable future.

2.18 Revenue

Revenues from the sale of finished goods are recognized in the income statement when the following conditions are satisfied:

- the main risks and rewards of ownership have been transferred to the buyer;
- the seller retains neither managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- it is likely that the financial benefits associated with the sale will flow to the entity;
- the amount of the revenues and costs incurred (or to be incurred) as a result of the sale can be reliably determined.

Revenues from services are recognized in the income statement in proportion to the stage of completion at the reporting date.

No revenue is recognized if there are significant uncertainties as to the recovery of the amount due or the associated costs.

In the event of a sale with reservation of title, the sale is recognized on delivery of the goods if the risks and rewards have been transferred to the buyer.

Revenues are measured at the fair value of the consideration received or receivable, as determined by the agreement entered into between the Company and the customer, net of any trade discounts or volume rebates agreed.

See paragraphs 2.4.2 and 2.16.4 for the procedures for recognizing revenue denominated in foreign currencies.

2.19 Determination of operating income

The income statement format used by the Group employs a classification by function.

Operating income or loss is calculated as the difference between pre-tax revenues and expenses other than those of a financial nature or relating to the income or losses of associates, and excluding any income or losses from discontinued operations or assets held for sale.

EBITDA is an important indicator for the Group, enabling it to measure its performance from continuing operations. It is calculated by taking operating profit before amortization and depreciation and excluding certain operating revenues and expenses that are unusual in nature or occur rarely, such as:

- impairment of goodwill and fixed assets determined in the context of impairment tests in accordance with IAS 36 (see paragraph 2.9);

2. Accounting principles and methods (Continued)

- significant restructuring expenses, or those related to adjustments to headcount in respect of major events or decisions;
- capital gains or losses on disposals;
- revenue and expenses resulting from major litigation, significant roll-out operations or capital transactions (e.g. costs of integrating a new activity).

2.20 Earnings per share

Net earnings per share are calculated by dividing consolidated net profit or loss by the weighted average number of shares outstanding during the fiscal year.

Diluted earnings per share are calculated taking into account the maximum impact of the conversion of dilutive common shares (options, performance shares) and using the "share repurchase" method as defined in IAS 33 "Earnings per Share".

3. Segment information

The segments presented according to the Group's internal organization comply with the definition of operating segments identified and grouped according to IFRS 8. This information corresponds to that reviewed by the Executive Committee.

The Group presents its segment information based on the following operating segments, reconciled with consolidated data:

- Seamless tubes. This segment covers all the entities with production and marketing plants dedicated to the Group's main activity, i.e. the production of hot-rolled seamless carbon and alloy steel tubes, both smooth and threaded, for the oil and gas industry. This activity is characterized by a highly integrated manufacturing process, from production of the steel and hot-rolling to the final stages, facilitating the manufacture of products that are suitable for a variety of markets (including Oil & Gas, Power Generation, Chemicals and Petrochemicals, Automotive and Mechanical Engineering);
- Specialty Products. This segment incorporates a number of activities whose characteristics are very different from those described above, but which are not presented separately due to their relative immateriality. This treatment is authorized by IFRS 8. This activity includes the production of stainless steel and titanium tubes as well as specific forming and machining activities.

In addition, geographical information is presented, distinguishing between five areas determined based on an analysis of the specific risks and returns associated with them:

- the European Union;
- North America (United States, Mexico and Canada);
- South America (mainly Brazil);
- Asia;
- rest of the world (mainly the Middle East).

Operating segments

Note 32 shows, for each operating segment, information on the income and results as well as selected information on the assets, liabilities and capital expenditure for fiscal years 2017 and 2016.

Geographical information

In addition to segment information, Note 32 shows, by geographical area, information on revenue (by geographical location of customers), capital expenditure and selected information on assets (by operating areas) for fiscal years 2017 and 2016.

B—Consolidation scope

	% interest 31/12/2016	% control 31/12/2016	% interest 31/12/2017	% control 31/12/2017
Fully consolidated companies				
Kestrel Wave Investment Ltd—Hong Kong	100.0	100.0	100.0	100.0
P.T. Citra Tubindo Tbk—Indonesia	81.72	81.72	81.72	81.72
Serimax Angola Ltd—United Kingdom(6)	80.0	80.0	80.0	80.0
Serimax Australia Pty Ltd—Australia(6)	80.0	80.0	80.0	80.0
Serimax Do Brasil Serviços de Soldagem e Fabricaçao Ltda—Brazil(6)	80.0	80.0	80.0	80.0
Serimax Field Joint Coating Ltd—United Kingdom(6)	48.0	80.0	48.0	80.0
Serimax Holdings S.A.S.—France(6)	80.0	80.0	80.0	80.0
Serimax Ltd—United Kingdom(6)	80.0	80.0	80.0	80.0
Serimax North America Llc—United States(6)	80.0	80.0	80.0	80.0
Serimax OOO—Russia(6)	80.0	80.0	80.0	80.0
Serimax Russia S.A.S.—France(6)	80.0	80.0	80.0	80.0
Serimax S.A.S.—France(6)	80.0	80.0	80.0	80.0
Serimax South East Asia Pte Ltd—Singapore(6)	80.0	80.0	80.0	80.0
Serimax Welding Services Malaysia sdn bhd—Malaysia(6)	80.0	80.0	80.0	80.0
Tianda Oil Pipe Co. Ltd—China(7)	99.0	99.0	99.7	99.7
Tubos Soldados Atlântico—Brazil	100.0	100.0	100.0	100.0
Vallourec Al Qahtani Tubes LLC—Saudi Arabia	75.0	75.0	75.0	75.0
Valinox Nucléaire S.A.S.—France	100.0	100.0	100.0	100.0
Valinox Nucléaire Tubes Guangzhou Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Changzhou Co.Ltd—China	100.0	100.0	100.0	100.0
Vallourec Asia Pacific Corp. Pte Ltd—Singapore	100.0	100.0	100.0	100.0
Vallourec Automotive Components (Changzhou) Co., Ltd—China(3)	—	—	—	—
Vallourec Bearing Tubes—France	100.0	100.0	100.0	100.0
Vallourec Beijing Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Canada Inc—Canada	100.0	100.0	100.0	100.0
Vallourec Deutschland GmbH—Germany	100.0	100.0	100.0	100.0
Vallourec Drilling Oil Equipment Manufacturing LLC—United Arab Emirates(2)	100.0	100.0	100.0	100.0
Vallourec Drilling Products France—France(2)	100.0	100.0	100.0	100.0
Vallourec Drilling Products Middle East FZE—Dubai(2)	100.0	100.0	100.0	100.0
Vallourec Drilling Products USA Inc.—United States(2)	100.0	100.0	100.0	100.0
Vallourec Fittings—France	100.0	100.0	100.0	100.0
Vallourec Florestal Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Heat Exchanger Tubes—France(3)	—	—	—	—
Vallourec Heat Exchanger Tubes (Changzhou) Co., Ltd—China(3)	—	—	—	—
Vallourec Heat Exchanger Tubes Asia—France(3)	—	—	—	—
Vallourec Heat Exchanger Tubes Inc.—United States(3)	—	—	—	—
Vallourec Heat Exchanger Tubes Ltd—India(3)	—	—	—	—
Vallourec Holdings Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Industries Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Middle East FZE—United Arab Emirates	100.0	100.0	100.0	100.0
Vallourec Mineração Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Nigeria Ltd—Nigeria	100.0	100.0	100.0	100.0
Vallourec O and G Nigeria Ltd—Nigeria	100.0	100.0	100.0	100.0
Vallourec Oil & Gas (China) Co., Ltd—China	100.0	100.0	100.0	100.0
Vallourec Oil & Gas France S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Oil & Gas Kenya Limited.—Kenya	100.0	100.0	100.0	100.0
Vallourec Oil & Gas Nederland B.V.—Netherlands(2)	100.0	100.0	100.0	100.0

	% interest 31/12/2016	% control 31/12/2016	% interest 31/12/2017	% control 31/12/2017
Vallourec Oil & Gas UK Ltd—United Kingdom	100.0	100.0	100.0	100.0
Vallourec Oil & Gas Mexico SA de CV—Mexico	100.0	100.0	100.0	100.0
Vallourec One S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Russia—Russia	100.0	100.0	100.0	100.0
Vallourec S.A.—France	100.0	100.0	100.0	100.0
Vallourec Saudi Arabia Ltd—Saudi Arabia	80.0	80.0	80.0	80.0
Vallourec Services S.A.—France	100.0	100.0	100.0	100.0
Vallourec Star, LP—United States	80.5	80.5	80.5	80.5
Vallourec Soluções Tubulares do Brasil—Brazil(5)	84.6	84.6	84.6	84.6
Vallourec Transportes e Serviços do Brasil Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Tube-Alloy LP—United States	100.0	100.0	100.0	100.0
Vallourec Tubes France S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Tubes S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Tubos do Brasil S.A.—Brazil	100.0	100.0	100.0	100.0
Vallourec Umbilicals S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Uruguay S.A	—	—	100.0	100.0
Vallourec USA Corporation—United States	100.0	100.0	100.0	100.0
VAM Changzhou Oil & Gas Premium Equipments—China(4)	100.0	100.0	100.0	100.0
VAM Far East—Singapore	51.0	51.0	51.0	51.0
VAM Field Services Angola—Angola	100.0	100.0	100.0	100.0
VAM Field Services Beijing—China	51.0	51.0	51.0	51.0
VAM Holding Hong Kong Limited—Hong Kong(4)	100.0	100.0	100.0	100.0
VAM USA—United States	51.0	51.0	51.0	51.0
Joint operations				
Vallourec & Sumitomo Tubos do Brasil Ltda—Brazil(5)	—	—	—	—
Associates				
Hüttenwerke Krupp Mannesmann (HKM)—Germany	20.0	20.0	20.0	20.0
Ascoval(1)	—	—	40.0	40.0
Poongsan Valinox—Korea(3)	—	—	—	—
Xi'an Baotimet Valinox Tubes—China(3)	—	—	—	—

- 2017:

(1) On 26 January 2017, Vallourec and Asco Industries finalized the latter's acquisition of a majority interest in the Saint-Saulve steel mill, which appeared in the statement of financial position as at 31 December 2016 under assets and liabilities held for sale. SAS Ascoval is 60% owned by Asco Industries and 40% by Vallourec Tubes France, and has been consolidated using the equity method as from the date of the transaction.

(2) On 11 December 2017, Vallourec announced that, following exclusive negotiations with the American oil services group NOV, it had received a firm offer for the repurchase of the "Drilling Products" activity. For the operation, which meets IFRS 5 criteria, associated assets and liabilities were reclassified under assets/ liabilities held for sale.

- 2016:

The main changes in scope were as follows:

(3) On 29 April 2016, Vallourec completed the sale of its subsidiary Vallourec Heat Exchanger Tubes to American Industrial Acquisition Corporation (AIAC).

(4) In August 2016, Vallourec acquired all shares in VAM Holding Hong Kong Ltd, a holding company, and in VAM Changzhou Oil and Gas (a threading business in China). These two companies were consolidated as joint operations until 30 September 2016, then fully consolidated into the Group's financial statements.

(5) On 1 October 2016, Vallourec finalized the contribution of the tubular activity of Vallourec Tubos do Brasil (VBR), a wholly-owned subsidiary, to Vallourec & Sumitomo Tubos do Brasil (VSB), a joint operation in which Vallourec held a 56% interest. This transaction resulted in Vallourec acquiring control of VSB (renamed Vallourec Soluções Tubulares do Brasil), by increasing its holding from 56% to 84.6%, with the remaining 15.4% non-controlling interests being transferred to the NSSMC and Sumitomo Corp. partners. The new entity, VSB, was fully consolidated in the Group's financial statements as from 1 October 2016, and the Japanese partners' interests are recorded as non-controlling interests.

(6) On 28 October 2016, Serimax and Technip finalized a strategic partnership in the field of offshore pipeline welding. As part of this partnership, Technip acquired a 20% shareholding in Serimax.

(7) As of 2 December 2016, Vallourec held 99.0% of the capital of Tianda Oil Pipe after acquiring in November a majority share of 50.6% and 28.9% by an unconditional mandatory takeover bid followed by withdrawal from the Hong Kong stock market. Tianda Oil Pipe was consolidated using the equity method (19.5%) for 2016 and the acquisition was recorded in the Group's statement of financial position as at 31 December 2016.

If the changes in scope had taken place on 1 January 2016, Group revenue would have stood at €3,277 million, compared to €2,965 million.

There are no significant unconsolidated subsidiaries or interests.

C—Notes to the financial statements (in € thousand)

TABLE OF CONTENTS

NOTE 1	Intangible assets and goodwill	F-29
NOTE 2.1	Property, plant and equipment	F-31
NOTE 2.2	Biological assets	F-32
NOTE 2.3	Impairment of property, plant and equipment and intangible assets	F-33
NOTE 3	Associates	F-36
NOTE 4	Other non-current assets	F-37
NOTE 5	Deferred taxes	F-38
NOTE 6	Inventories and work in progress	F-41
NOTE 7	Trade and other receivables	F-42
NOTE 8	Financial instruments	F-42
NOTE 9	Other current assets	F-54
NOTE 10	Cash and cash equivalents	F-55
NOTE 11	Assets held for sale and discontinued operations	F-55
NOTE 12	Change in cash flows	F-56
NOTE 13	Equity	F-57
NOTE 14	Earnings per share	F-58
NOTE 15	Non-controlling interests	F-59
NOTE 16	Bank loans and other borrowings	F-60
NOTE 17	Provisions	F-64
NOTE 18	Other long-term liabilities	F-66
NOTE 19	Employee benefit commitments	F-67
NOTE 20	Other current liabilities	F-78
NOTE 21	Information on related parties	F-78
NOTE 22	Contingent liabilities and commitments	F-79
NOTE 23	Revenue	F-80
NOTE 24	Cost of sales	F-80
NOTE 25	Administrative, sales and research costs	F-81
NOTE 26	Other	F-81
NOTE 27	Fees paid to Statutory Auditors and members of their networks	F-82
NOTE 28	Accumulated depreciation and amortization	F-82
NOTE 29	Impairment of assets and goodwill, asset disposals, restructuring and non-recurring items	F-82
NOTE 30	Financial income/(loss)	F-83
NOTE 31	Reconciliation of theoretical and actual tax expense	F-84
NOTE 32	Segment information	F-84
NOTE 33	Share in net income/(loss) of associates	F-87
NOTE 34	Business combinations	F-87
NOTE 35	Subsequent events	F-87

NOTE 1 Intangible assets and goodwill

	Concessions, patents, licenses and other rights	Other intangible assets	Total intangible assets	Goodwill
GROSS VALUES				
As at 31/12/2015	**99,529**	**522,270**	**621,799**	**597,703**
Acquisitions	412	1,091	1,503	—
Disposals	—	(575)	(575)	—
Acquisitions from business combinations (see Note 34)	1,044	—	1,044	40,239
Disposals from business combinations	(5,332)	—	(5,332)	—
Reclassification to assets held for sale and discontinued operations	(1,132)	—	(1,132)	—
Impact of changes in exchange rates	3,207	17,398	20,605	18,693
Other changes	(3,764)	1,773	(1,991)	(3,509)
As at 31/12/2016	**93,964**	**541,957**	**635,921**	**653,126**
Acquisitions	2,409	1,179	3,588	—
Disposals	(75)	(536)	(611)	—
Reclassification to assets held for sale and discontinued operations	(3,322)	(20,246)	(23,568)	(18,019)
Impact of changes in exchange rates	(2,157)	(55,599)	(57,756)	(69,211)
Other changes	(5,089)	(84)	(5,173)	12,212
AS AT 31/12/2017	**85,730**	**466,671**	**552,401**	**578,108**
DEPRECIATION AND IMPAIRMENT				
As at 31/12/2015	**(70,691)**	**(402,287)**	**(472,978)**	**(268,134)**
Net depreciation expenses for the fiscal year	(6,898)	(25,236)	(32,134)	—
Impairment (see Notes 2.3, 28 and 29)	(82)	—	(82)	—
Disposals	—	569	569	—
Disposals from business combinations	4,640	—	4,640	—
Reclassification to assets held for sale and discontinued operations	888	—	888	—
Impact of changes in exchange rates	(2,863)	(12,681)	(15,544)	(5,948)
Other changes	3,086	616	3,702	3,640
As at 31/12/2016	**(71,920)**	**(439,019)**	**(510,939)**	**(270,442)**
Net depreciation expenses for the fiscal year	(5,565)	(22,634)	(28,199)	—
Impairment (see Notes 2.3, 28 and 29)	—	—	—	—
Disposals	75	536	611	—
Reclassification to assets held for sale and discontinued operations	2,998	20,245	23,243	18,019
Impact of changes in exchange rates	1,633	45,941	47,574	22,455
Other changes	4,004	—	4,004	60
AS AT 31/12/2017	**(68,775)**	**(394,931)**	**(463,706)**	**(229,908)**
NET VALUES				
As at 31/12/2016	**22,044**	**102,938**	**124,982**	**382,684**
AS AT 31/12/2017	**16,955**	**71,740**	**88,695**	**348,200**

NOTE 1 Intangible assets and goodwill (Continued)

Intangible assets

Vallourec devotes significant efforts on an ongoing basis to Research and Development, particularly in the field of energy. These efforts cover three main areas:

- manufacturing processes (charcoal, steel-making, tube-rolling, non-destructive testing, forming, welding and machining);
- new products and product improvements;
- new services (customer support for tube design, use and processing).

No costs were identified in connection with major projects that meet the criteria for capitalization as assets.

Other intangible assets relate to technology and know-how, trademarks, order books and customer relationships acquired mainly in connection with business combinations. They are amortized on a straight-line basis over their useful life (amortization period of 5.5 to 15 years).

Other than goodwill, there are no intangible assets with indefinite useful lives.

Goodwill

Cash-generating unit (CGU) (see paragraph 2.9—Impairment of property, plant and equipment and intangible assets)	Vallourec do Brasil	Vallourec North America	Vallourec Europe	Serimax	Others	Total
AS AT 31/12/2015	**3,081**	**326,488**	**—**	**—**	**—**	**329,569**
Impact of changes in exchange rates and other	2,021	10,855	—	—	—	12,876
Impairment (see Notes 2.3, 28 and 29)	—	—	—	—	—	—
Acquisitions (see Note 34)	35,625	—	4,614	—	—	40,239
AS AT 31/12/2016	**40,727**	**337,343**	**4,614**	**—**	**—**	**382,684**
Impact of changes in exchange rates and other	(5,413)	(40,842)	(501)	—	—	(46,756)
Impairment (see Notes 2.3, 28 and 29)	—	—	—	—	—	—
Other changes	2,713	—	9,559	—	—	12,272
AS AT 31/12/2017	**38,027**	**296,501**	**13,672**	**—**	**—**	**348,200**

The other changes correspond to adjustments of goodwill, primarily for Tianda Oil Pipes Co. Ltd and Vallourec Soluções Tubulares do Brasil within one year.

The impairment tests as at 31 December 2017 are presented in Note 2.3.

NOTE 2.1 Property, plant and equipment

	Land	Buildings	Technical installations, industrial equipment and tools	Current property, plant and equipment	Other tangible assets	Total
GROSS VALUES						
As at 31/12/2015	**104,450**	**958,604**	**4,631,086**	**241,036**	**270,234**	**6,205,411**
Acquisitions	—	7,055	38,538	110,819	11,978	168,390
Disposals	(3,511)	(1,424)	(41,655)	(2,822)	(6,930)	(56,342)
Reclassification to assets held for sale and discontinued operations	(200)	(59,649)	(230,658)	(3,440)	(1,998)	(295,945)
Acquisitions from business combinations (see Note 34)	23,570	106,734	600,149	31,486	3,492	765,431
Disposals from business combinations	(2,803)	(196,442)	(758,293)	(17,294)	(29,634)	(1,004,466)
Impact of changes in exchange rates	15,625	65,254	319,974	13,207	35,968	450,028
Other changes	13,729	27,068	211,756	(238,585)	104,722	118,690
As at 31/12/2016	**150,860**	**907,200**	**4,770,897**	**134,407**	**387,832**	**6,351,197**
Acquisitions	—	3,660	33,853	100,110	7,557	145,180
Disposals	(163)	(2,471)	(38,628)	—	(19,822)	(61,084)
Reclassification to assets held for sale and discontinued operations	(1,277)	(21,693)	(133,100)	(1,038)	(5,744)	(162,852)
Impact of changes in exchange rates	(15,388)	(80,927)	(398,348)	(9,455)	(40,046)	(544,164)
Other changes	1,292	10,978	81,330	(109,128)	21,872	6,344
AS AT 31/12/2017	**135,324**	**816,747**	**4,316,004**	**114,896**	**351,649**	**5,734,621**
DEPRECIATION AND IMPAIRMENT						
As at 31/12/2015	**(24,325)**	**(430,467)**	**(2,429,115)**	**(4,825)**	**(155,618)**	**(3,044,350)**
Net depreciation expenses for the fiscal year	(1,324)	(32,533)	(221,442)	837	(37,963)	(292,425)
Impairment losses (Note 2.3)	(10,013)	(207)	(44,356)	(3,034)	(462)	(58,072)
Disposals	3,510	2,399	36,723	2,593	2,020	47,245
Disposals from business combinations	1,340	112,777	448,316	—	13,010	575,443
Reclassification to assets held for sale and discontinued operations	48	56,431	218,413	—	1,793	276,685
Impact of changes in exchange rates	(4,927)	(26,159)	(151,007)	122	(16,529)	(198,500)
Other changes	(6,321)	(11,719)	(9,466)	445	(12,548)	(39,609)
As at 31/12/2016	**(42,012)**	**(329,478)**	**(2,151,934)**	**(3,862)**	**(206,297)**	**(2,733,583)**
Net depreciation expenses for the fiscal year	(1,365)	(31,773)	(247,912)	—	(23,625)	(304,675)
Impairment losses (Note 2.3)	(510)	(259)	(64,336)	—	—	(65,105)
Disposals	17	1,899	37,950	—	3,859	43,725
Reclassification to assets held for sale and discontinued operations	—	12,694	101,219	—	4,190	118,103
Impact of changes in exchange rates	4,608	23,996	141,702	147	20,880	191,333
Other changes	(1,045)	(11,379)	4,050	354	490	(7,530)
AS AT 31/12/2017	**(40,307)**	**(334,300)**	**(2,179,261)**	**(3,361)**	**(200,503)**	**(2,757,732)**
NET VALUES						
As at 31/12/2016	**108,848**	**577,722**	**2,618,963**	**130,545**	**181,535**	**3,617,614**
AS AT 31/12/2017	**95,017**	**482,447**	**2,136,743**	**111,535**	**151,146**	**2,976,889**

"Impairment losses" recorded as at 31 December 2017 are primarily linked to impairments of isolated assets which reflect supplementary initiatives under the transformation plan at industrial sites in Brazil, Europe and China.

NOTE 2.1 Property, plant and equipment (Continued)

"Impairment losses" recorded as at 31 December 2016 are primarily linked to the strategic initiatives announced on 1 February 2016, chiefly consisting in the closure of two rolling mills (Saint-Saulve and Deville in France), one threading line (Mülheim in Germany), one heat treatment line (Bellshill in Scotland), and a blast furnace in Brazil.

Capital expenditure excluding changes in scope

	2016			2017		
	Intangible assets and property, plant and equipment		Biological (see Note 2.2)	Intangible assets and property, plant and equipment		Biological (see Note 2.2)
Europe	95,600		—	85,186		—
North America	18,001		—	26,224		—
South America	47,151		6,584	26,700		6,184
Asia	9,020		—	10,519		—
Others	120		—	139		—
TOTAL	**169,892**		**6,584**	**148,768**		**6,184**
		176,476			**154,952**	
Note 1: acquisition of intangible assets	1,503		—	3,588		—
Note 2.1: acquisition of property, plant and equipment	168,390		6,584	145,180		6,184
TOTAL CAPITAL EXPENDITURE	**169,893**		**—**	**148,768**		**—**
Changes in fixed asset liabilities and partner contributions	(1,090)			(3,425)		
TOTAL	**168,802**		**6,584**	**145,343**		**6,184**
Statement of cash flows: capital expenditure paid out during the period:		175,386			151,527	

Leases

The finance lease signed in 2010 by Vallourec Soluções Tubulares do Brasil (formerly VSB) for the construction of a water treatment facility had a net carrying amount of €58 million as at 31 December 2017.

NOTE 2.2 Biological assets

Change in biological assets	2016	2017
As at 1 January	**154,694**	**88,411**
Investments	6,584	6,184
Valuation at fair value	6,756	3,136
Net depreciation expenses for the period	(7,237)	(8,603)
Impairment losses	(3,957)	—
Reclassification to inventory	(9,660)	(4,514)
Foreign exchange differences	28,033	(11,576)
Other changes	(86,802)	(1,544)
AS AT 31 DECEMBER	**88,411**	**71,494**

The Group's Brazilian subsidiary Vallourec Florestal cultivates eucalyptus plantations mainly to produce the charcoal used in the blast furnaces of Vallourec Soluções Tubulares do Brasil.

NOTE 2.2 Biological assets (Continued)

As at 31 December 2017, the company cultivated approximately 113,046 hectares of eucalyptus over a total area of 230,377 hectares.

In 2017, Vallourec Florestal posted revenue of €53.5 million, as compared to €54.2 million in 2016.

As a result of the amendments to IAS 16 and IAS 41 applicable as of 1 January 2016, eucalyptus roots are considered as bearer biological assets, and are reclassified under property, plant and equipment (see Note 2.1).

NOTE 2.3 Impairment of property, plant and equipment and intangible assets

Cash-Generating Units

The CGUs as at 31 December 2017 are Vallourec Europe, Vallourec do Brasil, Vallourec North America, Valinox Nucléaire and Serimax, with no change in comparison to 2016.

Impairment indications

The Group was faced with a deteriorated economic environment (drop in exploration and production investments, and in production by oil operators, volatility of the price of raw materials and energy, extremely competitive international environment). In response to the continued decline in oil and gas prices since the end of 2014, oil and gas companies have further tightened their cost control, leading them to reduce capital expenditure and streamline inventories in the areas of exploration, production and development of oil and natural gas reserves. This has had a significant impact on the demand for pipes and on their prices. This reduction in demand, combined with lower prices resulting from competitive pressures from incumbent gas operators and the arrival of new competitors, exacerbated by the deflationary pressures of our customers, has significantly altered the Group's competitiveness and the profitability of activities, and has been analyzed as a general indication of impairment, requiring the implementation of impairment tests for all the Group's CGUs as from late 2014.

To that end, the Group ultimately recorded impairment on 31 December 2014 of property, plant and equipment and intangible assets of the Vallourec Europe CGUs and of assets from the Jeceaba (Brazil) plant held in the "Vallourec & Sumitomo do Brasil" joint venture. In 2016, the acquisition of VSB had the result of solidifying the impairment recorded in 2014.

As at 31 December 2017, the Group has performed impairment tests on all CGUs in order to monitor impairment on property, plant and equipment recorded in 2014 for the Vallourec Europe CGU, and to test the goodwill of other CGUs.

Tested bases

The CGUs with the strongest sensitivity to the assumptions are presented below:

In € million	Vallourec Europe	Vallourec North America
Non-current operating assets	886	1,437
Current operating assets	364	189
Test base	1,250	1,626

The test base of the Vallourec Europe CGU comprises the assets of several subsidiaries that are active in the production cycle of the products marketed by this CGU: tube production units and integrated finishing lines in France, Germany and in the Middle East-Asia area.

Recoverable value

For each CGU tested, the recoverable value is considered as equal to the value in use.

It therefore corresponds to the present value of the forecasted future cash flows it generates.

NOTE 2.3 Impairment of property, plant and equipment and intangible assets (Continued)

Future cash flows

For the term of the BPs, i.e. 5 years

The Group's five-year strategic plan was presented to the Supervisory Board in December 2017. In this plan, the Group used assumptions for 2018 that were consistent with the data recorded in late 2017. Its assumptions also included a gradual recovery of the business.

The next five years should bring a gradual increase in investment by oil companies, as well as a deflationary environment in part offset by (i) optimization of the new industrial routes presented in the Vallourec transformation plan in February 2016, and (ii) the benefits of the competitiveness plans launched by the Group since 2015.

Exchange rate assumptions are consistent over the period with those used at the end of 2017.

For the Europe CGU, commercial assumptions were refined and take into account the impact of the change between exchange rates used when establishing the strategic plan and the closing rates of 31 December 2017.

A three-year extrapolation period from 2023 to 2025

Given that the main players in the Oil & Gas market have been subject to profound structural changes since 2014, the effects of which are expected beyond the five-year period, the return of oil investment to normal levels is not expected by the end of the term of the strategic plan.

These new circumstances have led us to model a three-year extrapolation period after the final year of the strategic plan.

This period, taken into account for the first time in 2016, also makes it possible to gradually converge the revenue growth rates for the final year of the strategic plan towards the perpetuity growth rate.

The perpetuity growth rates were reviewed on 31 December 2017 in order to make the latter consistent with the currency in which the weighted average cost of capital ("WACC") and the future cash flows were calculated. Consequently, 2026 is projected to perpetuity by applying a unique growth rate of 1.9% to all CGUs. This rate corresponds to long-term inflation forecasts in the euro zone.

Discount rate

The CGU discount rates correspond to their weighted average cost of capital ("WACC"), corresponding to the weighted average cost of equity and the cost of debt after tax.

The main components of weighted average cost of capital are:

- the risk-free rate corresponding to the 10-year French Treasury bond (OAT) rate;
- the systematic risk obtained by combining:
    - the Europe share market risk premium corresponding to the expected yield rate on this market minus the risk-free rate,
    - the betas per activity calculated on the basis of samples of listed companies in the sector strictly comparable to the CGU in terms of activity;
- the specific risk linked to countries ("country risk") for activities situated outside of Europe.

The cost of debt after tax is calculated by adding to the risk-free rate the loan spread observed on the bond maturing on 30 September 2024 issued by Vallourec and taking tax into account.

Sectoral gearing which makes it possible to weight the cost of equity and the cost of debt after tax, and which corresponds to the net financial debt/stock market capitalization median of comparable companies.

All of the above parameters have been calculated over an average period of five years.

NOTE 2.3 Impairment of property, plant and equipment and intangible assets (Continued)

Applying these parameters leads to a discount rate of 7.7% for Europe, 7.6% for North America, 8.6% for Vallourec do Brasil, 7.4% for Serimax and 6.9% for Valinox Nucléaire.

Impairment test results

The tests performed do not result in the recognition of impairment losses.

The adaptations to the seamless pipe production units have led to the recognition of €65 million in impairment (€35 million for the Vallourec Europe CGU relating to the Vallourec China plant and €30 million for the Vallourec do Brasil and Vallourec North America CGUs).

Sensitivity analyses

The sensitivity analyses presented in the table below were calculated by changing a single parameter. Therefore, they correspond to a mechanical calculation which is not representative of a consistent change in all of the sales parameters, nor of additional measures that the group might end up taking under such circumstances.

The results of the sensitivity analyses of the Vallourec Europe and Vallourec North America CGUs are presented in the table below:

Sensitivity analyses of the CGUs (in € million)		Vallourec Europe	Vallourec North America
Tested bases as at 31/12/2017		1,250	1,626
CGU VALUE IN USE		**1,326**	**2,241**
Sensitivity to the discount rate	+0.5 pt	1,156	2,063
	−0.5 pt	1,529	2,453
EBITDA sensitivity	−10% per year	1,039	1,877
	+10% per year	1,612	2,599
EUR/USD foreign exchange rate sensitivity	+5 cts	548	2,054
	+5 cts	2,066	2,155
Perpetuity growth rate sensitivity	+0.5 pt	1,438	2,386
	−0.5 pt	1,231	2,120
IMPAIRMENT LOSS		—	—

The table above shows that:

- for the Vallourec Europe and Vallourec North America CGUs, the values in use as at 31 December 2017 are higher than the tested bases, as indicated above;
- the future cash flows of these CGUs are sensitive to changes in the value of their export transactions denominated in a currency other than that of the country where they are based (mainly USD). Unhedged cash flows were measured at the exchange rate of 31 December 2017, consistent with the balance sheet values to be tested.

Given the sensitivity of DCF calculations to the assumptions used, the Group decided to maintain the impairment losses recorded at the end of 2014 and 2015 for the Vallourec Europe CGU.

NOTE 3 Associates

The Group's main associates (individual carrying amount greater than €50 million) are listed below.

Activity Business location	HKM Steel mill Germany	Tianda Oil Pipe Tube manufacturing China	Others	Total
As at 31/12/2015	**80,682**	**53,108**	**43,045**	**176,835**
Capital increase		—		
Impact of changes in exchange rates	—	(2,726)	1,098	(1,628)
Dividends paid	(1)	(7,261)	—	(7,262)
Changes in consolidation scope	—	(35,521)	379	(35,142)
Others	—	—	—	—
Contribution to net income of the period	5	(7,600)	(408)	(8,003)
As at 31/12/2016	**80,686**	**—**	**44,114**	**124,800**
Capital increase	—	—	—	—
Impact of changes in exchange rates	—	—	(10,874)	(10,874)
Dividends paid	(1)	—	(4,659)	(4,660)
Changes in consolidation scope	—	—	12,183	12,183
Depreciation of shares	—	—	(12,000)	(12,000)
Others	(3)	—	(4,744)	(4,747)
Contribution to net income of the period	6	—	(3,179)	(3,173)
AS AT 31/12/2017	**80,688**	**—**	**20,841**	**101,529**

On 26 January 2017, Vallourec and Asco Industries finalized the latter's acquisition of a majority interest in the Saint-Saulve steel mill, which appeared in the statement of financial position as at 31 December 2016 under assets and liabilities held for sale. SAS Ascoval is 60% owned by Asco Industries and 40% by Vallourec Tubes France, and has been consolidated using the equity method as from the date of the transaction. On 30 November 2017, the Regional Court of Strasbourg decided to place Ascoval under a "safeguard procedure"; consequently, the contribution of this joint venture was fully written off.

On 31 December 2016, Vallourec acquired Tianda Oil Pipe, which is now fully consolidated with a holding rate of 99.03%, after the acquisition in November of a majority share of 50.61% and the successful unconditional mandatory takeover bid. Tianda Oil Pipe was consolidated using the equity method (19.5%) for 2016 and the acquisition was recorded in the Group's balance sheet as at 31 December 2016 (see Note 34).

The condensed financial data (100%) for HKM is presented below.

HKM	31/12/2016	31/12/2017
Non-current assets	689,483	648,050
Current assets	689,409	655,989
Non-current liabilities	465,117	505,630
Current liabilities	510,343	394,971
Net assets	**403,432**	**403,438**
Sales	1,831,087	2,511,496
Operating income/(loss)	2,706	26,149
Net income from continuing operations	—	—
Other comprehensive income (loss)	—	—
Total comprehensive income (loss)	25	31
Dividends paid to the Group	5	5

NOTE 3 Associates (Continued)

The reconciliation of the condensed financial data from the HKM associate with the book value of the Group's interests in this associate is as follows:

HKM	31/12/2016	31/12/2017
Net assets	403,432	403,438
Group's percentage interest in HKM	20%	20%
Goodwill	—	—
Others	—	—
Value of investments in equity affiliates	80,686	80,688
HKM net income/(loss)	25	31
Group's percentage interest in HKM	20%	20%
Share of net income	5	6

The Group likewise holds interests in other associates (which, considered individually, are not significant) for an overall book value of €21 million as at 31 December 2017, compared with €44 million as at 31 December 2016.

NOTE 4 Other non-current assets

	Other equity interests	Loans	Other financial assets	Other non-current assets	Provisions	Total
As at 31/12/2015	**67,166**	**4,659**	**36,662**	**125,925**	**(1,279)**	**233,133**
Impact of changes in exchange rates	548	124	6,047	22,193	(523)	28,389
Changes in gross values	9,278	(8)	3,396	20,714	—	33,380
Increase in provisions	—	—	—	—	(1,828)	(1,828)
Reversals of provisions	—	—	—	—	2,919	2,919
Acquisitions from business combinations (see Note 34)	—	853	7,478	104,823	—	113,154
Disposals from business combinations	—	(477)	(4,188)	(67,581)	—	(72,246)
Other changes	2,584	(120)	8,639	9,209	(8,642)	11,670
As at 31/12/2016	**79,576**	**5,031**	**58,034**	**215,283**	**(9,353)**	**348,571**
Impact of changes in exchange rates	(549)	(123)	(4,696)	(17,237)	763	(21,842)
Changes in gross values	(73,282)	17,021	(8,130)	(89,469)	—	(153,860)
Increase in provisions	—	—	—	—	(16,983)	(16,983)
Reversals of provisions	—	—	—	—	1,258	1,258
Reclassification to assets held for sale and discontinued operations	—	—	(375)	—	—	(375)
Other changes	—	(220)	(8,911)	(9,619)	(856)	(19,606)
AS AT 31/12/2017	**5,745**	**21,709**	**35,922**	**98,958**	**(25,171)**	**137,163**

Available-for-sale equity securities (included in "Other equity interests") in late December 2016 related almost exclusively to Nippon Steel & Sumitomo Metal Corp., listed on the Tokyo Stock Exchange and acquired in 2009 for a total of €81.9 million.

In view of the strategic and long-term nature of the investment, Vallourec set thresholds above which a decline in net asset value of the Nippon Steel & Sumitomo Metal Corp. shares would be an event of a "significant or prolonged nature" requiring the recognition of an impairment loss in the income statement:

- 3 years for the prolonged nature of a decline;
- 40% for the significant nature of a decline.

NOTE 4 Other non-current assets (Continued)

As at 31 December 2016, the change in fair value of these shares, based on their NAV of €73.3 million, i.e. a cumulative loss of €8.6 million in late December 2016, was recognized in equity. This loss was reclassified in financial income/(loss) in 2017. They were sold during the fiscal year at a price of €69.0 million. The capital loss on disposal of €4.3 million is presented in the income/(losses) on disposals.

Other financial investments consist mainly of interest-bearing security deposits, mainly paid in connection with tax disputes in Brazil (€22.0 million as at 31 December 2017; see also Note 16).

Other non-current assets consist mainly of €80.8 million in deferred tax receivables in Brazil and the United States.

Maturities of other non-current assets	1 to 5 years	5 years or more	Total
GROSS VALUES AS AT 31/12/2016			
Loans	3,414	1,617	5,031
Other equity interests	—	79,576	79,576
Other financial assets	208,287	65,030	273,317
TOTAL	**211,701**	**146,223**	**357,924**
GROSS VALUES AS AT 31/12/2017			
Loans	19,662	2,047	21,709
Other equity interests	—	5,745	5,745
Other financial assets	72,413	62,467	134,880
TOTAL	**92,075**	**70,259**	**162,334**

NOTE 5 Deferred taxes

The main bases used to calculate deferred taxes are:

- recurring: provisions for paid leave and the additional social security levy on businesses (*contribution sociale de solidarité des sociétés*), etc.;
- non-recurring: cancellation of regulated provisions, employee profit-sharing, non-tax-deductible provisions for contingencies and liabilities, and any restatements to ensure the consistency and comparability of the parent company or consolidated financial statements;
- long-term recurring: non-tax deductible provisions for retirement commitments, non-tax-deductible provisions for assets and remeasurements of assets acquired in connection with a business combination.

Deferred taxes are recognized using the liability method.

The rates used are the recovery rates known at the reporting date.

The French supplementary business taxes *(Cotisation Foncière des Entreprises* and *Cotisation sur la Valeur Ajoutée des Entreprises)* are recognized as operating expenses.

	2016	2017
Deferred tax assets	190,269	242,440
Deferred tax liabilities	80,494	18,284
NET DEFERRED TAX ASSETS/(DEFERRED TAX LIABILITIES)	**109,775**	**224,156**

NOTE 5 Deferred taxes (Continued)

Presentation of deferred taxes by type

As at 31/12/2017	Assets	Liabilities	Net deferred tax liabilities
Non-current assets	—	114,079	
Other assets and liabilities	31,563	—	
Inventories	22,023	—	
Employee benefit commitments	1,900	—	
Derivatives	—	704	
Distributable reserves and foreign currency translation reserves	—	—	
NET BALANCE	**55,486**	**114,783**	**(59,297)**
Recognition of tax losses	283,453	—	283,453
TOTAL	**338,939**	**114,783**	**224,156**

As at 31/12/2016	Assets	Liabilities	Net deferred tax liabilities
Non-current assets	—	241,012	
Other assets and liabilities	39,836	—	
Inventories	28,154	—	
Employee benefit commitments	9,380	—	
Derivatives	748	—	
Distributable reserves and foreign currency translation reserves	—	1,851	
NET BALANCE	**78,118**	**242,863**	**(164,745)**
Recognition of tax losses	274,520	—	274,520
TOTAL	**352,638**	**242,863**	**109,775**

The Group's deferred taxes (gross values) as at 31 December 2017 and 31 December 2016 are broken down as follows:

As at 31/12/2017	Gross value	Corresponding deferred tax	Recognized deferred tax	Unrecognized or impaired deferred tax
Tax loss carryforwards	3,147,994	942,995	283,453	659,541
Other tax assets	—	—	(41,013)	330,361
TOTAL TAX ASSETS	**—**	**947,460**	**242,440**	**989,902**
Tax liabilities	—	—	(18,284)	—
TOTAL TAX LIABILITIES	**—**	**—**	**(18,284)**	**—**
TOTAL	**—**	**—**	**224,156**	**989,902**

As at 31/12/2016	Gross value	Corresponding deferred tax	Recognized deferred tax	Unrecognized or impaired deferred tax
Tax loss carryforwards	2,447,210	787,571	274,520	513,051
Other tax assets	—	—	(84,251)	421,281
TOTAL TAX ASSETS	**—**	**787,571**	**190,269**	**934,332**
Tax liabilities	—	—	(80,494)	—
TOTAL TAX LIABILITIES	**—**	**—**	**(80,494)**	**—**
TOTAL	**—**	**—**	**109,775**	**934,332**

NOTE 5 Deferred taxes (Continued)

Tax loss carryforwards relate mainly to Vallourec Soluções Tubulares do Brasil (formerly VSB), the French tax group, Vallourec Changzhou (China), Vallourec Star (United States) and Vallourec Deutschland (Germany) and Vallourec Saudi Arabia.

The deferred tax assets are recognized when there is reasonable assurance of being able to recover these deferred tax assets in the foreseeable future (between 5 and 10 years). When it is estimated that allocating these carryforwards to future taxable profits would be uncertain, no deferred tax asset is recognized and, where applicable, deferred tax assets at the opening date are impaired.

Changes in deferred taxes are broken down as follows:

Net deferred tax assets/(liabilities)	2016	2017
AS AT 1 JANUARY	**(67,389)**	**109,775**
Impact of changes in exchange rates	20,244	(25,398)
Recognized in profit or loss	119,500	147,024
Recognized in reserves	(4,725)	(689)
Reclassification to assets held for sale and discontinued operations	—	—
Others	42,145	(6,556)
AS AT 31 DECEMBER	**109,775**	**224,156**

The amount of the deferred tax recognized in reserves corresponds mainly to the change in deferred taxes calculated on derivatives and actuarial gains and losses on retirement commitments and similar obligations.

NOTE 6 Inventories and work in progress

	Raw materials and merchandise	Goods in production	Intermediate and finished goods	Total
GROSS VALUES				
As at 31/12/2015	**468,571**	**357,999**	**407,477**	**1,234,047**
Changes in inventories recognized in the income statement	(51,142)	(43,414)	(73,642)	(168,198)
Impact of changes in exchange rates	25,584	1,494	26,953	54,031
Acquisitions from business combinations (see Note 34)	133,274	1,546	104,534	239,354
Disposals from business combinations	(56,308)	(622)	(55,014)	(111,944)
Reclassification to assets held for sale and discontinued operations	(24,500)	—	—	(24,500)
Other changes	3,241	1,812	12,670	17,723
As at 31/12/2016	**498,720**	**318,815**	**422,977**	**1,240,512**
Changes in inventories recognized in the income statement	(1,338)	94,402	(11,145)	81,919
Impact of changes in exchange rates	(35,420)	(25,203)	(32,133)	(92,756)
Reclassification to assets held for sale and discontinued operations	(21,613)	(12,200)	(8,999)	(42,812)
Other changes	(3,519)	—	493	(3,026)
AS AT 31/12/2017	**436,830**	**375,814**	**371,193**	**1,183,837**
IMPAIRMENT				
As at 31/12/2015	**(92,393)**	**(20,330)**	**(55,159)**	**(167,882)**
Impact of changes in exchange rates	(3,220)	247	(4,428)	(7,401)
Provisions[(a)]	(52,973)	(11,806)	(32,761)	(97,540)
Reversals of provisions	33,904	6,666	35,112	75,683
Disposals from business combinations	57	—	5,515	5,572
Reclassification to assets held for sale and discontinued operations	11,211	—	—	11,211
Other changes	(3,018)	655	(23,043)	(25,406)
As at 31/12/2016	**(106,432)**	**(24,567)**	**(74,764)**	**(205,763)**
Impact of changes in exchange rates	4,570	1,451	3,532	9,553
Allowances	(32,763)	(11,894)	(31,983)	(76,640)
Reversals of provisions	40,231	2,916	37,940	81,087
Reclassification to assets held for sale and discontinued operations	7,073	16	2,559	9,648
Other changes	13,189	(6,975)	(4,103)	2,111
AS AT 31/12/2017	**(74,132)**	**(39,053)**	**(66,819)**	**(180,004)**

(a) Provisions for inventories of raw materials and consumables include a €9 million impairment loss in 2016 for spare parts related to industrial assets.

NOTE 6 Inventories and work in progress (Continued)

The cost of any underutilized capacity is excluded from the value of inventories. Made-to-order products are impaired, where applicable, for the unaffected portion and valued at scrap-metal prices (if applicable). Inventories are impaired based on their net realizable values.

Net values	Raw materials and merchandise	Goods in production	Intermediate and finished goods	Total
As at 31/12/2016	392,288	294,248	348,213	1,034,749
AS AT 31/12/2017	**362,698**	**336,761**	**304,374**	**1,003,833**

NOTE 7 Trade and other receivables

	Advances and partial payments on orders	Trade and other receivables (gross)	Provisions for depreciation	Total
As at 31/12/2015	**12,637**	**587,082**	**(54,815)**	**544,904**
Impact of changes in exchange rates	1,580	22,879	(3,429)	21,030
Changes in gross values	(2,870)	(120,533)	—	(123,403)
Increase in provisions	—	—	(8,690)	(8,690)
Reversals of provisions	—	—	28,654	28,654
Acquisitions from business combinations (see Note 34)	21,139	90,322	—	111,461
Disposals from business combinations	(1,326)	(21,092)	147	(22,271)
Reclassification to assets held for sale and discontinued operations	(13)	(7,217)	—	(7,230)
Other changes	(3,032)	(388)	5,183	1,763
As at 31/12/2016	**28,115**	**551,053**	**(32,950)**	**546,218**
Impact of changes in exchange rates	(1,763)	(45,763)	1,193	(46,333)
Changes in gross values	8,052	77,940	—	85,992
Increase in provisions	—	—	(12,995)	(12,995)
Reversals of provisions	—	—	8,675	8,675
Reclassification to assets held for sale and discontinued operations	—	(13,590)	153	(13,437)
Other changes	44	(434)	193	(197)
AS AT 31/12/2017	**34,448**	**569,206**	**(35,731)**	**567,923**

In 2017, the Group completed operations to mobilize receivables without recourse with financial institutions in the amount of €48 million. The amount of the corresponding receivables thus no longer appears in the Group's consolidated balance sheet.

NOTE 8 Financial instruments

Financial assets and liabilities

Financial assets and liabilities are measured and presented in the balance sheet in accordance with the various categories specified by IAS 39.

8.1 Impact of IAS 32 and IAS 39 on equity and net income

As explained in paragraph 2.16 on accounting principles and methods, the main impact of IAS 32 and IAS 39 relates to the accounting treatment of hedging contracts entered into by the Group in connection with commercial purchase and sale transactions in foreign currencies and the accounting treatment of available-for-sale financial assets. The other effects of the transition to IAS 32 and IAS 39 have had little

NOTE 8 Financial instruments (Continued)

impact on the financial statements (measurement of housing loans to employees using the effective interest rate method and measurement at fair value of investment securities).

Regarding foreign exchange hedges, the hedging relationship is based on the spot exchange rates. Premiums and discounts on derivatives are systematically considered ineffective and recognized in the income statement (financial income or loss). Currency receivables and payables have been revalued at the spot rate as at 31 December.

From a net liability position of €47.3 million as at 31 December 2016, hedging assets moved to a net asset position of €19.6 million as at 31 December 2017.

Fluctuations in the euro against the US dollar in 2017 account for most of the €33.9 million change in the intrinsic value of hedges of forecast sales and purchases in foreign currencies and the €28.2 million change in the intrinsic value of hedges of foreign currency receivables and payables.

NOTE 8 Financial instruments (Continued)

Financial instruments of a speculative nature remain exceptional and arise when a hedging relationship is ineffective under the terms of IAS 39. Their changes in value do not have a material impact on foreign exchange gains or losses.

Statement of financial position items	As at 31/12/2016	As at 31/12/2017	Changes in 2017			
			Total	Reserves	Reclassification[c]	Net Income
1—Derivatives recognized in the statement of financial position[a]						
Changes in the intrinsic value of forward sales of currencies and forward purchases[b] associated with order books and commercial tenders	(24,626)	9,302	33,928	34,100	(1,507)	1,335
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with trade receivables (and accounts payable[b])	(17,140)	11,019	28,159	183	2,990	24,986
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with finance receivables (and financial payables)	(18,193)	4,555	22,748	(28)	—	22,776
Recognition of premium/discount	9,785	(7,140)	(16,925)	(806)	(15,830)	(289)
Recognition of changes in fair value of interest rate swaps	—	—	—	—	—	—
Changes in values linked to hedging instruments set up under employee share ownership plans	2,866	1,821	(1,045)	(142)	—	(903)
SUBTOTAL: DERIVATIVES	**(47,308)**	**19,557**	**66,865**	**33,307**	**(14,347)**	**47,905**
• Of which derivatives—assets	57,985	32,451				
• Of which derivatives—liabilities	105,293	12,894				
• Of which reclassification to assets held for sale	—	—				
2—Receivables (payables) used for commercial hedges						
Order book		(2,084)	(2,084)	(3,591)	1,507	—
Trade receivables		(2,842)	(2,842)	—	12,840	(15,683)
3—Receivables (payables[b]) hedged in currencies—translation gain/loss						
Measurement as at the reporting date exchange rate (trade payables[b] and accounts receivable)	20,389	4,334	(16,055)	—	—	(16,055)
Measurement as at the reporting date exchange rate (financial liabilities and accounts receivable)	16,907	(2,254)	(19,161)	—	—	(19,161)
IMPACT OF HEDGING TRANSACTIONS	**(10,012)**	**16,711**	**26,723**	**29,716**	**—**	**(2,994)**
4—Measurement of other investments in equity instruments at fair value	(8,665)	—	8,665	—	—	8,665
TOTAL	**(18,677)**	**16,711**	**35,388**	**29,716**	**—**	**5,671**

(a) Assets and liabilities offset in this table: + = asset, ( ) = liability.

(b) Non-significant amounts.

(c) The reclassification concerns hedging operations in the Brazilian subsidiaries.

NOTE 8 Financial instruments (Continued)

The change in the fair value of financial instruments hedging foreign exchange risk, which affected equity as at 31 December 2016, was −€24.6 million. In 2017, around 94% of the positive change in fair value attached to the order book and commercial tenders at the end of 2016 was transferred from equity to the statement of comprehensive income, under "translation gain/loss". This amount represents the impact of the changes in value of foreign exchange hedges for the order book and commercial tenders as at 31 December 2016, which were fully or partially unwound or converted into receivables during 2017.

This corresponds mainly to the hedges of receivables in US dollars, which represented nearly all the hedges with an impact on equity as at 31 December 2017.

Statement of financial position items	As at 31/12/2015	As at 31/12/2016	Changes in 2016		
			Total	Reserves	Net Income
1—Derivatives recognized in the statement of financial position[a]					
Changes in the intrinsic value of forward sales of currencies and forward purchases[b] associated with order books and commercial tenders	(40,727)	(24,626)	16,101	13,149	2,952
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with trade receivables (and accounts payable[b])[c]	(41,788)	(17,140)	24,648	2,109	22,539
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with finance receivables (and finance payables)	(54,701)	(18,193)	36,508	180	36,328
Recognition of premium/discount[c]	4,062	9,785	5,723	8,012	(2,289)
Recognition of changes in fair value of interest rate swaps	—	—	—	—	—
Changes in values linked to hedging instruments set up under employee share ownership plans	1,625	2,866	1,241	56	1,185
SUBTOTAL: DERIVATIVES	**(131,529)**	**(47,308)**	**84,221**	**23,506**	**60,715**
• Of which derivatives—assets	20,341	57,985			
• Of which derivatives—liabilities	152,429	105,293			
• Of which reclassification to assets held for sale	(559)	—			
2—Receivables (payables[b]) hedged in currencies—translation gain/loss					
Measurement as at the reporting date exchange rate (trade payables[b] and accounts receivable)	36,877	20,389	(16,488)	—	(16,488)
Measurement as at the reporting date exchange rate (financial liabilities and accounts receivable)	55,299	16,907	(38,392)	—	(38,392)
IMPACT OF HEDGING TRANSACTIONS	**(39,353)**	**(10,012)**	**29,341**	**23,506**	**5,835**
3—Measurement of other investments in equity instruments at fair value	**(13,951)**	**(8,665)**	**5,286**	**5,286**	**—**
TOTAL	**(53,304)**	**(18,677)**	**34,627**	**28,792**	**5,835**

(a) Assets and liabilities offset in this table: + = asset, ( ) = liability.

(b) Non-significant amounts.

(c) The impact on reserves includes, in particular, the effects of the acquisition of Vallourec & Sumitomo Tubos do Brasil.

NOTE 8 Financial instruments (Continued)

The change in the fair value of financial instruments hedging foreign exchange risk, which affected equity as at 31 December 2015, was −€40.7 million. In 2016, around 94% of the positive change in fair value attached to the order book and commercial tenders at the end of 2015 was transferred from equity to the statement of comprehensive income, under "translation gain/loss". This amount represents the impact of the changes in value of foreign exchange hedges for the order book and commercial tenders as at 31 December 2015, which were fully or partially unwound or converted into receivables during 2016.

This corresponds mainly to the hedges of receivables in US dollars, which represent 85% of the hedges with an impact on equity as at 31 December 2016.

8.2 Information on the nature and extent of market risk and how it is managed by the Group

Market risk is comprised of interest rate, foreign exchange (conversion and transactions), credit and equity risk. Liquidity risk is addressed in Note 16.

Interest rate risk

Management of medium- and long-term financing within the euro zone is centralized at Vallourec and the sub-holding company Vallourec Tubes.

Total liabilities

As at 31/12/2017	Other borrowings	Cash
Fixed rate on date granted	2,381,008	—
Variable rate on date granted swapped to fixed rate	—	—
Fixed rate	**2,381,008**	**—**
Variable rate	**182,331**	**1,021,035**
TOTAL	**2,563,339**	**1,021,035**

As at 31/12/2016	Other borrowings	Cash
Fixed rate on date granted	2,325,628	—
Variable rate on date granted swapped to fixed rate	—	—
Fixed rate	**2,325,628**	**—**
Variable rate	**247,460**	**1,286,722**
TOTAL	**2,573,088**	**1,286,722**

The Group is exposed to interest rate risk on its variable rate debt.

The amount of loans with fixed rates on the dates granted primarily consists of bonds and commercial paper issued by Vallourec:

- in August 2012, two long-term private bond issues for a total of €455 million. The amounts and terms of these two private bond issues are €400 million for seven years with an annual coupon of 3.25% for one, and €55 million for 15 years with an annual coupon of 4.125% for the other;
- on 30 September 2014, a €500 million bond issue, maturing in September 2024, with a fixed annual coupon of 2.25%;
- on 27 September 2017, a €250 million bond issue, consisting of Bonds Convertible into New Shares and/or Exchangeable for Existing Shares, maturing in October 2022, with a fixed annual coupon of 4.125%, a 37.5% conversion premium and a 6.89 strike;

NOTE 8 Financial instruments (Continued)

- on 11 October 2017, Vallourec issued a €400 million bond, which received a matching contribution on 23 October 2017 in the amount of €150 million (i.e. €550 million in total) maturing in October 2022 with a fixed annual coupon of 6.625%. This bond is callable pursuant to the contractual terms as from 15 October 2020;
- outstanding commercial paper in the amount of €396.8 million.

Furthermore, in December 2009, Vallourec Soluções Tubulares do Brasil took out a loan with BNDES (Banco National de Desenvolvimento Econômico e Social). As at 31 December 2017, BRL 4.4 million of this loan, at a fixed rate of 4.5%, had been drawn. Vallourec Soluções Tubulares do Brasil also concluded a fixed-rate finance lease in 2010.

As at 31 December 2017, financial debt exposed to changes in variable interest rates was €182.3 million (about 7% of total gross debt).

No significant line of fixed-rate financing will reach contractual maturity during the 12 months after 31 December 2017, except for:

- €396.8 million in outstanding commercial paper maturing in more than one year;
- the US finance lease in the amount of €23.2 million;
- €68.4 million for various lines of financing in the Group's subsidiaries.

Given the Group's interest rate risk hedging policy, the impact of a 1% rise in short-term rates in the euro zone, on Brazilian and Chinese rates and UK and US money market rates would result in a €1.8 million increase in the Group's annual financial expenses, based on an assumption of complete stability of the financial liabilities and constant exchange rates, and after taking into account the effects of any hedging instruments. This impact does not take into account the interest rate risk on commercial paper with a more than one year maturity or on short-term cash investments (of no more than three months).

Foreign currency translation risk

The assets, liabilities, revenues and expenses of the Group's subsidiaries are expressed in various currencies. The Group financial statements are presented in euros. The assets, liabilities, revenues and expenses denominated in currencies other than the euro have to be translated into euros at the applicable rate so that they can be consolidated.

If the euro rises (or falls) against another currency, the value in euros of the various assets, liabilities, revenues and expenses initially recognized in that other currency will fall (or rise). Therefore, changes in the value of the euro may have an impact on the value in euros of the assets, liabilities, revenues and costs not denominated in euros, even if the value of these items in their original currency has not changed.

In 2017, net income, Group share was generated to a significant extent by subsidiaries that prepare their financial statements in currencies other than the euro (mainly in US dollars and the Brazilian real). A 10% change in exchange rates would have had an upward or downward impact on net income, Group share of around €2.1 million.

In addition, the Group's sensitivity to long-term foreign exchange rate risk is reflected in the changes that have occurred in recent years in the foreign currency translation reserves booked to equity

NOTE 8 Financial instruments (Continued)

(−€564.5 million as at 31 December 2017) which, in recent years, have been linked mainly to movements in the US dollar and Brazilian real.

Foreign currency translation reserve—Group share	31/12/2016	31/12/2017
USD	343,878	193,059
GBP	(11,583)	(12,107)
BRL	(529,697)	(738,432)
CNY	34,276	19,532
Others	(13,448)	(26,513)
TOTAL	**(176,574)**	**(564,461)**

Transaction risk

The Group is subject to exchange rate risks due to its business exposure linked to sales and purchase transactions entered into by some of its subsidiaries in currencies other than their functional currency.

The main foreign currency involved is the US dollar (USD): a significant portion of Vallourec's transactions (approximately 38% of Group sales in 2017) is invoiced in US dollars by companies whose functional currency is not the US dollar.

Exchange rate fluctuations between the euro, the Brazilian real (BRL) and the US dollar may therefore affect the Group's operating margin. Their impact is, however, very difficult to quantify for two reasons:

1. there is an adjustment effect on selling prices denominated in US dollars related to market conditions in the various sectors of activity in which Vallourec operates;
2. certain sales and purchases, even though they are denominated in euros or Brazilian reals, are influenced by the level of the US dollar. They are therefore indirectly and at some time in the future affected by movements in the US currency.

The Group actively manages its exposure to foreign exchange risk to reduce the sensitivity of its net profits to currency fluctuations by setting up hedges once the order is placed and sometimes once a quotation is given.

Order cancellations could therefore result in the cancellation of hedges in place, leading to the recognition in the consolidated income statement of gains and losses with regard to these canceled hedges.

We estimate that a 10% rise or fall in the currencies used in all hedges implemented by the Group would result in a €47.5 million decrease or increase in the intrinsic value recognized in consolidated equity as at 31 December 2017. Most of these amounts would be due to changes in the US dollar against the euro, and to a lesser extent, the Brazilian real against the US dollar.

To be eligible for hedge accounting as defined under IAS 39, the Vallourec Group has developed its cash management and invoicing systems to facilitate the traceability of hedged transactions throughout the duration of the hedging instruments.

As at 31 December 2017, the following amounts were outstanding under forward foreign exchange contracts to hedge purchases and sales denominated in foreign currencies:

Hedging contracts with regard to commercial transactions—Exchange rate risk	2016	2017
Forward exchange contract: forward sales	1,074,559	805,754
Forward exchange contract: forward purchases	45,218	64,563
Currency options: sales	—	—
Currency options: purchases	—	—
Raw materials and energy—purchases, options	—	—
TOTAL	**1,119,777**	**870,317**

NOTE 8 Financial instruments (Continued)

Contract maturities as at 31 December 2017

Contracts on commercial transactions	Total	< 1 year	1 to 5 years	> 5 years
Exchange contracts: forward sales	805,754	805,754	—	—
Exchange contracts: forward purchases	64,563	64,563	—	—
Currency options: sales	—	—	—	—
Currency options: purchases	—	—	—	—
Raw materials and energy—purchases, options	—	—	—	—
TOTAL	**870,317**	**870,317**		**—**

Forward sales (€806 million of the €870 million total) correspond mainly to sales of US dollars. These contracts were transacted at an average forward EUR/USD rate of 1.18 and an average forward USD/BRL rate of 3.29.

In 2017, as in 2016, the hedges entered into generally covered an average period of about 10 months and mainly hedged highly probable future transactions and foreign currency receivables.

In addition to hedges on commercial transactions, Vallourec has implemented hedging contracts for financial loans and receivables denominated in foreign currencies:

- forward sales for 200.8 million in US dollars (€168.8 million);
- forward sales for 75.0 million in Chinese yuan (€9.5 million).

These instruments are intended to hedge either the debt denominated in USD, or the foreign currency loans established by the financial holding company Vallourec Tubes in the currency of the subsidiaries receiving them. The forward purchases and sales mature at various times in 2018, as and when the hedged loans and borrowings mature.

Other than its foreign-currency-denominated borrowings, Vallourec does not hedge any of the other foreign currency assets and liabilities in its consolidated statement of financial position (foreign currency translation risks).

Credit risks

Vallourec is subject to credit risk on financial assets for which no impairment provision has been made and whose non-recovery could affect the Company's results and financial position.

The Group has identified four main types of receivables that have these characteristics:

- 1% building loans granted to Group employees;
- security deposits paid in connection with tax disputes and the tax receivables due to the Group in Brazil;
- trade and other receivables;
- derivatives that have a positive fair value.

1. 1% building loans granted to the Group's employees: these loans do not expose the Group to any credit risk since the full amount of the loan is written off as soon as there is any delay in the collection of the amounts due. It should be noted that these loans are valued using the effective interest rate method applied to the expected cash flows until the maturity date of these loans (contractual interest rates may be lower);
2. Security deposits and tax receivables due to the Group in Brazil: there is no specific risk in respect of these receivables, even if the outcome of the disputes is unfavorable, since the risk has already been assessed and a provision recognized in respect of these receivables, and the funds have already been paid in full or in part;

NOTE 8 Financial instruments (Continued)

3. The Group's policy on the impairment of trade receivables is to recognize a provision when indications of impairment are identified. The impairment is equal to the difference between the carrying amount of the asset and the present value of expected future cash flows, taking into account the position of the counterparty.

The Group considers that as at 31 December 2017, there is no reason to assume that there is any risk in respect of receivables for which no provision has been made and which are less than 90 days overdue. Trade receivables more than 90 days past due and not impaired amounted to €38.4 million as at 31 December 2017, or 7% of the Group's total net trade receivables.

Vallourec considers that the risk is limited given its existing customer risk management procedures, which include:

- the use of credit insurance and documentary credits;
- the long-standing nature of the Group's commercial relations with major customers;
- the commercial collection policy.

Vallourec remains subject to country risk, which could impact the payment of some of its receivables.

In addition, as at 31 December 2017, trade receivables not yet due amounted to €435.6 million, or 80% of total net trade receivables;

4. As concerns the derivatives that have a positive fair value, the Group only deals with highly-rated counterparties. The credit risk is considered to be insignificant.

The maturities of these trade receivables are as follows (in € thousand):

As at 31/12/2017	0 to 30 days	30 to 60 days	60 to 90 days	90 to 180 days	> 180 days	Total
Trade receivables outstanding	276,459	97,830	16,703	40,959	3,602	435,553

Equity risk

Treasury shares held by Vallourec as at 31 December 2017 include shares allocated to allocation operations for certain members of the staff, managers or executive corporate officers of the Group.

In this context, Vallourec holds:

- 165 treasury shares acquired in 2011 under the share buyback plan of 7 June 2011, after definitive allocation of 27,534 shares in 2012, 86,377 shares in 2013, 91,929 shares in 2014, 108,600 shares in 2015, 30,524 shares in 2016 and 54,871 shares in 2017 under the various performance share plans;
- 1,131 treasury shares acquired in 2012 under the share buyback plan of 31 May 2012, upon the definitive allocation of 94,600 shares in 2014, 225,684 shares in 2016, and 78,585 shares in 2017 under the various performance share plans;
- 171,311 treasury shares acquired in 2014 after the definitive allocation of 128,689 shares in 2017 for the various performance share plans.

The Management Board, in consultation with the Supervisory Board, has decided to allocate these treasury shares to cover the Group's performance share and employee share ownership plans.

On 18 December 2017, Vallourec decided to terminate the liquidity contract entered into on 26 June 2012 with Rothschild & Cie Banque.

To the best of its knowledge, the Group had no other exposure to equity risk as at 31 December 2017.

NOTE 8 Financial instruments (Continued)

Classification and measurement of financial assets and liabilities

The amounts recognized in the statement of financial position are based on the measurement methods used for each financial instrument.

2017	Notes	Category[(a)]	Gross value as at 31/12/2017	Amortized cost	Fair value through equity	Fair value through profit or loss
ASSETS						
Other non-current assets	4					
Listed equity interests		AFS	—	—	—	—
Other equity interests		AFS	5,745	—	5,745	—
Loans		L&R	21,709	21,709	—	—
Other financial assets		L&R/AHM[(a)]	35,922	35,922	—	—
Trade and other receivables	7	**L&R**	**569,206**	**569,206**	**—**	**—**
Derivatives—assets	8					
Hedging financial instruments		CFH	12,478	—	12,478	—
Hedging financial instruments[(d)]		A-FVTPL	18,556	—	—	18,556
Speculative financial instruments		A-FVTPL	1,417	—	—	1,417
Other current assets	9	**L&R**	**230,612**	**230,612**	**—**	**—**
Cash and cash equivalents	10	**A-FVTPL**	**1,021,035**	**—**	**—**	**1,021,035**
LIABILITIES						
Bank loans and other borrowings[(b)(c)]	16	**AC-EIR**	**137,279**	**137,279**	**—**	**—**
Others	16	**AC-EIR**	**634,566**	**634,566**	**—**	**—**
Finance leases	16	**AC-EIR**	**65,874**	**65,874**	**—**	**—**
Bond issues	16	**AC-EIR**	**1,714,908**	**1,714,908**	**—**	**—**
Current bank overdrafts	16	**AC-EIR**	**10,712**	**10,712**	**—**	**—**
Trade and other payables		**AC**	**581,622**	**581,622**	**—**	**—**
Derivatives—liabilities	8					
Hedging financial instruments		CFH	4,592	—	4,592	—
Hedging financial instruments		L-FVTPL	8,302	—	—	8,302
Speculative financial instruments		L-FVTPL	—	—	—	—
Other current liabilities	20	**AC**	**305,881**	**305,881**	**—**	**—**

(a) A-FVTPL—Financial assets measured at fair value through profit or loss.
AHM: Assets held to maturity.
L&R: Loans and receivables.
AFS: Available-for-sale financial assets.
CFH: Cash flow hedges.
L-FVTPL: Financial liabilities measured at fair value through profit or loss.
AC: Amortized cost.
AC-EIR: Amortized cost according to the effective interest rate method.

(b) Borrowings classified within non-current liabilities maturing in more than 12 months.

(c) Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity to the extent of their effectiveness. Otherwise, they are recognized under financial income.

(d) Including the Value 13, Value 14, Value 15, Value 16 and Value 17 warrants, whose fair value as at 31 December 2017 was €0.8 million.

NOTE 8 Financial instruments (Continued)

Financial instruments measured at fair value are classified by category on the basis of their measurement method. Fair value is measured:

(A) Mainly based on quoted prices on an active market; equity securities are valued this way.

(B) On the basis of observable methods and data and with reference to the financial markets (yield curve, forward prices, etc.).

2017 Balance sheet headings and classes of instruments	Category	Total fair value on statement of financial position	Fair value		
			Listed prices (A)	Internal model with observable inputs (B)	Internal model with unobservable inputs
ASSETS					
Listed equity interests	AFS	—	—	—	—
Other equity interests	AFS	5,745	—	5,745	—
Derivatives—assets					
Hedging financial instruments	CFH	31,034	—	31,034	—
Speculative financial instruments	L-FVTPL	1,417	—	1,417	—
Cash and cash equivalents	**A-FVTPL**	**1,021,035**	**1,021,035**	**—**	**—**
LIABILITIES					
Derivatives—liabilities					
Hedging financial instruments	CFH	12,894	—	12,894	—
Speculative financial instruments	L-FVTPL	—	—	—	—

NOTE 8 Financial instruments (Continued)

2016	Notes	Category[a]	Gross value at 31/12/2016	Amortized cost	Fair value through equity	Fair value through profit or loss
ASSETS						
Other non-current assets	4					
Listed equity interests		AFS	73,282	—	73,282	—
Other equity interests		AFS	6,294	—	6,294	—
Loans		L&R	5,031	5,031	—	—
Other financial assets		L&R/AHM[2]	58,034	58,034	—	—
Trade and other receivables	7	**L&R**	**5,551,053**	**5,551,053**	**—**	**—**
Derivatives—assets	8					
Hedging financial instruments		CFH	1,764	—	1,764	
Hedging financial instruments[d]		A-FVTPL	54,664			54,664
Speculative financial instruments		A-FVTPL	1,558	—	—	1,558
Other current assets	9	**L&R**	**283,019**	**283,019**	**—**	**—**
Cash and cash equivalents	10	**A-FVTPL**	**1,286,722**	**—**	**—**	**1,286,722**
LIABILITIES						
Bank loans and other borrowings[b][c]	16	**AC-EIR**	**214,556**	**214,556**	**—**	**—**
Others	16	**AC-EIR**	**636,348**	**636,348**	**—**	**—**
Finance leases	16	**AC-EIR**	**113,031**	**113,031**	**—**	**—**
Bond issue	16	**AC-EIR**	**1,600,201**	**1,600,201**	**—**	**—**
Current bank overdrafts	16	**AC-EIR**	**9,608**	**9,608**	**—**	**—**
Trade and other payables		**AC**	**530,391**	**530,391**	**—**	**—**
Derivatives—liabilities	8					
Hedging financial instruments		CFH	26,390	—	26,390	
Hedging financial instruments		L-FVTPL	78,901			78,901
Speculative financial instruments		L-FVTPL	2	—	—	2
Other current liabilities	20	**AC**	**299,462**	**299,462**	**—**	**—**

(a) A-FVTPL—Financial assets measured at fair value through profit or loss.

AHM: Assets held to maturity.

L&R: Loans and receivables.

AFS: Available-for-sale financial assets.

CFH: Cash flow hedges.

L-FVTPL: Financial liabilities measured at fair value through profit or loss.

AC: Amortized cost.

AC-EIR: Amortized cost according to the effective interest rate method.

(b) Borrowings classified within non-current liabilities maturing in more than 12 months.

(c) Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity to the extent of their effectiveness. Otherwise, they are recognized under financial income.

(d) Including the Value 12, Value 13, Value 14, Value 15 and Value 16 warrants, whose fair value as at 31 December 2016 was €1.7 million.

Financial instruments measured at fair value are classified by category on the basis of their measurement method. Fair value is measured:

(A) Mainly based on quoted prices on an active market; equity securities are valued this way.

NOTE 8 Financial instruments (Continued)

(B) On the basis of observable methods and data and with reference to the financial markets (yield curve, forward prices, etc.).

2016 Balance sheet headings and classes of instruments	Category	Total fair value on statement of financial position	Fair value		
			Listed prices (A)	Internal model with observable inputs (B)	Internal model with unobservable inputs
ASSETS					
Listed equity interests	AFS	73,282	73,282	—	—
Other equity interests	AFS	6,294	—	6,294	—
Derivatives—assets					
Hedging financial instruments	CFH	56,428	—	56,428	—
Speculative financial instruments	L-FVTPL	1,558	—	1,558	—
Cash and cash equivalents	**A-FVTPL**	**1,286,722**	**1,286,722**	**—**	**—**
LIABILITIES					
Derivatives—liabilities					
Hedging financial instruments	CFH	105,291	—	105,291	—
Speculative financial instruments	L-FVTPL	2	—	2	—

NOTE 9 Other current assets

	Employee-related receivables and recoverable payroll taxes	Tax receivables excluding income tax	Prepaid expenses	Government, income tax	Other receivables	Total
As at 31/12/2015	**3,929**	**77,853**	**49,723**	**53,103**	**122,866**	**307,474**
Impact of changes in exchange rates	436	10,232	2,804	6,636	11,320	31,428
Provision allowances or reversals	—	—	—	—	4,110	4,110
Acquisitions from business combinations (see Note 34)	85	29,635	3,173	10,479	79,790	123,162
Disposals from business combinations	(48)	(16,596)	(1,776)	(5,868)	(28,834)	(53,122)
Reclassification to assets held for sale and discontinued operations	(139)	(801)	(718)	—	—	(1,658)
Other changes	592	11,233	(2,183)	(25,697)	(112,320)	(128,375)
As at 31/12/2016	**4,855**	**111,556**	**51,023**	**38,653**	**76,932**	**283,019**
Impact of changes in exchange rates	(352)	(9,798)	(3,446)	(6,077)	(4,632)	(24,305)
Provision allowances or reversals	—	—	—	—	(1,071)	(1,071)
Reclassification to assets held for sale and discontinued operations	(38)	—	(311)	—	(502)	(851)
Other changes	(601)	(6,066)	(3,629)	5,428	(21,312)	(26,180)
AS AT 31/12/2017	**3,864**	**95,692**	**43,637**	**38,004**	**49,415**	**230,612**

In 2016, the decrease in the "Other changes" item is explained by the elimination of the 44% share in the receivables with VSB.

NOTE 9 Other current assets (Continued)

The Group completed operations to mobilize receivables without recourse with financial institutions in the amount of €40 million. The amount of the corresponding receivables thus no longer appears in the Group's consolidated balance sheet.

NOTE 10 Cash and cash equivalents

	Investment securities (gross)	Cash and cash equivalents	Total
As at 31/12/2015	**460,526**	**170,014**	**630,540**
Impact of changes in exchange rates	50,408	(5,856)	44,552
Reclassification to assets held for sale and discontinued operations	—	(4,646)	(4,646)
Acquisitions from business combinations (see Note 34)	47,871	6,953	54,824
Disposals from business combinations	(25,921)	(688)	(26,609)
Other changes	417,592	170,469	588,061
As at 31/12/2016	**950,476**	**336,246**	**1,286,722**
Impact of changes in exchange rates	(45,369)	1,969	(43,400)
Other changes	(99,740)	(122,547)	(222,287)
AS AT 31/12/2017	**805,367**	**215,668**	**1,021,035**

"Cash and cash equivalents" comprises cash in bank checking accounts and investment securities (shares in short-term cash UCITS and mutual and investment funds) that are immediately available (not pledged), risk-free and have a low volatility level.

NOTE 11 Assets held for sale and discontinued operations

Net values	31/12/2016	31/12/2017
Assets held for sale and discontinued operations	46,327	64,119
Liabilities held for sale and discontinued operations	(43,211)	(12,654)
NET CARRYING AMOUNT OF ASSETS/LIABILITIES HELD FOR SALE	**3,116**	**51,465**

These assets and liabilities are as follows:

	31/12/2016	31/12/2017
Non-current assets	19,505	19,100
Current assets	26,822	45,019
Non-current liabilities	(3,232)	(1,654)
Current liabilities	(39,979)	(11,000)
NET CARRYING AMOUNT OF ASSETS/LIABILITIES HELD FOR SALE	**3,116**	**51,465**

On 11 December 2017, Vallourec announced that, following exclusive negotiations with the American oil services group NOV, it had received a firm offer for the repurchase of the "Drilling Products" business. For the operation, which meets IFRS 5 criteria, associated assets and liabilities were valued at fair value and reclassified under assets/ liabilities held for sale.

As at 31 December 2016, the Saint-Saulve steel mill contributed to Ascoval, 40% held by Vallourec Tubes France since 26 January 2017, and was classified under available-for-sale assets.

NOTE 12 Change in cash flows

Change in Working Capital

Gross values	31/12/2016	Translation difference	Change	Reclassification and other	31/12/2017
Inventories	1,240,512	(92,756)	81,919	(45,838)	1,183,837
Trade receivables	579,168	(47,526)	85,992	(13,981)	603,653
Trade payables	(530,391)	38,567	(103,566)	13,768	(581,622)
Other receivables and payables	82,678	(3,549)	(148,045)	(1,961)	(70,877)
Gross working capital (1)	**1,371,967**	**(105,264)**	**(83,700)**	**(48,012)**	**1,134,991**
Impact of hedging instruments (2)			**23,145**		
TOTAL (1) + (2)			**(60,555)**		
Change in working capital in the statement of cash flows			60,555		

The change in other receivables and payables during 2017 primarily corresponds to the recovery of tax credits in Brazil (€94 million).

Gross values	31/12/2015	Translation difference	Change	Reclassification and other	31/12/2016
Inventories	1,234,047	54,031	(168,198)	120,632	1,240,512
Trade receivables	599,719	24,459	(123,403)	78,393	579,168
Trade payables	(523,476)	(8,235)	84,172	(82,852)	(530,391)
Other receivables and payables	7,306	28,826	5,281	41,265	82,678
Gross working capital (1)	**1,317,596**	**99,081**	**(202,148)**	**157,438**	**1,371,967**
Impact of hedging instruments (2)			**22,517**		
TOTAL (1) + (2)			**(179,631)**		
Change in working capital in the statement of cash flows			179,631		

Change in financial liabilities

	31/12/2016	Translation difference	Proceeds drawn from new borrowings	Repayments of borrowings	Current/ non-current reclassifications and other	31/12/2017
Non-current financial liabilities	1,120,648	(18,593)	821,888	(6,497)	(100,327)	1,817,119
Current financial liabilities	1,453,096	(76,477)	129,958	(846,005)	85,648	746,220
Financial liabilities (1)	**2,573,744**	**(95,070)**	**951,846**	**(852,502)**	**(14,679)**	**2,563,339**
Impact of hedging instruments and other (2)			**(25,088)**	**27,459**		
TOTAL (1) + (2)			**926,758**	**(825,043)**		
Change in financial liabilities in the statement of cash flows			926,758	(825,043)		

NOTE 12 Change in cash flows (Continued)

	31/12/2015	Translation difference	Proceeds drawn from new borrowings	Repayments of borrowings	Current/ non-current reclassifications and other	31/12/2016
Non-current financial liabilities	1,762,955	17,619	942	(53,592)	(607,276)	1,120,648
Current financial liabilities	386,842	60,731	719,346	(497,022)	783,199	1,453,096
Financial liabilities (1)	**2,149,797**	**78,350**	**720,288**	**(550,614)**	**175,923**	**2,573,744**
Impact of hedging instruments and other (2)			**(465)**	**(34,987)**		
TOTAL (1) + (2)			**719,823**	**(585,601)**		
Change in financial liabilities in the statement of cash flows			719,823	(585,601)		

NOTE 13 Equity

Capital

Vallourec's issued capital is comprised of 457,987,760 ordinary shares with a nominal value of €2 per share, fully paid-up, compared with 451,238,005 as at 31 December 2016.

2017

On 14 December 2017, under the Value 17 employee share ownership plan, 6,749,755 new shares were subscribed at a price of €4.00 for the leveraged plan and €3.77 for the standard plan, for a capital increase of €26.6 million, including issue premium net of expenses.

2016

On 3 May 2016, Vallourec increased its capital maintaining shareholders' preferential subscription rights for a gross amount of €480 million, resulting in the creation of 217,101,488 new shares. This capital increase, combined with the reserved issuance of mandatory convertible bonds for a gross amount of €514 million subscribed by Bpifrance Participations SA and Nippon Steel & Sumitomo Metal Corporation, enabled Vallourec to complete the overall capital increase for a net amount of €951 million.

Upon the issuance of the capital increase maintaining shareholders' preferential subscription rights and redemption of the bonds on 3 May 2016 for BPI and on 20 June 2016 for NSSMC, the capital stands at 444,638,049 ordinary shares with a par value of €2 each (compared to 135,688,432 as at 31 December 2015).

On 14 December 2016, under the Value 16 employee share ownership plan, 6,599,956 new shares were subscribed at a price of €3.99 for the leveraged plan and €3.75 for the standard plan, for a capital increase of €25.9 million, including issue premium net of expenses.

Reserves, financial instruments

Under IAS 39—Financial Instruments, postings to this reserve account are made for two types of transactions:

- effective currency hedges assigned to the order book and commercial tenders. Changes in the intrinsic values at year-end are recognized in equity;

NOTE 13 Equity (Continued)

- variable rate borrowings for which interest rate swaps (fixed rate) have been contracted. These are accounted for in accordance with the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity.

Foreign currency translation reserve

This reserve arises as a result of the translation of the equity of subsidiaries outside the euro zone. The change in the reserve corresponds to fluctuations in exchange rates used to translate the equity and net profit of these subsidiaries. Components of the reserve are reversed to income only in the case of a partial or total disposal and loss of control of the foreign entity.

	USD	GBP	BRL	CNY	Others	Total
As at 31/12/2015	**320,968**	**(5,789)**	**(863,699)**	**58,473**	**(10,528)**	**(500,575)**
Change	22,910	(5,794)	334,002	(24,197)	(2,920)	324,001
As at 31/12/2016	**343,878**	**(11,583)**	**(529,697)**	**34,276**	**(13,448)**	**(176,574)**
Change	(150,819)	(524)	(208,735)	(14,744)	(13,065)	(387,887)
AS AT 31/12/2017	**193,059**	**(12,107)**	**(738,432)**	**19,532**	**(26,513)**	**(564,461)**

Main exchange rates used (euro/currency): translation of balance sheet items (closing rate) and income statement items (average rate).

For €1.00	USD	GBP	BRL	CNY
2016				
Average rate	1,11	0.82	3.86	7.35
Closing rate	1,05	0.86	3.43	7.32
2017				
Average rate	1,13	0.88	3.61	7.63
Closing rate	1,20	0.89	3.97	7.80

NOTE 14 Earnings per share

Basic earnings per share are calculated by dividing the net income for the year attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding in the same period.

Diluted earnings per share are calculated by dividing the net income for the year attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding in the same period, adjusted for the dilution effect of options.

NOTE 14 Earnings per share (Continued)

Details of the earnings and numbers of shares used to calculate basic and diluted earnings per share are presented below:

Earnings per share	2016	2017
Net income (loss) attributable to ordinary shareholders for basic earnings per share	**(758,016)**	**(536,691)**
Weighted average number of ordinary shares for basic earnings per share	332,737,362	451,552,377
Weighted average number of treasury shares for basic earnings per share	(2,279,971)	(2,628,832)
Weighted average number of shares for earnings per share	330,457,391	448,923,545
EARNINGS PER SHARE *(in €)*	**(2.3)**	**(1.2)**
Earnings per share comparable to 2017 *(in €)*	(1.7)	
Dilution effect—stock purchase and subscription options and performance shares	155,548	—
Weighted average number of ordinary shares for diluted earnings per share	330,612,939	448,923,545
DILUTED EARNINGS PER SHARE *(in €)*	**(2.3)**	**(1.2)**
Earnings per share comparable to 2017 *(in €)*	(1.7)	

Dividends paid during the year:	2016	2017
• for the previous fiscal year *(in €)*	—	—
• interim dividend for the current fiscal year *(in €)*	—	—

NOTE 15 Non-controlling interests

	Reserves	Translation difference	Net income/ (loss)	Total
As at 31/12/2016	450,892	93,070	(49,530)	494,432
AS AT 31/12/2017	**454,300**	**27,283**	**(23,038)**	**458,545**

Contribution at reporting date	As at 31/12/2016	As at 31/12/2017
Main American entities[(a)]	330,144	268,337
Others	164,288	190,208
TOTAL	**494,432**	**458,545**

(a) Non-controlling interests are primarily held by Sumitomo Corp. and Nippon Steel Sumitomo Metal Corp.

Contributions to income/(loss)	As at 31/12/2016	As at 31/12/2017
Main American entities[(a)]	(48,404)	(23,110)
Others	(1,126)	72
TOTAL	**(49,530)**	**(23,038)**

(a) Non-controlling interests are primarily held by Sumitomo Corp. and Nippon Steel Sumitomo Metal Corp.

NOTE 15 Non-controlling interests (Continued)

The amounts presented are the amounts which appear in the financial statements for wholly-owned entities, which were prepared in accordance with IFRS, upon fair value adjustments made at the time of acquisition, and adjustments for standardization with the Group's accounting principles.

Main American entities	As at 31/12/2016	As at 31/12/2017
Current assets	222,682	294,561
Non-current assets	1,632,387	1,347,957
Current liabilities	393,127	507,806
Non-current liabilities	191,400	103,753
NET ASSETS	**1,270,542**	**1,030,959**
Non-controlling interests	330,144	268,337
Revenue	426,730	875,544
Net income	(207,413)	(90,483)
Other comprehensive income (loss)	28,079	(132,449)
TOTAL COMPREHENSIVE INCOME	**(179,334)**	**(222,932)**
Net income attributable to non-controlling interests	(48,404)	(23,110)
Other items of comprehensive income attributable to non-controlling interests	10,438	(38,548)
Cash flow from operating activities	(52,381)	(24,937)
Cash flow used in investing activities	(16,045)	(19,744)
Cash flow from (used in) financing activities	(36,393)	(53,798)
Impact of changes in exchange rates	(7,624)	28,083
NET CASH FLOWS	**(112,443)**	**(70,396)**

NOTE 16 Bank loans and other borrowings

Liquidity risk

The Group's financial resources are composed of bank financing and market financing.

The majority of long-term and medium-term bank financing has been put in place in Europe through Vallourec and to a lesser extent via the subsidiaries in Brazil and the United States (see below).

Market financing is arranged exclusively by Vallourec.

In Europe

In February 2014, Vallourec took out a revolving credit facility for the amount of €1.1 billion, maturing in February 2019, plus two one-year extension options. In addition to the first one-year extension obtained for €1.078 billion, the second extension was granted in July 2016 for the sum of €989 million, which was then raised to 1,034 million in July 2017. The new maturity date is in 2021. This credit line is available for the Group's general funding purposes. As at 31 December 2017 this line had not been drawn.

In June 2015, Vallourec agreed to a confirmed bilateral line of €90 million until February 2019 with two one-year extension options, which were granted in July 2016. As at 31 December 2017 this line had not been drawn.

In September 2015, Vallourec took out a confirmed credit facility for €400 million, maturing in July 2019, with a one-year extension option which was granted in July 2016 for the full amount, and maturity rescheduled for 2020. This replaced four medium-term bilateral lines of €100 million each, which were originally granted to Vallourec Tubes, maturing in July 2017. As at 31 December 2017 this line had not been drawn.

In May 2016, Vallourec took out a revolving credit line for €450 million maturing in February 2020. As at 31 December 2017 this line had not been drawn.

NOTE 16 Bank loans and other borrowings (Continued)

Each of these bank facilities requires Vallourec to maintain its consolidated net debt-to-equity ratio at no more than 75%, calculated as at 31 December each year. For 2018, 2019, and 2020, this ratio was taken to 100% for all Vallourec's bank facilities through amendments of 17 March 2017. In the event of non-compliance with this ratio requirement, lenders would be entitled to demand early repayment of the outstanding drawn amounts. Vallourec was in compliance with this ratio requirement as at 31 December 2017. As defined in the financing agreements, the "bank covenant ratio" is the ratio between the Group's net consolidated debt and the Group's equity, restated for gains and losses on derivatives and valuation differences (gains and losses on the consolidated subsidiaries in foreign currencies).

In addition to bank financing, the Group has sought to diversify its funding sources by using market financing. For example, Vallourec launched a commercial paper program on 12 October 2011 to meet its short-term needs. The program has a €1 billion ceiling.

At 31 December 2017, Vallourec had an outstanding debt of €396.8 million for maturities of up to one year. This commercial paper program was rated B by Standard & Poor's.

In August 2012, Vallourec also issued two long-term private bonds totaling €455 million. The amounts and terms of these two private bond issues are €400 million for seven years with an annual coupon of 3.25% for one, and €55 million for 15 years with an annual coupon of 4.125% for the other.

On 30 September 2014, Vallourec issued a €500 million bond, maturing in September 2024, with a fixed annual coupon of 2.25%.

On 27 September 2017, Vallourec issued a €250 million bond issue, consisting of Bonds Convertible into New Shares and/or Exchangeable for Existing Shares, maturing in October 2022, with a fixed annual coupon of 4.125%, a 37.5% conversion premium and a 6.89 strike.

On 11 October 2017, Vallourec issued a €400 million bond, which received a matching contribution on 23 October 2017 in the amount of €150 million (i.e. €550 million in total) maturing in October 2022 with a fixed annual coupon of 6.625%. This bond is callable pursuant to the contractual terms as from 15 October 2020.

As at 31 December 2017, the market value of these fixed-rate bonds was €410.4 million, €61.5 million, €521.7 million, and €549.0 million, respectively.

These bond issues were intended to diversify and increase the amount and extend the maturity of the financial resources available to the Group.

These bond issues specifically include a change-of-control clause that would trigger the mandatory prepayment of the bonds at the request of each bondholder in the event of a change of control of the Company (in favor of a person or a group of people acting in concert) leading to a downgrade of Vallourec's financial rating.

In addition, these bonds may be subject to a request for prepayment should any of the common default scenarios for this type of transaction arise. Early redemption may also be requested in some cases by either the Company or the bondholder, particularly in respect of a change in Vallourec's position or tax status.

As at 31 December 2017, the Group complied with its commitments and the terms and conditions for obtaining and maintaining all of the above facilities. Together, the above resources were sufficient to cover the Group's cash requirements as at 31 December 2017.

In Brazil

In 2010, Vallourec Soluções Tubulares do Brasil (formerly VSB) entered into a finance lease with a nominal value of BRL 570 million relating to equipment needed to operate the plant at Jeceaba. As at 31 December 2017, the residual amount outstanding on this finance lease was BRL 287 million.

NOTE 16 Bank loans and other borrowings (Continued)

In the United States

Vallourec Star benefits from a bilateral bank line of credit established in 2016 for a total amount of USD 80 million. The amount used as at 31 December 2017 totaled USD 80 million. This line contains clauses relating to the indebtedness of Vallourec Star and a change of control clause.

In 2013, Vallourec Star set up a finance lease with a nominal value of USD 64.3 million and a final maturity of five years. As at 31 December 2017, the residual amount outstanding on this finance lease was USD 27.9 million.

Financial liabilities—Non-current liabilities

	Bank borrowings	Finance leases	Convertible bond issue	Non-convertible bond issue	Other borrowings	Total
As at 31/12/2015	**78,704**	**78,017**	**—**	**1,597,916**	**8,318**	**1,762,955**
Issuance of new debt	—	—	—	942	—	942
Repayments	(39,526)	(13,834)	—	—	(232)	(53,592)
Impact of changes in exchange rates	15,075	12,833	—	—	(10,289)	17,619
Current/non-current reclassifications	—	—	—	(648,485)	(21)	(648,506)
Acquisitions from business combinations (see Note 34)	4,865	81,853	—	—	(4,527)	82,191
Disposals from business combinations	(2,724)	(45,838)	—	—	7,761	(40,801)
Other changes	—	—	—	—	(160)	(160)
As at 31/12/2016	**56,394**	**113,031**	**—**	**950,373**	**850**	**1,120,648**
Issuance of new debt	4,685	27,505	247,015	542,283	400	821,888
Repayments	(6,249)	(245)	—	—	(3)	(6,497)
Impact of changes in exchange rates	(6,309)	(12,284)	—	—	—	(18,593)
Current/non-current reclassifications	(13,459)	(62,133)	—	—	—	(75,592)
Other changes	—	—	(24,763)	—	28	(24,735)
AS AT 31/12/2017	**35,062**	**65,874**	**222,252**	**1,492,656**	**1,275**	**1,817,119**

NOTE 16 Bank loans and other borrowings (Continued)

Financial liabilities—Current liabilities

	Bank overdrafts	Non-convertible bond issue	Bank borrowings (< 1 year)	Accrued interest not yet due on bank borrowings	Other financial liabilities (< 1 year)	Total
As at 31/12/2015	**5,981**	**—**	**159,306**	**33,372**	**188,183**	**386,842**
Current/non-current reclassifications	—	648,485	—	(3)	21	648,503
Impact of changes in exchange rates	41	—	15,751	—	44,939	60,731
Acquisitions from business combinations (see Note 34)	—	—	49,085	—	250,683	299,768
Disposals from business combinations	—	—	(27,487)	—	(144,109)	(171,596)
Other changes	3,586	1,343	(38,493)	74	262,338	228,848
As at 31/12/2016	**9,608**	**649,828**	**158,162**	**33,443**	**602,055**	**1,453,096**
Current/non-current reclassifications	—	—	13,459	—	62,133	75,592
Impact of changes in exchange rates	(22,142)	—	(14,312)	(13)	(40,010)	(76,477)
Other changes	23,246	(649,828)	(55,092)	(14,392)	(9,925)	(705,991)
AS AT 31/12/2017	**10,712**	**—**	**102,217**	**19,038**	**614,253**	**746,220**

Debt by currency

	USD	EUR	BRL	Others	Total
As at 31/12/2016—in thousands of currency unit	448,869	1,948,186	604,012	n/a	n/a
As at 31/12/2016—in € thousand	425,832	1,948,186	176,071	23,655	2,573,744
As at 31/12/2017—in thousands of currency unit	**336,267**	**2,136,553**	**449,903**	**n/a**	**n/a**
AS AT 31/12/2017—IN € THOUSAND	**280,386**	**2,136,553**	**113,243**	**33,157**	**2,563,339**

Breakdown by maturity of non-current loans and other financial liabilities (> 1 year)

	> 1 year	> 2 years	> 3 years	> 4 years	5 years or more	Total
As at 31/12/2016	**53,996**	**421,612**	**23,023**	**14,663**	**607,354**	**1,120,648**
Finance leases	9,368	9,211	9,260	9,299	28,735	65,873
Other non-current borrowings	403,675	3,076	4,378	770,705	569,412	1,751,246
AS AT 31/12/2017	**413,043**	**12,287**	**13,638**	**780,004**	**598,147**	**1,817,119**

Breakdown by maturity of current loans and other financial liabilities

2017	< 3 months	> 3 months and < 1 year	Total
Bank borrowings	25,053	77,164	102,217
Other borrowings	378,362	203,202	581,564
Finance lease liabilities	26,373	6,159	32,532
Accrued interest on borrowings	287	18,751	19,038
Bank overdrafts (negative cash and cash equivalents)	10,795	74	10,869
AS AT 31/12/2017	**440,870**	**305,350**	**746,220**

NOTE 16 Bank loans and other borrowings (Continued)

Debt by interest rate

The following table groups the current and non-current portions of bank and other borrowings.

	Rate < 3%	Rate 3 to 6%	Rate 6 to 10%	Rate > 10%	Total
As at 31/12/2016					
Fixed rate on date granted	814,145	1,481,302	12,521	18,316	2,326,284
Variable rate on date granted swapped to fixed rate	—	—	—	—	
Fixed rate	814,145	1,481,302	12,521	18,316	2,326,284
Variable rate	2,256	127,123	116,051	2,030	247,460
TOTAL	**816,401**	**1,608,425**	**128,572**	**20,346**	**2,573,744**
As at 31/12/2017					
Fixed rate on date granted	514,244	1,286,715	580,049	—	2,381,008
Variable rate on date granted swapped to fixed rate	—	—	—	—	—
Fixed rate	514,244	1,286,715	580,049	—	2,381,008
Variable rate	7,399	90,000	11,480	73,452	182,331
TOTAL	**529,643**	**1,376,715**	**591,529**	**73,452**	**2,563,339**

Debt contracted at a rate higher than 6% relates to companies based in Brazil.

Debt at a fixed rate of less than 3% on the date granted relates mainly to commercial paper and to the €500 million bond issue.

NOTE 17 Provisions

Non-current liabilities	Provisions for environmental risks	Reorganization measures	Tax risks (income and other taxes, inspections, etc.)	Others	Total
As at 31/12/2015	**10,515**	**—**	**—**	**—**	**10,515**
Provisions for the period	629	13,988	14,222	6,451	35,290
Provisions used	(8)	(3,034)	(2,935)	(5,301)	(11,278)
Impact of changes in exchange rates	2,921	89	8,041	497	11,548
Acquisitions from business combinations (see Note 34)	—	—	—	2,780	2,780
Disposals from business combinations	—	—	—	(477)	(477)
Current/non-current reclassifications	—	11,000	25,512	9,172	45,684
Other changes	1,323	140	929	(766)	1,626
As at 31/12/2016	**15,380**	**22,183**	**45,769**	**12,356**	**95,688**
Provisions for the period	682	2,294	5,087	4,067	12,130
Provisions used	(5)	(5,685)	(5,408)	(5,730)	(16,828)
Impact of changes in exchange rates	(2,181)	(188)	(3,736)	(568)	(6,673)
Other changes[a]	306	(4,047)	(26,839)	(3,185)	(33,765)
AS AT 31/12/2017	**14,182**	**14,557**	**14,873**	**6,940**	**50,552**

(a) The "other changes" in "tax risks" are essentially linked to the review of the tax risk in Brazil.

NOTE 17 Provisions (Continued)

In 2016, provisions for use in over one year (e.g. provisions for tax disputes in Brazil) were reclassified as non-current.

Provisions for environmental risks

The environment provision covers the cost of treating industrial land, as well as the clean-up costs for the mine in Brazil: amounts are provided as and when minerals are extracted, based on the volumes extracted.

Provision for tax risks

This provision mainly relates to risks in connection with tax disputes in Brazil, some of which are covered by security deposits (see Note 4).

Current liabilities	Disputes and commercial commitments	Unfilled orders—losses on completion	Reorganization measures	Tax risks (income and other taxes, inspections, etc.)	Others	Total
As at 31/12/2015	**37,421**	**60,860**	**81,120**	**25,743**	**32,963**	**238,107**
Provisions for the period	37,566	65,912	98,336	75	20,499	222,388
Provisions used	(22,607)	(20,429)	(34,965)	(10)	(28,958)	(106,969)
Other reversals	(4,719)	(2,433)	—	—	—	(7,152)
Impact of changes in exchange rates	5,109	2,592	(168)	(1)	5,845	13,377
Acquisitions from business combinations (see Note 34)	—	22,497	—	—	1,067	23,564
Disposals from business combinations	—	—	—	—	(598)	(598)
Reclassification to liabilities held for sale and discontinued operations	—	—	(26,000)	—	(40)	(26,040)
Current/non-current reclassifications	(3,673)	(32)	(11,000)	(25,512)	(5,467)	(45,684)
Other changes	112	(20,657)	(20,569)	—	10,417	(30,697)
As at 31/12/2016	**49,209**	**108,310**	**86,754**	**295**	**35,728**	**280,296**
Provisions for the period	13,143	46,680	285	—	19,251	79,359
Provisions used	(21,394)	(114,831)	(21,236)	(48)	(10,789)	(168,298)
Other reversals[(a)]	(11,357)	—	(17,493)	(23)	(4,912)	(33,785)
Impact of changes in exchange rates	(2,948)	(5,587)	(210)	(5)	(4,785)	(13,535)
Other changes	1,236	2,713	255	—	558	4,762
AS AT 31/12/2017	**27,889**	**37,285**	**48,355**	**219**	**35,051**	**148,799**

(a) The "other reversals" of "reorganization measures" are primarily related to the updating of restructuring provisions in France and Germany.

Provisions for disputes, commercial commitments and losses on unfilled orders

Provisions are booked with regard to disputes if the Group has an obligation to a third party at the reporting date. They are determined based on the best estimate of the expense likely to be required to settle the obligation.

NOTE 17 Provisions (Continued)

Provisions for adaptation and restructuring measures

The provisions for adaptation and restructuring measures cover the estimated costs of the plans announced in 2015 and 2016, mainly concerning Europe. They include the following costs:

- redundancy and end-of-contract compensation paid to personnel no longer required by the company;
- costs of maintaining personnel after the shutdown of operations and until the site closure (compensation for unworked notice periods, for example);
- contract termination compensation paid to suppliers;
- outstanding rents payable after the shutdown of operations until the end of the rental agreement.

Other current provisions

This item comprises various provisions with regard to customer discounts, late payment penalties and other risks identified at the reporting date, with none being individually material.

Contingent liabilities

In connection with investigations by Brazilian authorities relating to procedures involving Petrobras and targeting its tube suppliers, V&M do Brasil S.A. was cited in the decision of a federal judge dated 19 May 2016. This decision provided for authorities to visit the facilities of certain tube suppliers for purposes of collecting evidence. V&M do Brasil S.A. was not included. The police investigation was closed 9 February 2017. The company has made itself available to the judicial authorities to cooperate in the investigations. No provision has been constituted in relation to this matter.

For 2017 and 2016, actual annual greenhouse gas emissions were lower than the allowance granted by the French government, so no provisions were booked in this regard.

NOTE 18 Other long-term liabilities

Other long-term liabilities	
As at 31/12/2015	**31,731**
Impact of changes in exchange rates	4,637
Other changes	(10,656)
As at 31/12/2016	**25,712**
Impact of changes in exchange rates	(1,113)
Other changes	(14,028)
AS AT 31/12/2017	**10,571**

The other long-term liabilities mainly consist of other non-operating liabilities that are more than one year.

NOTE 19 Employee benefit commitments

	Germany	France	United Kingdom	Others	Total
As at 31/12/2016					
Present value of the obligation	**315,841**	**38,251**	**135,041**	**94,818**	**583,951**
Retirement benefits	260,016	36,657	135,041	70,723	502,437
Early retirement commitments	39,765	—	—	—	39,765
Long-service awards and medical benefits	16,060	1,594	—	24,095	41,749
Fair value of plan assets	(166,984)	(8,022)	(148,517)	(33,665)	(357,188)
NET LIABILITY	**148,857**	**30,229**	**(13,476)**	**61,153**	**226,763**
As at 31/12/2017					
Present value of the obligation	**328,112**	**37,637**	**117,940**	**92,776**	**576,465**
Retirement benefits	257,631	35,958	117,940	89,478	501,007
Early retirement commitments	53,809	—	—	—	53,809
Long-service awards and medical benefits	16,672	1,679	—	3,298	21,649
Fair value of plan assets	(179,974)	(8,106)	(143,486)	(36,334)	(367,900)
NET LIABILITY	**148,138**	**29,531**	**(25,546)**	**56,442**	**208,565**

The main actuarial assumptions used for the measurement of post-employment benefit obligations, taking account of the plans' durations, are as follows:

Main actuarial assumptions	Germany	France	United Kingdom	Others
As at 31/12/2016				
Discount rate	1.55%	1.55%	2.70%	from 4.15% to 10.39%
Actual return on plan assets	1.55%	1.55%	2.70%	from 4.15% to 10.39%
Salary increase rate	2.00%	1.40%	3.50%	from 3% to 10%
As at 31/12/2017				
Discount rate	1.55%	1.55%	2.50%	from 3.6% to 9.58%
Long-term return on plan assets	1.55%	1.55%	2.50%	from 3.6% to 9.58%
Salary increase rate	2.00%	1.10%	4.20%	from 3% to 10%

Commitments are valued by independent actuaries. The assumptions used take account of the specific characteristics of the plans and companies concerned.

Experience gains and losses in 2017 generated €3.8 million in gains for the Group (against €9.7 million in gains in 2016). In 2018, the Group expects to pay €39.7 million in benefits under defined benefit plans, including €27.7 million in Germany, €4 million in the United Kingdom, €4.2 million in France and €2 million in Brazil.

Plans that are fully or partially outsourced represented a total obligation of €496 million as at 31 December 2017 for assets of €368 million.

In the euro zone, the discount rate is based on the iBoxx index (AA-rated corporate bonds with a maturity of 10 or more years, estimated on the date the obligations are valued). This index uses a basket of bonds of financial and non-financial companies. The rates have not been restated to reflect credit risk not factored into the selected bond baskets.

Actual returns on plan assets exceeded the estimate of €13.5 million. In 2017, a general drop in discount rates resulted in an overall increase in liabilities, generating actuarial losses for the year of €8.9 million.

The Group has continued the restructuring efforts it began in previous years, in particular making commitments to staff in Germany, and to a lesser extent France and Brazil.

NOTE 19 Employee benefit commitments (Continued)

France

Obligations in France correspond to retirement benefits, supplemental pension plans and long-service award-type benefits.

On 31 December 2017, a sensitivity analysis of the discount rate was performed: a 1% increase of this rate would result in a drop of about €3.5 million in these commitments.

On 14 September 2005, a supplementary pension plan with its own plan assets was set up for executive management. The plan is partially outsourced to an insurance company. Since it is a defined benefit plan, it is valued on an actuarial basis and recognized in accordance with revised IAS 19 in the case of active employees.

The plan was closed in 2016 and the rights frozen.

As at 31 December 2017, the obligation represents €11.5 million for assets of €7.9 million.

Germany

The Group's employees in Germany benefit from a variety of mechanisms (retirement benefits, deferred compensation, long-service awards and early retirement), which constitute long-term obligations for the Group.

On 31 December 2017, a sensitivity analysis of the discount rate was performed: a 1% increase of this rate would result in a drop of about €30.8 million in these commitments.

United Kingdom

The Group helps fund a defined benefit pension plan for Group employees. The obligations are outsourced and managed by leading institutions in the financial markets.

On 31 December 2017, a sensitivity analysis of the discount rate was performed: a 1% increase of this rate would result in a drop of about €20.3 million in these commitments.

Brazil

In Brazil, the Group is participating in funding retirement benefits, long-service awards and a retirement health expense system (closed).

Retirement benefits are partially outsourced in a fund with total assets of €1.5 million in 2017 (vs. €1.1 million in 2016). The Group paid a €0.7 million contribution this year (€0.8 million in 2016).

Mexico

Obligations in Mexico and in Indonesia are not material for the Group.

United States

The assumption for increased medical benefits is regressive from 2017 to 2021: from 5.5% to 4.0% for workers and retirees.

There were no significant events during 2017 that could have a material impact on the obligation.

Other countries

Provisions are made for obligations in other countries in accordance with local standards. They are not considered material at Group level.

Expenses incurred during the year include the additional rights acquired for an additional year of service, the change in existing rights at the beginning of the year due to discounting, past service costs recorded in the period, the expected return on plan assets, the effects of plan reductions or liquidations and the

NOTE 19 Employee benefit commitments (Continued)

amortization of actuarial gains and losses. The portion relating to the discounting of rights is recognized in financial income/ (loss), and the return on plan assets is recorded in investment income. These expenses are broken down as follows:

Expenses for the fiscal year

	Germany	France	United Kingdom	Others	Total
As at 31/12/2017					
Current service cost	9,868	1,663	2,949	3,492	17,972
Interest expense	4,717	587	3,485	5,792	14,581
Actual return on plan assets	(2,608)	(124)	(3,887)	(1,414)	(8,033)
Net actuarial losses/(gains) for the year	4,214	(38)	—	(206)	3,970
Cost of past services	—	—	—	—	—
Impact of any reduction or liquidation[(a)]	15,661	(1,241)	—	(1,001)	13,419
NET EXPENSE	**31,852**	**847**	**2,547**	**6,663**	**41,909**
ACTUAL RETURN ON PLAN ASSETS	**4,925**	**172**	**11,430**	**4,984**	**21,511**

(a) Essentially includes restructurings in Germany (increase in early retirement plan).

	Germany	France	United Kingdom	Others	Total
As at 31/12/2016					
Current service cost	9,336	2,173	2,719	3,529	17,757
Interest expense	5,882	923	4,682	6,481	17,968
Actual return on plan assets	(3,179)	(165)	(5,295)	(1,293)	(9,932)
Net actuarial losses/(gains) for the year	2,612	45	—	1,145	3,802
Cost of past services[(b)]	—	(4,922)	—	(4,680)	(9,602)
Impact of any reduction or liquidation[(a)]	16,388	(10,556)	1,073	(3,677)	3,228
NET EXPENSE	**31,039**	**(12,502)**	**3,179**	**1,505**	**23,221**
ACTUAL RETURN ON PLAN ASSETS	**7,617**	**147**	**28,289**	**1,884**	**37,937**

(a) Primarily consists of the restructurings in France (reduction of commitment in return for the allowance of a restructuring provision) and in Germany (increase in the early retirement plan).

(b) In France, corresponds to the closing and freezing of the 2005 supplementary pension plan for executive management.

NOTE 19 Employee benefit commitments (Continued)

The changes in assets associated with these benefits are as follows:

Changes in related assets	Germany	France	United Kingdom	Others	Total
As at 31/12/2015	**151,402**	**7,875**	**156,572**	**29,379**	**345,228**
Value of assets	151,402	7,875	156,572	29,379	345,228
Actual return on assets	7,617	147	28,289	1,884	37,937
Contributions	7,965	—	5,514	2,827	16,306
Benefits paid	—	—	(18,872)	(1,413)	(20,285)
Acquisitions, disposals, liquidations	—	—	—	97	97
Impact of changes in exchange rates	—	—	(22,986)	891	(22,095)
As at 31/12/2016	**166,984**	**8,022**	**148,517**	**33,665**	**357,188**
Value of assets	166,984	8,022	148,517	33,665	357,188
Actual return on assets	4,925	172	11,430	4,984	21,511
Contributions	8,065	—	4,566	4,172	16,803
Benefits paid	—	(88)	(15,836)	(1,406)	(17,330)
Acquisitions, disposals, liquidations	—	—	—	—	—
Impact of changes in exchange rates	—	—	(5,191)	(5,081)	(10,272)
AS AT 31/12/2017	**179,974**	**8,106**	**143,486**	**36,334**	**367,900**

Changes in the obligation	Germany	France	United Kingdom	Others	Total
As at 31/12/2015	**289,596**	**54,246**	**140,527**	**85,336**	**569,705**
Current service cost	9,336	2,173	2,719	3,529	17,757
Interest expense	5,882	923	4,682	6,481	17,968
Employee contributions	—	—	582	38	620
Actuarial losses (+)/gains (−) generated during the year	—	—	—	—	—
Remeasurements:	—	—	—	—	—
• experience-related adjustments	(168)	(1,694)	(5,938)	(1,891)	(9,691)
• actuarial gains and losses arising from changes in demographic assumptions	—	—	—	(813)	(813)
• actuarial gains and losses arising from changes in financial assumptions	11,829	2,726	30,977	3,018	48,550
Acquisitions/disposals	(93)	(72)	—	627	462
Benefits payments	(17,134)	(1,450)	(18,872)	(3,889)	(41,345)
Plan amendments	—	(4,922)	—	(4,325)	(9,247)
Reclassification to assets/liabilities held for sale	—	(3,192)	—	—	(3,192)
Foreign exchange differences	—	—	(20,709)	7,822	(12,887)
Other[(a)]	16,593	(10,487)	1,073	(1,115)	6,064
As at 31/12/2016	**315,841**	**38,251**	**135,041**	**94,818**	**583,951**

(a) Primarily consists of the restructurings in France (reduction of commitment in return for the allowance of a restructuring provision) and in Germany (increase in the early retirement plan).

NOTE 19 Employee benefit commitments (Continued)

Changes in the obligation	Germany	France	United Kingdom	Others	Total
As at 31/12/2016	**315,841**	**38,251**	**135,041**	**94,818**	**583,951**
Current service cost	9,868	1,663	2,949	2,939	17,419
Interest expense	4,717	587	3,485	5,792	14,581
Employee contributions	—	—	431	60	491
Actuarial losses (+)/gains (−) generated during the year	—	—	—	—	—
Remeasurements:					
• experience-related adjustments	3,734	(829)	(6,269)	(451)	(3,815)
• actuarial gains and losses arising from changes in demographic assumptions	—	—	—	(380)	(380)
• actuarial gains and losses arising from changes in financial assumptions	—	—	2,708	6,199	8,907
Acquisitions/disposals	—	842	—	—	842
Benefits payments	(21,709)	(881)	(15,835)	(3,651)	(42,076)
Plan amendments	—	—	—	—	—
Reclassification to assets/liabilities held for sale	—	(755)	—	—	(755)
Foreign exchange differences	—	—	(4,570)	(12,604)	(17,174)
Other[(a)]	15,661	(1,241)	—	54	14,474
As at 31/12/2017	**328,112**	**37,637**	**117,940**	**92,776**	**576,465**

(a) Essentially includes restructurings in Germany (increase in early retirement plan).

Movements during the year in net liabilities recognized on the statement of financial position were as follows:

Change in net liability	Germany	France	United Kingdom	Others	Total
NET LIABILITY/(ASSET) AT 31/12/2015	**138,194**	**46,371**	**(16,045)**	**55,957**	**224,477**
Total expense for the period	31,039	(12,502)	3,179	1,505	23,221
Amount recognized in Other comprehensive income—Remeasurement	4,611	1,008	2,045	1,351	9,015
Benefits or contributions to funds	(25,099)	(1,450)	(4,932)	(5,264)	(36,745)
Reclassification to assets/liabilities held for sale	—	(3,192)	—	—	(3,192)
Impact of changes in exchange rates	—	—	2,277	6,569	8,846
Changes in scope and other	112	(6)	—	1,035	1,141
NET LIABILITY/(ASSET) AT 31/12/2016	**148,857**	**30,229**	**(13,476)**	**61,153**	**226,763**
Total expense for the period	31,852	847	2,547	6,663	41,909
Amount recognized in Other comprehensive income—Remeasurement	(2,797)	(840)	(11,104)	2,003	(12,738)
Benefits or contributions to funds	(29,774)	(793)	(4,135)	(6,358)	(41,060)
Reclassification to assets/liabilities held for sale	—	(754)	—	—	(754)
Impact of changes in exchange rates	—	—	621	(8,077)	(7,456)
Changes in scope and other	—	842	1	1,058	1,901
NET LIABILITY/(ASSET) AT 31/12/2017	**148,138**	**29,531**	**(25,546)**	**56,442**	**208,565**

NOTE 19 Employee benefit commitments (Continued)

Plan assets are broken down as follows:

United Kingdom	31/12/2017 In share	31/12/2016 In share
Equities (UK and overseas)	43.00%	43.00%
Bonds	—	4.00%
Real Estate	12.00%	13.00%
Other (Cash and Index-Linked Gilts)	45.00%	40.00%

United States	31/12/2017 In share	31/12/2016 In share
Equities	56.12%	53.00%
Bonds	36.27%	37.00%
Real Estate	7.43%	8.00%
Others	0.18%	2.00%

Germany	31/12/2017 In share	31/12/2016 In share
Equities	22.09%	24.00%
Bonds	77.03%	76.00%
Real Estate	—	—
Others	0.88%	—

In France, 100% of the assets are placed in the general assets of an insurance company.

Sensitivity analysis

Calculating the projected obligation of a defined benefit plan is sensitive to the above assumptions.

A change of 1% in the respective assumptions would have the following impacts on the defined benefit obligation at the reporting date:

In € million	1% increase	1% decrease
Discount rate	(65)	78
Salary increase rate	14	(12)
Guaranteed rate of pension increase	36	(31)

Amounts expensed for defined contribution plans	Production staff	Directors, management, technical and supervisory staff	Total
As at 31/12/2016			
Employer's share of retirement contributions	4,026	8,581	12,607
Life insurance paid by the employer	3,650	2,625	6,275
Other retirement contributions	—	567	567
TOTAL	**7,676**	**11,773**	**19,449**
As at 31/12/2017			
Employer's share of retirement contributions	3,290	7,979	11,269
Life insurance paid by the employer	2,841	2,392	5,233
Other retirement contributions	—	651	651
TOTAL	**6,131**	**11,022**	**17,153**

NOTE 19 Employee benefit commitments (Continued)

Other employee benefits (options and performance shares)

The impact on the income statement of employee share ownership plans is presented in Note 25.

Share subscription plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized share subscription plans from 2009 to 2017 for some executive management and corporate officers of the Group.

The characteristics of these plans are as follows (figures for the 2009 plan are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares):

	2009 Plan	2010 Plan	2011 Plan	2012 Plan
Allocation date	01/09/2009	01/09/2010	01/09/2011	31/08/2012
Maturity date	01/09/2013	01/09/2014	01/09/2015	01/03/2017
Expiration date	01/09/2019	01/09/2020	01/09/2021	30/08/2020
Exercise price in euros	31.02	42.72	36.44	22.21
Number of options granted	964,107	853,641	1,140,431	883,602

	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan
Allocation date	02/09/2013	15/04/2014	15/04/2015	18/05/2016	18/05/2017
Maturity date	03/03/2018	15/04/2018	15/04/2019	18/05/2020	18/05/2021
Expiration date	01/09/2021	15/04/2022	15/04/2023	18/05/2024	18/05/2025
Exercise price in euros	27.7	23.13	13.57	3.9	6.02
Number of options granted	1,003,746	622,261	683,413	537,895	292,500

CHANGE IN NUMBER OF UNEXPIRED OPTIONS

For all of these plans, the change in the number of unexpired options is as follows:

In number of options	2016	2017
Options outstanding as at 1 January	2,860,088	5,002,867
Options exercised	—	—
Options lapsed	—	—
Options canceled	(62,852)	(1,282,166)
Impact of the capital increase[a] on the plans prior to 2016	1,667,736	—
Options distributed during the period	537,895	292,500
OPTIONS OUTSTANDING AS AT 31 DECEMBER	**5,002,867**	**4,013,201**
Options available for exercise	1,318,249	1,260,022

(a) After application of the adjustments provided for in Articles L. 228-99 and R. 228-91 of the French Commercial Code and pursuant to the rules governing performance share and share option plans. At its meeting on 2 May 2016, the Vallourec Supervisory Board sought to protect the rights of holders of performance shares and share options by ensuring that the capital increase decided on 7 April 2016 did not affect said rights.

The reported figures correspond to the number of options originally allocated, with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

NOTE 19 Employee benefit commitments (Continued)

As at 31 December 2017, the average exercise price was €33.8 and the average remaining life five years.

Measurement of Plans[(a)]	2016 Plan	2017 Plan
Share price at allocation date	€ 3.36	€ 5.82
Volatility[(b)]	31.00%	31.00%
Risk-free rate[(c)]	0.35%	0.50%
Exercise price	€ 3.90	€ 6.02
Dividend rate[(d)]	3.00%	3.00%
Fair value of the option[(e)]	€ 0.53	€ 1.13

(a) The binomial model of projecting share prices has been used to measure the fair value of the options granted.

(b) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(c) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(d) The expected dividend rates have been determined on the basis of analysts' expectations and the Group's dividend policy.

(e) The fair value for the Management Board and the Operational Committee is €1.13 for the 2017 plan.

Performance share plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized performance share plans from 2012 to 2017 for some employees and corporate officers of the Group.

The characteristics of these plans are as follows:

Performance share plans	2012 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan
Allocation date	30/03/2012	29/03/2013	16/12/2014	15/04/2015	18/05/2016	18/05/2017
Vesting period	2 years (French residents and members of the Management Board) or 4 years (non-French residents)	3 years (French residents and members of the Management Board) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)
Holding period	2 years (French residents and members of the Management Board) or none (non-French residents)	2 years (French residents and members of the Management Board) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)
Performance conditions	Yes[(a)]	Yes[(b)]	Yes[(c)]	Yes[(d)]	Yes[(e)]	Yes[(f)]
Theoretical number of shares allocated	286,718	391,200	661,861	388,583	610,001	820,275

(a) Definitive allocation of shares in 2014 for French residents and members of the Management Board, and in 2016 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2012 and 2013. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation will be based on the following three criteria assessed for fiscal years 2012 and 2013: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext

NOTE 19 Employee benefit commitments (Continued)

Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(b) Definitive allocation of shares in 2016 for French residents and members of the Management Board, and in 2017 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2013, 2014 and 2015. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Management Board, the definitive allocation will be based on the following three criteria assessed for fiscal years 2013, 2014 and 2015: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(c) Definitive allocation of shares in 2017 for French residents and members of the Management Board, and in 2018 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2014, 2015 and 2016. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, final allocation shall depend on the following four criteria, assessed in 2014, 2015 and 2016: the rate of return on capital employed (ROCE), compared with the ROCE in the budget, consolidated revenue on a like-for-like basis, as compared with the revenue in the budget, the relative stock market performance of the Vallourec share on the regulated NYSE Euronext market in Paris, as compared with a benchmark panel, and the relative EBITDA performance as compared with the same panel as for the previous criterion. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(d) Definitive allocation of shares in 2018 for French residents and members of the Management Board, and in 2019 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2015, 2016 and 2017. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the final award will depend on the following two criteria, assessed for 2015, 2016 and 2017: the rate of return on capital employed on a consolidated basis (ROCE), compared to the ROCE in the strategic plan, and the Total Shareholder Return (TSR) for 2015, 2016 and 2017. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(e) Definitive allocation of shares in 2019 for French residents and members of the Management Board, and in 2020 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2016, 2017 and 2018. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the final award will depend on the following two criteria, assessed for 2016, 2017 and 2018: the rate of return on capital employed on a consolidated basis (ROCE), compared to the ROCE in the strategic plan, and the Total Shareholder Return (TSR) for 2016, 2017 and 2018. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(f) For all beneficiaries (excluding members of the Management Board and Executive Committee), this will depend on cost reduction in 2017, 2018 and 2019, in comparison to the performance envisaged in the Group's medium-term plan for the same period, and on the Group's cumulative Free cash flow (FCF) for 2017, 2018 and 2019. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.4. For members of the Management Board and Executive Committee, the definitive allocation will depend on the following two criteria: reducing costs in 2017, 2018 and 2019, in comparison to the Group's planned performance in the medium-term over the same period and the growth of the EBITDA margin between 2017 and 2019 in comparison to a panel of comparable companies. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 2.

NOTE 19 Employee benefit commitments (Continued)

International performance share allocation plans for employees	"2 - 4 - 6" plan (2012)	"2 - 4 - 6" plan (2013)	"2 - 4 - 6" plan (2014)
Allocation date	30/03/2012	29/03/2013	15/04/2014
Vesting period	2 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)
Holding period	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)
Performance condition	Ratio of EBITDA to revenue (2012 and 2013)	Ratio of EBITDA to revenue (2013, 2014 and 2015)	Ratio of EBITDA to revenue (2014, 2015 and 2016)
Theoretical number of shares allocated	130,116	191,144	208,100

Free share allocation plans (without performance condition)	"Value 12" Plan	"Value 13" Plan	"Value 14" Plan	"Value 15" Plan	"Value 16" Plan	"Value 17" Plan
Allocation date	06/12/2012	10/12/2013	16/12/2014	15/12/2015	14/12/2016	14/12/2017
Vesting period	4.6 years	4.6 years	4.6 years	4.6 years	4.6 years	4.6 years
Theoretical number of shares allocated	7,032	6,445	6,336	2,744	3,344	3,409

In 2017, in order to meet the legal and tax requirements of each country, several different employee share ownership plans (ESOP) were offered:

- Leveraged company mutual fund *(fonds commun de placement entreprise levier—FCPE levier)*: employees subscribe via a company mutual fund to a number of Vallourec shares at a price discounted by 15% and receive, at the end of the vesting period, a performance multiple on their Vallourec shares as well as protection of their initial investment, excluding currency effects. The increase in the multiple is achieved through the transfer of the discount, from dividends and other financial rights related to ownership of the shares to the bank structuring the transaction through a swap contract.
- Standard company mutual fund *(fonds commun de placement classique—FCPE classique)*: employees subscribe via a company mutual fund to Vallourec shares at a price discounted by 20% and receive any dividends.
- Share and Stock Appreciation Rights (SAR): employees, by buying one share at a price discounted by 15%, receive one SAR (protection on their initial investment, excluding currency effects, and a performance multiple on said share), which will be paid by the employer, in cash, at the end of the holding period. The resulting liability (SAR) is covered by warrants provided to the employer by the bank structuring the transaction. The warrants are issued in consideration of the issue of shares reserved for the bank at a price discounted by 15%.
- Cash and Stock Appreciation Rights (SAR): employees, by depositing funds in an interest-bearing bank account, receive SARs (performance multiple on the deposit), which will be paid to the employee by the employer in cash at the end of the holding period. The resulting liability (SAR) is covered by warrants provided to the employer by the bank structuring the transaction. The warrants are issued in consideration of the issue of shares reserved for the bank at a price discounted by 15%.

The IFRS 2 expense resulting from the benefit granted to the employee under the terms of the ESOP is measured on the grant date. The fair value of the benefit corresponds, in the case of the standard offering, to the value of the economic benefit granted less the cost to the employee of the non-transferability of the share, and, for the leveraged plans, to the estimated present value of the amounts ultimately paid to the employee. In the case of the "Share and SAR" plan, the discount on the share held by the employee and the measurement of the option protecting the initial investment are added.

NOTE 19 Employee benefit commitments (Continued)

This benefit led to the recognition of a personnel cost of €0.6 million in 2017 compared to €1.3 million in 2016.

The IFRS 2 expense resulting from the SARs is measured again at each quarter-end by reference to the fair value corresponding to the estimated present value of the amounts ultimately paid to the employee. The liability to employees resulting from SARs resulted in an expense included in personnel costs of €0.9 million.

In accordance with IAS 39, the income from warrants is remeasured at each quarter-end by reference to the fair value of the derivative instrument.

The income corresponding to the warrants paid by the bank to the employer was added to the employees' investment and recognized in personnel expenses for €0.9 million in 2017 since it is intended to cover income associated with SARs (see above).

CHANGE IN NUMBER OF SHARES

For all of these plans, the change in the number of shares being vested is as follows:

In number of shares	2016	2017
Number of shares being vested as at 1 January	1,455,690	2,199,312
Shares delivered during the year	(252,486)	(160,170)
Shares canceled	(250,602)	(654,358)
Impact of the capital increase[a] on the plans prior to 2016	636,709	—
Shares allocated during the year	610,001	823,684
NUMBER OF SHARES BEING VESTED AS AT 31 DECEMBER	**2,199,312**	**2,208,468**

(a) After application of the adjustments provided for in Articles L. 228-99 and R. 228-91 of the French Commercial Code and pursuant to the rules governing performance share and share option plans. At its meeting on 2 May 2016, the Vallourec Supervisory Board sought to protect the rights of holders of performance shares and share options by ensuring that the capital increase decided on 7 April 2016 did not affect said rights.

The reported figures correspond to the number of shares originally allocated, with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

Measurement of Plans[a]	2016 Plan	"Value 16" Plan	2017 Plan	"Value 17" Plan
Share price at allocation date	€3.36	€ 4.83	€5.82	€ 4.30
Risk-free rate[b]	−0.10% (France), −0.22% (foreign)	−0.29%	−0.12% (France), −0.32% (foreign)	−0.27%
Dividend rate[c]	3%	3%	3%	3%
Fair value of the share	€2.74 (French residents) or €2.97 (non-French residents)	€ 4.15	€4.84 (French residents) or €5.15 (non-French residents)	€ 3.69

(a) The binomial model of projecting share prices has been used to measure the fair value of the shares granted. The employee benefit corresponds to the fair value of the shares allocated, taking into account the impossibility of receiving dividends during the vesting period and the cost to the employee of the non-transferability of shares during the holding period.

(b) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(c) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

NOTE 20 Other current liabilities

	Social security liabilities	Tax liabilities	Liabilities associated with the acquisition of assets	Deferred income	Other current liabilities	Total
As at 31/12/2015	**219,841**	**32,020**	**24,848**	**5,463**	**50,682**	**332,854**
Impact of changes in exchange rates	8,314	725	1,233	—	2,667	12,939
Acquisitions from business combinations (see Note 34)	16,235	3,129	1,208	—	16,542	37,114
Disposals from business combinations	(7,916)	(1,754)	(677)	—	(3,209)	(13,556)
Reclassification to liabilities held for sale and discontinued operations	(4,101)	(69)	(1,630)	—	—	(5,800)
Other changes	(34,991)	(4,154)	(4,488)	(4,179)	(16,277)	(64,089)
As at 31/12/2016	**197,382**	**29,897**	**20,494**	**1,284**	**50,405**	**299,462**
Impact of changes in exchange rates	(10,481)	(1,912)	(2,279)	(4)	(8,194)	(22,870)
Reclassification to liabilities held for sale and discontinued operations	(2,412)	(116)	—	—	(460)	(2,988)
Other changes	12,081	5,751	2,792	317	11,336	32,277
AS AT 31/12/2017	**196,570**	**33,620**	**21,007**	**1,597**	**53,087**	**305,881**

NOTE 21 Information on related parties

The following transactions were entered into with related parties:

	Sales to related parties	Purchases from related parties	Related party receivables	Related party payables
As at 31/12/2016				
HKM	601	212,294	21	46,340
As at 31/12/2017				
HKM	2,076	294,172	104	94,107
Ascoval	17,596	99,294	3,545	2,016

Purchases mainly concern the acquisition of steel rounds from HKM and Ascoval, which are used as raw manufacturing materials by the European rolling mills of Vallourec Deutschland and Vallourec Tubes France.

Compensation of the management and supervisory boards

The total compensation for members of the Executive Committee, as constituted at 31 December 2017 (11 people in 2017, compared to 9 in 2016), as well as pension liabilities at the reporting date, were as follows:

	2016	2017
Compensation and benefits in kind	5,489	7,220
Share-based payments[(a)]	95	1,378
Pension commitments	1,020	829
Supplementary pension commitments	7,857	5,589

(a) Information provided based on the 2017, 2016, 2015, 2014, 2013 and 2012 share subscription option, performance share and employee share ownership plans.

As regards post-employment benefits for executive management, there is no specific plan. Executive management is covered by the Vallourec Group's supplementary pension plan (a benefit plan introduced

NOTE 21 Information on related parties (Continued)

in 2005 and closed on 31 December 2015), as well as by plans under Articles 83 and 82 of the French General Tax Code set up on 1 April 2016. These plans do not give rise to any commitments.

As at 31 December 2017, no loans or guarantees had been granted to executive management by the parent company or its subsidiaries.

NOTE 22 Contingent liabilities and commitments

Due to its activities in Europe, Vallourec is concerned about the European Emissions Trading System (ETS). This system, established in 2005, has been in its third period since 2013, which will end in 2020.

Under this framework, Vallourec is still benefiting from free quotas, though reduced compared to previous periods. The other portion of the quotas allocated is no longer free, but subject to auction on the market. Vallourec operates in the metallurgy sector, which is considered to be exposed to the risk of "carbon leakage."

The Group was allocated a greenhouse gas emissions quota in 2017 of 95,294 metric tons for its French plants, and 172,275 metric tons for its German plants.

The European authorities recently agreed to rules applicable for the fourth period (2020-2030) with the objective of reducing emissions by 40% between now and 2030. These new rules will notably lead to a reduction in free quotas, a quicker drop in their annual level, a more dynamic allocation depending on level of activity, and to stricter eligibility conditions for obtaining the status of a company at risk of "carbon leakage".

Off-statement of financial position commitments received (excluding financial instruments)

	2016	2017
Firm non-current asset orders	12,203	4,449
Guarantees and commitments received	99,255	89,247
Other commitments received	14,697	11,180
TOTAL	**126,155**	**104,876**
OFF-STATEMENT OF FINANCIAL POSITION COMMITMENTS GIVEN (EXCLUDING FINANCIAL INSTRUMENTS)	**657,324**	**463,527**

Commitments given by maturity

	2017	< 1 year	> 1 year	> 5 years
Statement of financial position				
Long-term financial debts	2,563,339	746,220	1,218,972	598,147
Off-statement of financial position				
Market guarantees and letters of credit given	106,484	69,123	37,361	—
Other securities, mortgages and pledges given	117,721	—	2,051	115,670
Long-term lease[(a)]	146,614	22,155	67,983	56,476
Firm asset orders given	4,449	4,167	282	—
Other obligations	88,259	68,642	17,707	1,910
TOTAL	**463,527**	**164,087**	**125,384**	**174,056**

(a) In light of the future application of IFRS 16—Leases, lease agreements have been subject to an extensive review.

NOTE 22 Contingent liabilities and commitments (Continued)

	2016	< 1 year	> 1 year	> 5 years
Statement of financial position				
Long-term financial debts	2,573,744	1,453,096	513,294	607,354
Off-statement of financial position				
Market guarantees and letters of credit given	123,351	57,247	66,104	—
Other securities, mortgages and pledges given	136,688	—	2,255	134,433
Long-term lease	269,712	23,203	190,393	56,116
Firm asset orders given	12,203	12,203	—	—
Other obligations	115,370	45,923	69,447	—
TOTAL	**657,324**	**138,576**	**328,199**	**190,549**

The main exchange rates used for income statement items are set out in Note 13.

Income statement items are translated at the average rate.

NOTE 23 Revenue

	2016	2017
Europe	646,620	593,600
North America (NAFTA)	559,314	1,033,185
South America	466,819	612,094
Asia and the Middle East	847,677	1,175,404
Rest of the world	444,631	335,358
TOTAL	**2,965,061**	**3,749,641**

If the changes in scope had taken place on 1 January 2016, revenue would have stood at €3,277 million, compared to €2,965 million.

NOTE 24 Cost of sales

	2016	2017
Direct cost of sales	(157,163)	(223,337)
Cost of raw materials consumed	(934,634)	(1,369,434)
Labor costs	(746,980)	(837,374)
Other manufacturing costs	(891,984)	(908,458)
Change in non-raw material inventories	4,052	41,455
TOTAL	**(2,726,709)**	**(3,297,148)**
Accumulated depreciation and amortization	(283,274)	(297,020)
TOTAL (INCLUDING DEPRECIATION AND AMORTIZATION)	**(3,009,983)**	**(3,594,168)**

«Other manufacturing costs» mainly include the costs of energy and consumables, and the costs of outsourcing, maintenance and provisions.

NOTE 25 Administrative, sales and research costs

	2016	2017
Research and Development costs	(60,453)	(46,904)
Selling and marketing costs	(86,400)	(81,929)
General and administrative costs	(300,749)	(310,754)
TOTAL	**(447,602)**	**(439,587)**
Accumulated depreciation and amortization	(48,522)	(44,457)
TOTAL (INCLUDING DEPRECIATION AND AMORTIZATION)	**(496,124)**	**(484,044)**

Personnel expenses and average headcount of consolidated companies

	2016	2017
Personnel expenses		
Wages and salaries	(762,855)	(819,703)
Employee profit-sharing and bonuses	(18,716)	(21,674)
Expenses relating to share subscription and share purchase options, and performance shares[(a)]	(4,164)	(10,571)
Social security costs	(208,278)	(215,749)
TOTAL	**(994,013)**	**(1,067,697)**

(a) Including a €6.6 million expense for all share subscription plans for 2017 (compared to €0.8 million for 2016).

The increase in personnel expenses is mainly linked to the 100% consolidation of Vallourec Soluções Tubulares do Brasil in 2017.

Headcount as of year-end of consolidated companies	2016	2017
Managers	3,299	3,231
Technical and supervisory staff	3,107	3,048
Production staff	12,836	13,245
TOTAL	**19,242**	**19,524**

Group headcount as at 31 December 2017 was 19,524 people, compared with 19,242 people as at 31 December 2016.

NOTE 26 Other

	2016	2017
Profit-sharing and other	(21,605)	(20,637)
Fees for concessions and patents	20,798	20,424
Other income and expenses	(8,659)	(10,463)
TOTAL	**(9,466)**	**(10,676)**

Provision allowances, net of reversals	2016	2017
Provision allowances net of reversals included in EBITDA amounted to	(35,661)	81,191

NOTE 27 Fees paid to statutory auditors and members of their networks

	KPMG		Deloitte	
	Amount (excl tax)		Amount (excl tax)	
	2016	2017	2016	2017
Certification of parent company and consolidated financial statements				
Issuer	412	242	412	242
%	27%	15%	19%	20%
Fully consolidated subsidiaries	775	1,192	1,497	912
%	50%	72%	68%	74%
SUB-TOTAL	**1,187**	**1,434**	**1,909**	**1,154**
Other services directly associated with the statutory audit[1]				
Issuer	288	111	219	42
%	19%	7%	10%	3%
Fully consolidated subsidiaries	68	105	70	33
%	4%	6%	3%	3%
SUB-TOTAL	**356**	**216**	**289**	**75**
TOTAL	**1,543**	**1,650**	**2,198**	**1,229**

(1) The services provided cover the other services directly associated with the statutory audit that are required by the legal and regulatory texts, as well as those services provided at the Group's request. For Deloitte & Associés, for the 2017 fiscal year, they primarily correspond to the completion of procedures conducted under the framework of (i) bond issues and (ii) the certification of the carbon certificates. For KPMG, for the 2017 fiscal year, they primarily correspond to the completion of procedures conducted under the framework of (i) bond issues, (ii) the engagement of an independent third-party entity in relation to the CSR information of the management report and (iii) compliance reviews of tax returns for subsidiaries outside the European Union.

NOTE 28 Accumulated depreciation and amortization

	2016	2017
By function		
Depreciation of industrial assets	(283,274)	(297,020)
Depreciation and amortization—Research and Development	(11,006)	(10,371)
Depreciation and amortization—Sales and Marketing Department contracts	(11,510)	(11,398)
Depreciation and amortization—general and administrative expenses	(26,006)	(22,688)
TOTAL	**(331,796)**	**(341,477)**
By type		
Net amortization of intangible assets (see Note 1)	(32,134)	(28,199)
Net depreciation of property, plant and equipment (see Note 2)	(292,425)	(304,675)
Net depreciation and amortization of biological assets	(7,237)	(8,603)
TOTAL	**(331,796)**	**(341,477)**

NOTE 29 Impairment of assets and goodwill, asset disposals, restructuring and non-recurring items

	2016	2017
Reorganization measures (net of expenses and provisions)	(111,186)	(4,697)
Gains and losses on disposals of non-current assets and other non-recurring items	(16,285)	(74,539)
TOTAL	**(127,471)**	**(79,236)**

NOTE 29 Impairment of assets and goodwill, asset disposals, restructuring and non-recurring items (Continued)

	2016	2017
Impairment of intangible assets (see Note 1)	(82)	—
Impairment of property, plant and equipment (see Note 2)	(58,072)	(65,105)
Impairment of goodwill (see Note 1)	—	—
Other impairment of assets	(13,237)	—
TOTAL	**(71,391)**	**(65,105)**

Asset depreciation reached −€65 million in 2017, as compared to −€71 million in 2016, and the "Asset disposals, restructuring and other" represented −€79 million in 2017, compared to −€127 million in 2016. In 2017, these items were a result of (i) the court-based reorganization procedure of Ascoval (steel mill in which the Group holds a minority interest), (ii) the disposal of non-strategic assets, and more specifically, Vallourec Drilling Products and (iii) impairment of assets recorded following the reduction in the number of coal power plants in Asia.

NOTE 30 Financial income/(loss)

	2016	2017
Financial income		
Income from investment securities	27,713	26,471
Income from disposals of investment securities	2,051	(464)
TOTAL	**29,764**	**26,007**
Interest expenses	**(124,922)**	**(155,129)**
Net interest expenses	**(95,158)**	**(129,122)**
Other financial income and expenses		
Income from securities	1,050	1,726
Income from loans and receivables	1,484	930
Exchange (losses) and gains and changes in premiums/discounts	(27,419)	(36,831)
Provision allowances, net of reversals	(2,859)	7,765
Other financial income and expenses	1,431	(5,600)
TOTAL	**(26,313)**	**(32,010)**
Other discounting expenses		
Interest expense pension obligation	(8,080)	(6,472)
Financial income from discounted assets and liabilities	(784)	(5,979)
TOTAL	**(8,864)**	**(12,451)**
FINANCIAL INCOME/(LOSS)	**(130,335)**	**(173,583)**

NOTE 31 Reconciliation of theoretical and actual tax expense

Breakdown of the tax expense	2016	2017
Current tax expense	(39,334)	(46,409)
Deferred taxes (see Note 5)	119,500	147,024
NET EXPENSE (−)/INCOME (+)	**80,166**	**100,615**
Consolidated net income/(loss)	(799,542)	(556,556)
Tax expense	80,166	100,615
CONSOLIDATED NET INCOME/(LOSS) BEFORE TAX	**(879,708)**	**(657,171)**
Statutory tax rate of consolidating company (see Note 5)	34.43%	34.43%
Theoretical tax	302,883	226,264
Impact of main tax loss carryforwards	(144,660)	(80,685)
Impact of permanent differences	(47,015)	(30,004)
Other impacts	(6,576)	(7,055)
Impact of differences in tax rates	(24,466)	(7,905)
NET EXPENSE (−)/INCOME (+)	**80,166**	**100,615**
ACTUAL TAX RATE	**9%**	**15%**

The 15% rate mainly reflects the items detailed below:

- The impact of tax loss carryforwards and timing differences mainly concerns the non-recognition of deferred tax assets (DTAs) for the year in France, Germany and China. Nevertheless, the rate improvement is explained by the recognition of deferred taxes on previous fiscal years for Brazil, Saudi Arabia and Tianda (Chinese subsidiary).
- Ongoing differences are analyzed by the results of non-controlling interests, performance share allocations and the reintegration of financial expenses.
- Differences in taxation mainly reflect the range of tax rates applied in each country (France 34.4%, Germany 31.6%, United States 35%, Brazil 34.0%, China 25.0% and Saudi Arabia 20%). As concerns the United States, the drop in income tax to 21% was used to calculate deferred taxes.

NOTE 32 Segment information

Operating segments

The following tables provide information on the income and results for each operating segment, as well as certain information on the assets, liabilities and investments for the 2017 and 2016 fiscal years.

NOTE 32 Segment information (Continued)

Information on results, assets and liabilities by operating segment

2017	Seamless tubes	Specialty Products	Holdings & miscellaneous[(a)]	Inter-segment transactions	Total
Income statement					
Sales to external customers	3,680,599	68,248	794	—	3,749,641
EBITDA	47,892	(245)	(45,417)	—	2,230
Depreciation and amortization	(325,320)	(15,598)	(1,003)	444	(341,477)
Impairment of assets and goodwill	(65,105)	—	—	—	(65,105)
Asset disposals and restructuring costs	(63,501)	—	(15,735)	—	(79,236)
OPERATING INCOME/(LOSS)	**(406,034)**	**(15,843)**	**(62,155)**	**444**	**(483,588)**
Unallocated income					(6,003)
Unallocated expenses					(167,580)
Pre-tax income					(657,171)
Income tax					100,615
Net income of associates					(3,173)
Consolidated net income/(loss)					(559,729)
Statement of financial position					
Non-current assets	4,262,872	123,281	3,529,852	(3,949,595)	3,966,410
Current assets	1,770,517	51,104	123,368	(110,170)	1,834,819
Cash	465,495	2,901	1,054,009	(501,370)	1,021,035
Assets held for sale and discontinued operations	64,119	—	—	—	64,119
TOTAL ASSETS	**6,563,003**	**177,286**	**4,707,229**	**(4,561,135)**	**6,886,383**
Cash flows					
Property, plant and equipment, intangible assets and biological assets	(149,835)	(5,089)	(28)	—	(154,952)

(a) Vallourec and Vallourec Tubes.

NOTE 32 Segment information (Continued)

2016	Seamless tubes	Specialty Products	Holdings & miscellaneous[a]	Inter-segment transactions	Total
Income statement					
Sales to external customers	2,857,621	106,666	774	—	2,965,061
EBITDA	(197,037)	(1,246)	(19,681)	(752)	(218,716)
Depreciation and amortization	(312,769)	(17,827)	(1,535)	335	(331,796)
Impairment of assets and goodwill	(71,391)	—	—	—	(71,391)
Asset disposals and restructuring costs	(128,977)	6,168	12,338	(17,000)	(127,471)
OPERATING INCOME/(LOSS)	**(710,174)**	**(12,905)**	**(8,878)**	**(17,417)**	**(749,374)**
Unallocated income					3,451
Unallocated expenses					(133,786)
Pre-tax income					(879,709)
Income tax					80,166
Net income of associates					(8,003)
Consolidated net income/(loss)					(807,546)
Statement of financial position					
Non-current assets	4,994,760	135,672	3,799,975	(4,053,076)	4,877,331
Current assets	1,850,276	48,149	92,267	(68,721)	1,921,971
Cash	523,980	670	1,341,008	(578,936)	1,286,722
Assets held for sale and discontinued operations	46,327	—	—	—	46,327
TOTAL ASSETS	**7,415,343**	**184,491**	**5,233,250**	**(4,700,733)**	**8,132,351**
Cash flows					
Property, plant and equipment, intangible assets and biological assets	(172,832)	(3,590)	(54)	—	(176,476)

(a) Valloure c and Vallourec Tubes.

Geographical regions

The following tables provide information by geographical region on sales (by location of the Group's customers) and capital expenditure as well as certain information on assets (by regions where the companies operate).

2017	Europe	North America	South America	Asia	Rest of the World	Total
Revenue						
Sales to external customers	593,600	1,033,185	612,094	1,175,404	335,358	3,749,641
Statement of financial position						
Property, plant & equipment, intangible assets, biological assets and goodwill (net)	603,246	1,435,102	1,096,520	350,143	267	3,485,278
Cash flows						
Property, plant and equipment, intangible assets and biological assets	85,186	26,224	32,884	10,519	139	154,952

NOTE 32 Segment information (Continued)

2016	Europe	North America	South America	Asia	Rest of the World	Total
Revenue						
Sales to external customers	646,620	559,314	466,819	847,677	444,631	2,965,061
Statement of financial position						
Property, plant & equipment, intangible assets, biological assets and goodwill (net)	638,356	1,744,411	1,363,030	466,358	1,536	4,213,691
Cash flows						
Property, plant and equipment, intangible assets and biological assets	95,600	18,001	53,735	9,020	120	176,476

NOTE 33 Share in net income/(loss) of associates

The contribution to the consolidated net income of associates is as follows:

	2016	2017
HKM	5	6
Ascoval	—	26
Poongsan Valinox	117	—
Subsidiaries of P.T. Citra Tubindo	(327)	(3,205)
Tianda Oil Pipe	(7,600)	—
Xi'an Baotimet Valinox Tubes	(198)	—
TOTAL	**(8,003)**	**(3,173)**

NOTE 34 Business combinations

The Group monitored the allocation of assets and liabilities from business combinations with Vallourec Soluções Tubulares do Brasil and Tianda Oil Pipes Co. Ltd.

As at 31 December 2017, the goodwill of Vallourec Soluções Tubulares do Brasil and Tianda Oil Pipes Co. Ltd was adjusted during the fiscal year within a period of one year for €3 million and €9 million respectively. These adjustments are presented in Note 1.

NOTE 35 Subsequent events

Since 31 December 2017, no subsequent events have occurred that would call into question the truthfulness and reliability of the financial statements.

Parent company financial statements

Statement of financial position

Assets

In € thousand	31/12/2016	31/12/2017
NON-CURRENT ASSETS		
Intangible assets	414	414
Property, plant and equipment	93	88
Equity interests	3,856,437	3,856,437
Treasury shares	15,720	—
Long-term investments	75,202	—
Receivables, loans and other investments	1,700,000	1,700,000
TOTAL I	**5,647,866**	**5,556,939**
CURRENT ASSETS		
Operating receivables	5,294	4,203
Other receivables	534,764	808,865
Investment securities	25,485	8,834
Cash and cash equivalents	13	5
Prepaid expenses	10,577	14,216
Deferred expenses	4,799	16,362
Translation differences—unrealized losses	—	10
Premiums/discounts—assets	—	—
TOTAL II	**580,932**	**852,495**
TOTAL ASSETS (I + II)	**6,228,798**	**6,409,434**

Equity and liabilities

In € thousand	31/12/2016	31/12/2017
EQUITY		
Capital	902,476	915,976
Additional paid-in capital	1,408,476	1,421,586
Revaluation reserve	634	634
Reserves	85,886	85,886
Retained earnings	1,802,485	1,784,644
Net income/(loss) for the period	(17,841)	(39,056)
TOTAL I	**4,182,116**	**4,169,670**
PROVISIONS FOR CONTINGENCIES AND LIABILITIES	12,107	6,284
Financial liabilities	1,960,373	2,170,562
Operating liabilities	14,002	8,402
Other liabilities	60,200	54,295
Deferred income	—	221
Translation differences—unrealized gains	—	—
TOTAL II	**2,046,682**	**2,239,764**
TOTAL EQUITY AND LIABILITIES (I+II)	**6,228,798**	**6,409,434**

Income statement

In € thousand	31/12/2016	31/12/2017
Revenue	5,758	5,050
Provision reversals and expenses transferred	9,787	27,622
Other income	—	18
External services	(8,526)	(25,928)
Taxes and similar	(484)	(685)
Personnel expenses	(4,125)	(4,358)
Other operating expenses	(11,223)	(9,500)
Amortization, depreciation and provisions	(4,962)	(5,511)
OPERATING INCOME/(LOSS)	**(13,775)**	**(13,292)**
Financial income	**89,344**	**117,733**
From equity interests	461	—
Other long-term securities and receivables	53,533	77,465
Other interest and similar income	156	842
Provision reversals and financial expenses transferred	35,127	20,797
Foreign exchange gains	67	18,629
Net income on disposal of investment securities	—	—
Financial expenses	**(102,248)**	**(111,815)**
Amortization and provisions	(23,029)	(10)
Interest and similar expenses	(79,158)	(93,303)
Foreign exchange losses	(61)	(18,502)
Net capital gain/loss on disposal of marketable securities	—	—
FINANCIAL INCOME/(LOSS)	**(12,904)**	**5,918**
NET INCOME FROM CONTINUING OPERATIONS BEFORE TAX	**(26,680)**	**(7,374)**
Exceptional income	—	76,177
Exceptional expenses	—	(107,522)
EXCEPTIONAL INCOME/(LOSS)	**—**	**(31,345)**
Income tax	8,839	(337)
NET INCOME/(LOSS)	**(17,841)**	**(39,056)**

Notes to the statement of financial position (before allocation) for the year ended 31 December 2017, which totals €6,409.4 million, and to the income statement, which shows a loss of €39.1 million.

The fiscal year runs for 12 months, from 1 January to 31 December.

Vallourec prepares consolidated financial statements.

A—Significant events, measurement methods and comparability of financial statements

On 14 December 2017, under the Value 17 employee share ownership plan 6,749,755 new shares were subscribed at a price of €4.00 for the leveraged plan and €3.77 for the standard plan, for a capital increase of €26.6 million, including issue premium net of expenses.

The presentation and measurement methods used in the preparation of the financial statements for the year under review are the same as those used for the previous year. Regulation No. 2015-05 of 2 July 2015 relating to the forward financial instruments and hedging operations must be applied as from 1 January 2017. This first application represents a change in accounting method.

The other presentation and measurement methods used in the preparation of the financial statements for the year under review are the same as those used for the previous year.

B—Accounting principles

The parent company financial statements are prepared in accordance with French GAAP (ANC Regulation No. 2014-03) and the fundamental accounting concepts (independence of fiscal years, non-compensation, historic cost, intangibility of the opening balance sheet, going concern, true and fair view, conservatism and consistency of accounting methods).

Property, plant and equipment

In accordance with ANC Regulation No. 2014-03, the Company uses the component approach, which relies on technical analyses to individually account for significant parts of an item of property, plant and equipment, owing to their uses and utilization rates.

Measurement of property, plant and equipment includes:

- the acquisition or production cost, except for assets acquired before 31 December 1976 which are remeasured and stated at their transfer value;
- discounts, rebates and other payment deductions;
- costs directly attributable to asset implementation;
- any dismantling costs;
- financial expenses related to the asset's acquisition are excluded.

Depreciation of property, plant and equipment is calculated on a straight-line or accelerated basis over the expected useful life of the asset.

Tax depreciation is calculated using the diminishing value method over the shortest period between the useful life and the duration of use, except for components depreciated over their actual lives.

Impairment of property, plant and equipment, and intangible assets

The value in use of property, plant and equipment and intangible assets is tested whenever there is an indication of impairment; such indications are reviewed at each balance sheet date.

If an asset's market value falls significantly below its carrying amount, an impairment charge is booked and the asset is restated at its market value.

Associates

The gross value of equity interests comprises their purchase cost, excluding associated expenses, and the amount of any capital increases.

Securities acquired in foreign currencies are recorded at their acquisition price translated into euros at the rate applicable on the date of the transaction.

At the last year-end, the Company compared the net carrying amount of the equity interests at their value in present use and constitutes a provision when their value in present use is less than the net carrying amount.

The value in present use is determined using various criteria such as Vallourec Tubes' consolidated net worth, its profitability, the Company share price and the Group's growth outlook. The growth outlook is determined on the basis of cash flow and operating forecasts established by Management.

Treasury shares

Treasury shares recorded in non-current assets on the statement of financial position comprise:

- shares allocated to the Group's various share ownership plans for some employees, executive management and corporate officers;
- shares held under the terms of the liquidity contract.

Pursuant to CRC Regulation No. 2008-15 dated 4 December 2008 relating to the accounting treatment of share purchase or subscription plans and performance share plans for employees, shares allocated for these plans are not impaired based on market value due to the obligation to allocate such shares to employees and the provision recognized as a liability (see below in the section relating to provisions for contingencies and liabilities).

For treasury shares held under the terms of the liquidity contract, their carrying amount is the lower value of their acquisition cost and their market value (defined as the average price over the previous month).

Treasury shares are presented in the balance sheet as follows:

- treasury shares acquired before 2008 and available for allocation to employees are classified as non-current assets;
- treasury shares acquired since 2008 and available to be allocated to employees are classified as investment securities;
- treasury shares acquired for the liquidity contract are classified as non-current assets.

Receivables and payables

Receivables and payables are measured at their nominal value.

Trade receivables are impaired when there is a risk of non-recovery.

Impairment ratios are applied to each receivable based on probabilities of recovery.

CICE

In accordance with the ANC circular published on 28 February 2013, the French Competitiveness and Employment Tax Credit (CICE) is recorded as a reduction of personnel expenditure, offset by a receivable from the parent company in the form of a tax credit that may be applied against the corporate income tax liability.

Investment securities

Investment securities are measured at acquisition cost plus accrued income for the period, or at market value if lower.

Treasury shares acquired since 2008 and available to be allocated to employees are classified as investment securities.

Translation of transactions in foreign currencies and financial instruments

Receivables, cash and cash equivalents and payables in foreign currencies are stated on the statement of financial position using the exchange rate applicable on the reporting date.

Revenue and expenses denominated in foreign currencies backed by qualified hedges are recorded at the spot rate:

The aggregate value of the change in time value (i.e. the change between the forward price of the hedge on the reporting date and the initial spot rate) is recognized at each reporting date on the statement of financial position—Derivative instruments. The change in the premium/discount between the beginning and the end of the period impacts income/ (loss). Since 1 January 2017, these changes have been recorded under operating income (see ANC Regulation 2015-05). They previously appeared under financial income/ (loss).

The change in time value (premium/discount) is recognized separately from revenue.

In application of ANC Regulation 2015-05, the change in values of the isolated open-position operations are recorded in the balance sheet as a counterpart for suspense accounts:

- in assets for changes that correspond to an unrealized loss;
- in liabilities for changes that correspond to an unrealized gain;

Unrealized gains are not included in the income statement. When an operation results in an unrealized loss, a provision to financial income is made in the amount of this unrealized capital loss.

Provisions for contingencies and liabilities

Retirement pensions

Pensions are paid by an external organization and the Company therefore has no obligations in this respect.

Retirement benefits

Commitments in respect of benefits paid to retiring employees are measured based on an actuarial calculation and provisioned as a liability in the statement of financial position.

As at 31 December 2017 the discount rate was based on the iBoxx € Corporates AA 10+ index. This index uses a basket of bonds of financial and non-financial companies. They are based on the assumption that all employees leaving the Group will do so on a voluntary basis.

Actuarial gains or losses are amortized using the corridor rule over the average remaining working lives of employees.

The actuarial assumptions used vary depending on the specific arrangements of the Company's retirement plan(s) and collective agreement(s).

The following assumptions are used:

- discount rate of 1.55% (including inflation);
- inflation rate of 1%;
- staff turnover rate variable according to age and category;
- generational mortality table TPGF2005/TPGH2005.

Provisions on shares earmarked for employee share allocations

Pursuant to CRC Regulation No. 2008-15 dated 4 December 2008 relating to the accounting treatment of share purchase or subscription plans and performance share plans for employees; as soon as an outflow of resources becomes probable, the Company recognizes a provision for a contingent liability. This provision is measured based on the product of:

- the acquisition cost of the shares or their net carrying amount (when they were already owned) on the date they were allocated to the ESOP less the price likely to be paid by the beneficiaries;
- the number of shares that are expected to be allocated given the provisions of the allocation scheme (satisfaction of conditions regarding continuous service and performance) as assessed on the reporting date.

A provision for contingencies and liabilities has been recognized at each reporting date since these plans were put in place on a pro rata basis, equal to the costs relating to the allocations of performance shares to employees, executive management and corporate officers of Vallourec and its subsidiaries.

Other provisions

All disputes (technical, tax, etc.) and risks have been recognized as provisions for the estimated probable risk at the reporting date.

Exceptional income and expenses

In general, exceptional income and expenses comprise amounts of an extraordinary nature, i.e. those that fall outside the scope of the Company's continuing operations.

C—Notes to the statement of financial position

1. Movements in non-current assets

Non-current assets In € thousand	31/12/2016	Acquisition Allowances	Disposal Reversals of provisions	31/12/2017	Revaluation reserve	Related parties
INTANGIBLE ASSETS	**414**	**—**	**—**	**414**	**—**	**—**
Trademarks	414	—	—	414	—	—
PROPERTY, PLANT AND EQUIPMENT	**93**	**—**	**(5)**	**88**	**—**	**—**
Land	93	—	(5)	88	—	—
Buildings	113	—	(113)	—	—	—
Depreciation of buildings	(113)	—	113	—	—	—
Construction in progress	—	—	—	—	—	—
ASSOCIATES	**3,856,437**	**—**	**—**	**3,856,437**	**—**	**3,856,437**
Associates	3,856,437	—	—	3,856,437	—	3,856,437
Provisions for associates	—	—	—	—	—	—
LONG-TERM INVESTMENTS & TREASURY SHARES	**90,922**	**(8,743)**	**(82,179)**	**—**	**—**	**—**
Long-term investments	81,947	—	(81,947)	—	—	—
Provisions for long-term investments	(6,745)	(9,457)	16,202	—	—	—
Treasury shares	36,517	714	(37,231)	—	—	—
Provisions for treasury shares	(20,797)	—	20,797	—	—	—
RECEIVABLES, LOANS, OTHER INVESTMENTS	**1,700,000**	**—**	**—**	**1,700,000**	**—**	**1,700,000**
Loans	1,700,000	—	—	1,700,000	—	1,700,000
Accrued interest	—	—	—	—	—	—
TOTALS	**5,647,866**	**(8,743)**	**(82,184)**	**5,556,939**	**—**	**5,556,437**

Long-term investments & treasury shares

SHARES OF NIPPON STEEL SUMITOMO METAL CORPORATION (NSSMC)

As at 31 December 2016, NSSMC shares listed on the Tokyo stock exchange, acquired in 2009 for a total amount of €81.9 million, at an average price of 230.8 yen per share, had a net value of €75.2 million (valuation at the average price in December 2016).

These shares were sold during fiscal year 2017 at a price of €69.0 million.

TREASURY SHARES

a) Liquidity contract

Vallourec has a liquidity contract with Rothschild & Cie Banque, which has been in effect since 2 July 2012. The contract has a term of 12 months and is automatically renewable for successive 12-month terms. It complies with the Code of Conduct (Charte de déontologie) issued by the French Association of Financial Markets (Association Française des Marchés Financiers) and approved by the French securities regulator (Autorité des Marchés Financiers) on 21 March 2011.

On 18 December 2017, Vallourec decided to terminate the liquidity contract entered into on 26 June 2012 with Rothschild & Cie Banque and as of 31 December 2017 no longer holds treasury shares under this contract.

1. Movements in non-current assets (Continued)

b) Other treasury shares

In 2017, Vallourec definitively allocated 266,370 shares under various performance plans and no longer holds, as of 31 December 2017, treasury shares acquired before 2010, which were allocated to employee allocation operations.

Receivables, loans and other investments

LOANS

On 31 December 2011, Vallourec arranged a €1.0 billion loan for subsidiary Vallourec Tubes to finance its long-term requirements. The loan had fixed rate interest of 4.6% per annum and matured on 31 December 2015.

On 11 December 2014, this loan was modified, increasing its amount to €1.70 billion, reducing its interest rate to 3.8% and extending its maturity to 31 December 2017.

On 30 December 2016, this loan was modified, increasing its interest rate to 4.4% and extending its maturity to 31 December 2019.

2. Investment securities

Investment securities include:

Mutual and investment funds

In € thousand	31/12/2016	31/12/2017	Measurement as at 31/12/2017	Loss provisioned	Unrealized gain
Time deposit account	5,000	5,000	5,000	—	—
Mutual and investment funds	7,999	—	—	—	—
TOTAL	**12,999**	**5,000**	**5,000**	**—**	**—**

Vallourec joins in euro and US dollar cash management centralization with its main European companies and centralized currency hedging transactions in respect of its US dollar sales within Vallourec Tubes.

Cash is invested in risk-free money market funds. Vallourec only enters into financial transactions with first-rate financial institutions.

Treasury shares

In € thousand	31/12/2016	Acquisition Allowance	Disposal Reversal	31/12/2017
Treasury shares	12,486	—	8,652	3,834
Impairment provision	—	—	—	—
TOTAL	**12,486**	**—**	**8,652**	**3,834**

Treasury shares recorded in investment securities are allocated to members of staff, executive management or corporate officers of the Group under the performance share allocation plan, and free share allocation plans for employees of the Group.

In this context, Vallourec holds:

- 165 treasury shares acquired in 2011 under the share buyback plan of 7 June 2011, after definitive allocation of 27,534 shares in 2012, 86,377 shares in 2013, 91,929 shares in 2014, 108,600 shares in 2015, 30,524 shares in 2016 and 54,871 shares in 2017 under the various performance share plans;

2. Investment securities (Continued)

- 1,131 treasury shares acquired in 2012 under the share buyback plan of 31 May 2012, upon the definitive allocation of 94,600 shares in 2014 and 225,684 shares in 2016, and 78,585 shares in 2017 under the various performance share plans;
- 171,311 treasury shares acquired in 2014 after the definitive allocation of 128,689 shares in 2017 for the various performance share plans;

As at 31 December 2017, Vallourec holds 172,607 treasury shares, all allocated to a performance plan.

3. Statement of receivables and payables

Receivables In € thousand	Gross value	of which accrued receivables	of which related parties	Gross value < 1 year	Gross value > 1 year
FINANCIAL ASSET RECEIVABLES & PAYABLES	**1,700,000**	**—**	**1,700,000**	**—**	**1,700,000**
OPERATING RECEIVABLES	**4,203**	**—**	**3,454**	**4,203**	**—**
Advances & deposits paid to suppliers	18	—	—	18	—
Trade & other receivables	3,454	—	3,078	3,454	—
Other operating receivables	731	—	—	731	—
OTHER RECEIVABLES	**808,865**	**—**	**795,724**	**808,865**	**—**
Receivables related to tax consolidation	16	—	16	16	—
Government—Corporate income tax	13,141	—	—	13,141	—
Intercompany cash advance	795,708	—	795,708	795,708	—
Other receivables	—	—	—	—	—
TOTALS	**2,513,068**	**—**	**2,499,178**	**813,068**	**1,700,000**

Loans granted during the year: None.

Loans repaid during the year: None.

Receivables represented by commercial paper: None.

Payables In € thousand	Gross value	of which expenses payable	of which related parties	< 1 year	> 1 year	> 5 years
BORROWINGS	**2,170,562**	**18,751**	**—**	**415,562**	**1,200,000**	**555,000**
Non-convertible bond issues	1,505,000	—	—	—	950,000	555,000
Convertible bond issues	250,000	—	—	—	250,000	—
Bank loans and borrowings	18,751	18,751	—	18,751	—	—
Commercial paper	396,811	—	—	396,811	—	—
Other loans and borrowings	—	—	—	—	—	—
Intercompany cash advance	—	—	—	—	—	—
OPERATING LIABILITIES	**8,402**	**—**	**4,166**	**8,402**	**—**	**—**
Trade payables	5,236	—	4,166	5,236	—	—
Tax & social security liabilities	3,166	—	—	3,166	—	—
Customer advances & deposits	—	—	—	—	—	—
OTHER LIABILITIES	**54,295**	**—**	**19,788**	**54,295**	**—**	**—**
Other operating liabilities	—	—	—	—	—	—
Other non-operating liabilities	54,295	—	19,788	54,295	—	—
TOTALS	**2,233,259**	**18,751**	**23,954**	**478,259**	**1,200,000**	**555,000**

3. Statement of receivables and payables (Continued)

Financial liabilities

NON-CONVERTIBLE BOND ISSUES

In August 2012, Vallourec issued two long-term private bonds totaling €455 million. The amounts and terms of these two private bond issues are €400 million for seven years with an annual coupon of 3.25% for one, and €55 million for 15 years with an annual coupon of 4.125% for the other.

On 30 September 2014, Vallourec issued a €500 million bond, maturing in September 2024, with a fixed annual coupon of 2.25%.

On 11 October 2017, Vallourec issued a €400 million bond, which received a matching contribution on 23 October 2017 in the amount of €150 million (i.e. €550 million in total) maturing in October 2022 with a fixed annual coupon of 6.625%. This bond is callable pursuant to the contractual terms as from 15 October 2020.

These bond issues were intended to diversify and increase the amount and extend the maturity of the financial resources available to the Group.

These bond issues specifically include a change-of-control clause that would trigger the mandatory prepayment of the bonds at the request of each bondholder in the event of a change of control of the Company (in favor of a person or a group of people acting in concert) leading to a downgrade of Vallourec's financial rating. In addition, these bonds may be subject to a request for prepayment should any of the common default scenarios for this type of transaction arise. Early redemption may also be requested in some cases by either the Company or the bondholder, particularly in respect of a change in Vallourec's position or tax status.

CONVERTIBLE BOND ISSUES

On 27 September 2017, Vallourec issued a €250 million bond, consisting of Bonds Convertible into New Shares and/or Exchangeable for Existing Shares, maturing in October 2022, with a fixed annual coupon of 4.125%, and a unit value of €6.89, and a conversion premium of 37.5%.

BANK LOANS & DEBTS

In February 2014, Vallourec took out a revolving credit facility for the amount of €1.1 billion, maturing in February 2019, plus two one-year extension options. In addition to the first one-year extension obtained for €1.078 billion, the second extension was granted in July 2016 for the sum of €989 million, which was then raised to 1,034 million in July 2017. The new maturity date is in 2021. This credit line is available for the Group's general funding purposes. As at 31 December 2017 this line had not been drawn.

In June 2015, Vallourec agreed to a confirmed bilateral line of €90 million until February 2019 with two one-year extension options, which were granted in July 2016. As at 31 December 2017 this line had not been drawn.

In September 2015, Vallourec took out a confirmed credit facility for €400 million, maturing in July 2019, with a one-year extension option which was granted in July 2016 for the full amount, and maturity rescheduled for February 2020. This replaced four medium-term bilateral lines of €100 million each, which were originally granted to Vallourec Tubes, maturing in July 2017. As at 31 December 2017 this line had not been drawn.

In May 2016, Vallourec took out a revolving credit line for €450 million maturing in February 2020. As at 31 December 2017 this line had not been drawn.

Each of these bank facilities requires Vallourec to maintain its consolidated net debt-to-equity ratio at no more than 75%, calculated as at 31 December each year. For 2018, 2019, and 2020, this ratio was taken to 100% for all Vallourec's bank facilities through amendments of 17 March 2017. In the event of non-compliance with this ratio requirement, lenders would be entitled to demand early repayment of the outstanding drawn amounts. Vallourec was in compliance with this ratio requirement as at 31 December

3. Statement of receivables and payables (Continued)

2017. As defined in the financing agreements, the "bank covenant ratio" is the ratio between the Group's net consolidated debt and the Group's equity, restated for gains and losses on derivatives and valuation differences (gains and losses on the consolidated subsidiaries in foreign currencies).

COMMERCIAL PAPER

In addition to bank financing, the Group has sought to diversify its funding sources by using market financing. For example, Vallourec launched a commercial paper program on 12 October 2011 to meet its short-term needs. The program has a €1 billion ceiling. At 31 December 2017, Vallourec had an outstanding debt of €396.8 million for maturities of up to one year. This commercial paper program was rated B by Standard & Poor's. As at 31 December 2017, the Group complied with its covenants and the terms and conditions for obtaining and maintaining all of the above facilities. Together, the above resources were sufficient to cover the Group's cash requirements as at 31 December 2017.

For information about the Company's plans for financing after 31 December 2017, refer to Note E-5 on subsequent events.

4. Bond issue costs

In accordance with the method recommended by the French national accounting board (Conseil National de la Comptabilité), bond issue costs are spread in a straight line over the life of the bonds concerned.

In € thousand	31/12/2016	Increase	Decrease	31/12/2017
Bond issue costs	4,799	13,210	(1,647)	16,362

5. Equity

Changes in equity were as follows:

In € thousand	Number of shares	Capital	Net income/(loss) for the period	Additional paid-in capital and reserves	Equity
Position as at 31/12/2015	**135,688,432**	**271,377**	**61,538**	**2,890,029**	**3,222,944**
Allocation of 2015 net income/(loss)	—	—	(61,538)	61,538	—
Capital increase	315,549,573	631,099	—	345,914	977,013
Revaluation reserve	—	—	—	—	—
Dividend paid	—	—	—	—	—
Interim dividend	—	—	—	—	—
2016 net income/(loss)	—	—	(17,841)	—	(17,841)
Change	315,549,573	631,099	(79,379)	407,452	959,172
Position at 31/12/2016	**451,238,005**	**902,476**	**(17,841)**	**3,297,481**	**4,182,116**
Allocation of 2016 net income/(loss)	—	—	17,841	(17,841)	—
Capital increase	6,749,755	13,500	—	13,110	26,610
Revaluation reserve	—	—	—	—	—
Dividend paid	—	—	—	—	—
2017 net income/(loss)	—	—	(39,056)	—	(39,056)
Change	6,749,755	13,500	(21,215)	(4,731)	(12,446)
POSITION AS AT 31 DECEMBER 2017	**457,987,760**	**915,976**	**(39,056)**	**3,292,750**	**4,169,670**

Vallourec's issued capital comprises 457,987,760 ordinary shares with a nominal value of €2 per share fully paid-up as at 31 December 2017, compared with 451,238,005 shares with a par value of €2 each as at 31 December 2016.

5. Equity (Continued)

At the end of the clearing period for subscriptions to the Value 17 international employee share ownership plan (see Chapter 7 below), at its meeting on 14 December 2017, the Management Board, under the terms of the twenty-second, twenty-third and twenty-fourth resolutions of the Ordinary and Extraordinary Shareholders' Meeting of 12 May 2017, recorded the final completion of three capital increases in the nominal amounts of €6,783,230, €5,517,106 and €1,199,174, or an aggregate nominal amount of €13,499,510, through the respective issue of 3,391,615, 2,758,553 and 599,587 new shares for an aggregate total of 6,749,755 new shares with a par value of €2.00 each at a price per share of €3.77 for the standard plan and €4.00 for the leveraged plan. These transactions had the cumulative effect of increasing share capital from €902,476,010 to €915,975,520.

As at 31 December 2017, the subscribed, fully paid-up share capital amounted to €915,975,520, divided into 457,987,760 shares with a par value of €2.00 each.

Equity dropped by €12.4 million and was €4,169.7 million as at 31 December 2017, compared to €4,182.1 million as of 31 December 2016.

6. Employee share ownership

After application of the adjustments provided for in Articles L. 228-99 and R. 228-91 of the French Commercial Code and pursuant to the rules governing performance share and share option plans. At its meeting on 2 May 2016, the Vallourec Supervisory Board sought to protect the rights of holders of performance shares and share options by ensuring that the capital increase decided on 7 April 2016 did not affect said rights. The information below takes into account the impacts of this decision.

Share subscription plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized share subscription plans from 2009 to 2017 for some executive management and corporate officers of the Group.

The characteristics of these plans are as follows (figures for the 2009 plans are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares):

	2009 Plan	2010 Plan	2011 Plan	2012 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan
Allocation date	01/09/2009	01/09/2010	01/09/2011	31/08/2012	02/09/2013	15/04/2014	15/04/2015	18/05/2016	18/05/2017
Maturity date	01/09/2013	01/09/2014	01/09/2015	01/03/2017	03/03/2018	15/04/2018	15/04/2019	18/05/2020	18/05/2021
Expiration date	01/09/2019	01/09/2020	01/09/2021	30/08/2020	01/09/2021	15/04/2022	15/04/2023	18/05/2024	18/05/2025
Exercise price in euros	31.02	42.72	36.44	22.21	27.70	23.13	13.57	3.90	6.02
Number of options granted	964,107	853,641	1,140,431	883,602	1,003,746	622,261	683,413	537,895	292,500

6. Employee share ownership (Continued)

CHANGE IN NUMBER OF UNEXPIRED OPTIONS

For all of these plans, the change in the number of unexpired options is as follows:

In number of options	2016	2017
Options outstanding as at 1 January	2,860,088	5,002,867
Options exercised	—	—
Options lapsed	—	—
Options canceled[(a)]	(62,852)	(1,282,166)
Impact of the capital increase[(a)] on the plans prior to 2016	1,667,736	—
Options distributed	537,895	292,500
OPTIONS OUTSTANDING AS AT 31 DECEMBER	**5,002,867**	**4,013,201**
Options available for exercise	1,318,249	1,260,022

(a) After application of the adjustments provided for in Articles L. 228-99 and R. 228-91 of the French Commercial Code and pursuant to the rules governing performance share and share option plans. At its meeting on 2 May 2016, the Vallourec Supervisory Board sought to protect the rights of holders of performance shares and share options by ensuring that the capital increase decided on 7 April 2016 did not affect said rights.

The reported figures correspond to the number of options originally allocated with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

Performance share plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized performance share plans from 2012 to 2017 for some employees and corporate officers of the Group.

The characteristics of these plans are as follows:

Performance share plans	2012 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan	2017 Plan
Allocation date	30/03/2012	29/03/2013	16/12/2014	15/04/2015	18/05/2016	18/05/2017
Vesting period	2 years (French residents and members of the Management Board) or 4 years (non-French residents)	3 years (French residents and members of the Management Board) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)
Holding period	2 years (French residents and members of the Management Board) or none (non-French residents)	2 years (French residents and members of the Management Board) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)
Performance conditions	Yes[(a)]	Yes[(b)]	Yes[(c)]	Yes[(d)]	Yes[(e)]	Yes[(f)]
Theoretical number of shares allocated	286,718	391,200	661,861	388,583	610,001	820,275

(a) Definitive allocation of shares in 2014 for French residents and members of the Management Board, and in 2016 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of

6. Employee share ownership (Continued)

consolidated EBITDA to consolidated revenue achieved by the Group in 2012 and 2013. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation will be based on the following three criteria assessed for fiscal years 2012 and 2013: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(b) Definitive allocation of shares in 2016 for French residents and members of the Management Board, and in 2017 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2013, 2014 and 2015. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation will be based on the following three criteria assessed for fiscal years 2013, 2014 and 2015: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(c) Definitive allocation of shares in 2017 for French residents and members of the Management Board, and in 2018 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2014, 2015 and 2016. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, final allocation shall depend on the following four criteria, assessed in 2014, 2015 and 2016: the rate of return on capital employed (ROCE), compared with the ROCE in the budget, consolidated revenue on a like-for-like basis, as compared with the revenue in the budget, the relative stock market performance of the Vallourec share on the regulated NYSE Euronext market in Paris, as compared with a benchmark panel, and the relative EBITDA performance as compared with the same panel as for the previous criterion. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(d) Definitive allocation of shares in 2018 for French residents and members of the Management Board, and in 2019 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2015, 2016 and 2017. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the final award will depend on the following two criteria, assessed for 2015, 2016 and 2017: the rate of return on capital employed on a consolidated basis (ROCE), compared to the ROCE in the strategic plan, and the Total Shareholder Return (TSR) for 2015, 2016 and 2017. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(e) Definitive allocation of shares in 2019 for French residents and members of the Management Board, and in 2020 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2016, 2017 and 2018. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the final award will depend on the following two criteria, assessed for 2016, 2017 and 2018: the rate of return on capital employed on a consolidated basis (ROCE), compared to the ROCE in the strategic plan, and the Total Shareholder Return (TSR) for 2016, 2017 and 2018. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(f) For all beneficiaries (excluding members of the Management Board and Executive Committee), this will depend on cost reduction in 2017, 2018 and 2019, in comparison to the planned performance in the Group's medium-term plan for the same period, and on the Group's cumulative Free cash flow (FCF) for 2017, 2018 and 2019. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.4. For members of the Management Board and Executive Committee, the definitive allocation will depend on the following two criteria: reducing costs in 2017, 2018 and 2019, in comparison to the Group's planned performance in the medium-term over the same period and the growth of the EBITDA margin between 2017 and 2019 in comparison to a panel of comparable companies. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 2.

6. Employee share ownership (Continued)

International performance share allocation plans for employees	2 - 4 - 6 plan (2012)	2 - 4 - 6 plan (2013)	2 - 4 - 6 plan (2014)
Allocation date	30/03/2012	29/03/2013	15/04/2014
Vesting period	2 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)
Holding period	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)
Performance conditions	Ratio of EBITDA to revenue (2012 and 2013)	Ratio of EBITDA to revenue (2013, 2014 and 2015)	Ratio of EBITDA to revenue (2014, 2015 and 2016)
Theoretical number of shares allocated	130,116	191,144	208,100

Free share allocation plans (without performance condition)	Value 12 Plan	Value 13 Plan	Value 14 Plan	Value 15 Plan	Value 16 Plan	Value 17 Plan
Allocation date	06/12/2012	10/12/2013	16/12/2014	15/12/2015	14/12/2016	14/12/2017
Vesting period	4.6 years	4.6 years	4.6 years	4.6 years	4.6 years	4.6 years
Theoretical number of shares allocated	7,032	6,445	6,336	2,744	3,344	3,409

CHANGE IN NUMBER OF SHARES

For all of these plans, the change in the number of shares being vested is as follows:

In number of shares	2016	2017
Number of shares being vested as at 1 January	1,455,690	2,199,312
Shares delivered	(252,486)	(160,170)
Shares canceled	(250,602)	(654,358)
Impact of the capital increase[(a)] on the plans prior to 2016	636,709	—
Shares allocated	610,001	823,684
NUMBER OF SHARES BEING VESTED AS AT 31 DECEMBER	**2,199,312**	**2,208,468**

(a) After application of the adjustments provided for in Articles L. 228-99 and R. 228-91 of the French Commercial Code and pursuant to the rules governing performance share and share option plans. At its meeting on 2 May 2016, the Vallourec Supervisory Board sought to protect the rights of holders of performance shares and share options by ensuring that the capital increase decided on 7 April 2016 did not affect said rights.

The reported figures correspond to the number of shares originally allocated, with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

7. Provisions for contingencies and liabilities

The change in provisions for risks, liabilities and expenses is shown below:

	31/12/2016	Allowances	Reversals used	31/12/2017
Provisions for foreign exchange losses	—	10	—	10
Retirement provisions	527	417	(812)	132
Provisions for supplemental pension commitments	1,810	—	(1,810)	—
Provisions for performance share expenses	9,770	3,446	(7,074)	6,142
TOTAL	**12,107**	**3,873**	**(9,696)**	**6,284**
• Recognized in operating profit	—	3,863	(9,696)	—
• Recognized in financial profit	—	—	—	—
• Recognized in exceptional income	—	—	—	—

Disputes are provisioned to the extent of the estimated probable cost at the reporting date of each year, in application of CRC Regulation No. 2000-06 on liabilities.

The balance of the provision for expenses relating to the performance share plans (2013, 2014, 2015, 2016 and 2017 plans) totaled €6.1 million.

Retirement provisions

Total retirement commitments, net of plan assets, totaled €0.3 million as at 31 December 2017, as compared with €0.7 million as at 31 December 2016.

Actuarial losses and past service costs not recognized totaled €0.2 million. The commitments not recognized in the balance sheet correspond to changes in or the non-crystallization of assumptions, the effect of which is amortized over time using the corridor method.

The main changes in relation to the measurements used in the previous year's financial statements concern the base salary used in the calculation of pension benefits and the change in the discount rate.

Provisions for supplemental retirement commitments

Total supplementary pension commitments, net of plan assets, totaled €3.6 million as at 31 December 2017.

Actuarial losses and past service costs not recognized totaled €0.9 million. The commitments not recognized in the balance sheet correspond to changes in or the non-crystallization of assumptions, the effect of which is amortized over time using the corridor method.

Information on interest rate risk

The Group is exposed to interest rate risk on its variable-rate debt.

Vallourec used swaps to hedge its variable-rate borrowing at a fixed interest rate.

Information on foreign exchange risk

As at 31 December 2017, Vallourec was not exposed to exchange rate risk.

D—Notes to the income statement

1. Operating income

Revenue

Revenues of €5.1 million mainly correspond to the Group's reinvoicing of services to its subsidiary Vallourec Tubes for €2.5 million, and of the costs of employee performance share allocation plans to Group subsidiaries.

1. Operating income (Continued)

Operating expenses

Operating expenses of €46.0 million consist mainly of fees, personnel costs, and the impact of free share allocation programs, and commissions, loan issue fees and allocations to provisions.

2. Financial income and expenses concerning affiliated companies

Financial expenses: none.

Financial income: €75.8 million.

3. Financial income/(loss)

Financial income was €5.9 million.

	31/12/2016	31/12/2017
Financial income	53,689	78,306
Interest expenses	(79,158)	(93,305)
Net interest expenses	**(25,469)**	**(14,999)**
Change in provisions	12,098	20,787
Other financial income and expenses	467	128
FINANCIAL INCOME/(LOSS)	**(12,904)**	**5,916**

Changes in provisions concerned impairments of treasury shares and the recovery of the provision for impairment of Nippon Steel Sumitomo equity interests disposed of in 2017. The result of that disposal was presented under exceptional income.

4. Exceptional income/(loss)

Exceptional income/(loss) showed a loss of €31 million, which resulted from transfer loss on treasury shares and the income/(loss) from disposal of equity interests in NSSMC.

E—Other information

1. Composition of average headcount

The Company employed five people as of late 2017, including two corporate officers (members of the Management Board).

2. Taxation

Tax consolidation

Since 1 January 1988, the Company has been a member of a tax group formed under the provisions of Article 223A of the French General Tax Code.

This agreement has been renewed automatically for five-year periods since 1999.

In 2017, the scope of the tax group included: Vallourec, Assurval, Vallourec Fittings, Vallourec Bearing Tubes, Vallourec Université France, Vallourec Umbillicals, Valinox Nucléaire, Vallourec Tubes, Vallourec Drilling Products France, Vallourec Tubes France, Vallourec Oil and Gas France, Vallourec One, Vallourec Services, Val27, Val28 and Val29.

The tax consolidation agreement requires subsidiaries of the tax group to record a tax expense equivalent to the amount they would have borne in the absence of tax consolidation.

The tax savings of €37.7 million resulting from the allocation of losses generated by the subsidiaries was recognized in other liabilities and not in net income.

2. Taxation (Continued)

Any income resulting from tax consolidation recorded by Vallourec corresponds mainly to the allocation to consolidated net income of the losses generated by Vallourec itself and tax loss carryforwards used by Vallourec.

In 2016, the exit of Vallourec Heat Exchanger Tubes and of the Serimax companies generated a tax credit recorded in the income statement for €8.7 million.

The Vallourec tax group reported a loss in 2017 and its tax loss carryforward was €1,331.3 million at the end of 2017.

INCREASE AND DECREASE IN FUTURE TAX LIABILITIES

Nature of temporary differences In € thousand	Amount (base) as at 31/12/2017
Increase	**—**
Decrease	**1,849**
Provision for retirement commitments	(169)
Provision for employee share ownership arrangements	1,996
Provision for paid leave	22
Provision for Tax on Tourism Vehicles	—

As at 31 December 2017, the amount of tax loss carryforwards specific to the Company stood at €181 million.

Breakdown of income tax between income (loss) from recurring operations and non-recurring income (loss)

In € thousand	Pre-tax income	Tax due	Net income
Recurring	(7,374)	—	(7,374)
Non-recurring	(31,345)	—	(31,345)
SUB-TOTAL	**(38,719)**	**—**	**(38,719)**
Expense specific to Vallourec (tax credit)	—	(337)	(337)
Income relating to tax consolidation	—	—	—
TOTAL VALLOUREC	**(38,719)**	**(337)**	**(39,056)**

3. Compensation of members of administrative and management bodies

Administrative bodies

Attendance fees paid during the year amounted to €0.6 million.

Management bodies

This information is not provided as it is not relevant in relation to the assets and liabilities, financial position and net income of Vallourec.

4. Off-statement of financial position commitments

Off-statement of financial position commitments are as follows:

- retirement benefits: €191 thousand (actuarial loss);
- supplemental retirement allowances: €0.9 million (actuarial loss);
- long-term vehicle leases: €30 thousand.

The Company has not issued any form of collateral against its liabilities.

5. Subsequent events

Since 31 December 2017, no subsequent events have occurred that would call into question the truthfulness and reliability of the financial statements.

6. Subsidiaries and directly-held equity interests of Vallourec as at 31 December 2017

In € thousand Companies	Capital	Other equity before allocation of income (loss)	Percentage of capital held (%)	Accounting value of the securities held		Loans and advances granted by the Company and not yet repaid	Total securities and guarantees given by the Company	Sales excluding taxes for the last fiscal year	Income (loss) for the last fiscal year	Dividends received by the Company during the year
				Gross	Net					
A) Subsidiaries and equity interests with a carrying amount in excess of 1% of Vallourec's capital										
I. Subsidiaries (at least 50%-owned)										
French company										
Vallourec Tubes 27, avenue du G^{al}-Leclerc 92100 Boulogne—Billancourt—France	1,503,948	1,515,819	100%	3,856,429	3,856,429	2,495,708	—	45,399	(542,013)	—
B) Subsidiaries and equity interests with a carrying amount lower than 1% of Vallourec's capital										
I. Subsidiaries (at least 50%-owned)										
a) French companies										
Assurval 27, avenue du G^{al}-Leclerc 92100 Boulogne—Billancourt—France	10	1	99%	8	8	—	—	559	153	—
II. Equity interests (10%- to 50%-owned)										
a) French companies										
b) Foreign companies										
C) Long-term investments										
a) French companies										
b) Foreign companies										

7. Financial results for the last five years

In euros	2013	2014	2015	2016	2017
CAPITAL					
Share capital	**256,319,200**	**261,195,950**	**271,376,864**	**902,476,010**	**915,975,520**
Number of ordinary shares in issue	128,159,600	130,597,975	135,688,432	451,238,005	457,987,760
Number of preference dividend shares (without voting rights) in issue	—	—	—	—	—
Maximum number of new shares to be issued:					
• by converting bonds	—	—	—	—	36,284,470
• by exercise of subscription rights	3,183,279	3,277,041	2,860,088	5,002,867	4,013,201
• by bond redemption	—	—	—	—	—
Revenue, excluding taxes	10,477,780	7,113,746	3,768,771	5,758,082	5,050,327
Income (loss) before tax, employee profit-sharing, depreciation and amortization, and provisions	238,748,107	158,212,497	86,095,267	(43,370,419)	(70,741,338)
Income tax	(10,840,983)	(7,021,640)	(1,031,743)	(8,838,867)	336,751
Employee profit-sharing for the year	—	—	—	—	—
Income (loss) after tax, employee profit-sharing, depreciation and amortization, and provisions	263,323,882	159,162,352	61,538,102	(17,841,399)	(39,056,082)
Distributed earnings	**103,809,276**	**105,784,360**	**—**	**—**	**—**
EARNINGS PER SHARE					
Income after taxes and employee profit-sharing but before amortization and provisions	1.95	1.27	0.64	(0.08)	(0.16)
Income (loss) after tax, employee profit-sharing, depreciation and amortization, and provisions	2.05	1.22	0.45	(0.04)	(0.09)
Dividend allotted to each existing share	**0.81**	**0.81**	**—**	**—**	**—**
WORKFORCE					
Average number of employees during the fiscal year	7	7	7	7	5
Amount of payroll costs for the year	2,994,504	3,194,083	2,917,511	2,378,067	2,708,256
Payroll-related costs (social security, employee benefits, etc.)	2,718,063	1,905,112	1,251,897	1,969,216	1,138,027

Statutory Auditors' report on the consolidated financial statements

For the year ended 31 December 2017

This is a translation into English of the statutory auditors' report on the financial statements of the Company issued in French and it is provided solely for the convenience of English speaking users.

This statutory auditors' report includes information required by European regulation and French law, such as information about the appointment of the statutory auditors or verification of the management report and other documents provided to shareholders.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

To the Shareholders,

Opinion

In compliance with the engagement entrusted to us by your Shareholders' Meeting, we have audited the accompanying consolidated financial statements of Vallourec S.A. (hereinafter, "the Company") for the year ended 31 December 2017.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at 31 December 2017 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

The audit opinion expressed above is consistent with our report to the Financial and Audit Committee.

Basis for Opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the Statutory Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report.

Independence

We conducted our audit engagement in compliance with independence rules applicable to us, for the period from 1 January 2017 to the date of our report and specifically we did not provide any prohibited non-audit services referred to in Article 5 (1) of Regulation (EU) N° 537/2014 or in the French Code of Ethics *(Code de déontologie)* for statutory auditors.

Justification of Assessments—Key Audit Matters

In accordance with the requirements of Articles L.823-9 and R.823-7 of the French Commercial Code *(Code de commerce)* relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the consolidated financial statements.

Valuation of goodwill, intangible assets and property, plant and equipment—Notes A2.7 to A2.9, C.1, C2.1, C2.3 and C29 of the consolidated financial statements

Key Audit Matter	Audit Approach
As at 31 December 2017, the carrying amount of goodwill, intangible assets and property, plant and equipment was €348 million, €89 million and €2,977 million respectively, representing 50% of the consolidated balance sheet total. As described in Note C2.3 of the consolidated financial statements, since 2014, the Group has faced a deteriorated economic environment, with a drop in exploration and production investment by oil operators, increased volatility in the price of raw materials and energy, and an extremely competitive international environment. In response to the continued decline in oil and gas prices since the end of 2014, oil and gas companies have reduced capital expenditure in exploration, production and development of oil and natural gas reserves. This has had a significant impact on demand and on the price of pipes. Reduced demand, combined with lower prices resulting from competitive pressure from incumbent gas operators and the arrival of new competitors, exacerbated by deflationary pressure from customers, has significantly affected the Group's profitability, and has been analyzed as a general indication of impairment, requiring impairment testing. As at 31 December 2017, the Group performed impairment tests on all cash generating units (CGUs) in order to monitor impairment on property, plant and equipment previously recorded and ensure that the carrying amount of assets allocated to each CGU was not higher than their recoverable value. Impairment testing methods and assumptions are described in note C2.3 of the consolidated financial statements. We believe that the determination of the recoverable value of the assets allocated to these CGUs is a key audit matter, given the materiality of these assets on the consolidated financial statements of the Group, and also given the fact that the determination of recoverable value requires Management to make judgments and use estimates to forecast the discounted future cash flows used in the tests. It should be noted that the CGU "Vallourec Europe" receives particular attention because of past achievements, expected growth and the sensitivity of exchange rate assumptions.	During our work, we gained an understanding of (i) the process for preparing and approving the assumptions, estimates and forecast data used by Management to perform impairment tests, (ii) the procedures for reviewing the results of these tests by the governance entities, and we (iii) assessed the appropriateness of the financial model used to determine the recoverable value of the CGUs tested. With the help of our valuation experts, based on benchmarks and sectorial macroeconomic data analyses, we assessed the various assumptions on which cash flow forecasts are established, including (i) assumptions of capital expenditure in exploration, production and the development of oil and natural gas reserves and related oil and gas prices, and (ii) the exchange rates, growth rates and discount rates used. The consistency of cash forecasts with past performance, market outlook, and forecast data presented to the Company's Supervisory Board was also analysed. Last, we performed our own sensitivity analyses and verified the appropriateness of the information presented in note C2.3 of the consolidated financial statements on those performed by the Company.

Verification of the Information Pertaining to the Group Presented in the Management Report

As required by law, in accordance with professional standards applicable in France we have also verified the information pertaining to the Group presented in the management report of the Management Board.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

Report on Other Legal and Regulatory Requirements

Appointment of the Statutory Auditors

We were appointed as statutory auditors of Vallourec S.A. by the annual general meeting held on 1 June 2006 for both audit firms.

As at 31 December 2017, KPMG S.A. was in the 12th year of an uninterrupted engagement and Deloitte & Associés in the 16th year of an uninterrupted engagement given the succession of mandates between legal entities of the Deloitte network.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by the European Union, and for such internal control as Management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, Management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Company or to cease operations.

The Financial and Audit Committee is responsible for monitoring the financial reporting process and the effectiveness of internal control and risk management systems and where applicable, its internal audit, regarding the accounting and financial reporting procedures.

The consolidated financial statements have been approved by the Management Board.

Statutory Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Objectives and audit approach

Our role is to issue a report on the consolidated financial statements. Our objective is to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As specified in Article L.823-10-1 of the French Commercial Code *(Code de commerce)*, our statutory audit does not include assurance on the viability of the Company or the quality of management of the affairs of the Company.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- Identifies and assesses the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for the audit opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control.
- Evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management in the consolidated financial statements.

- Assesses the appropriateness of Management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the consolidated financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein.
- Evaluates the overall presentation of the consolidated financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtains sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. The statutory auditor is responsible for the direction, supervision and performance of the audit of the consolidated financial statements and for the opinion on these consolidated financial statements.

Report to the Financial and Audit Committee

We submit a report to the Financial and Audit Committee which includes a description of the scope of the audit and the audit programme implemented, as well as the results of our audit. We also report, if any, significant deficiencies in internal control regarding the accounting and financial reporting procedures that we have identified.

Our report to the Financial and Audit Committee includes the risks of material misstatement that, in our professional judgment, were of most significance in the audit of the consolidated financial statements of the current period and which are therefore key audit matters that we are required to describe in this audit report.

We also provide the Financial and Audit Committee with the declaration provided for in Article 6 of Regulation (EU) N° 537/2014, confirming our independence within the meaning of the rules applicable in France such as they are set in particular by Articles L.822-10 to L.822-14 of the French Commercial Code *(Code de commerce)* and in the French Code of Ethics *(Code de déontologie)* for statutory auditors. Where appropriate, we discuss with the Financial and Audit Committee the risks that may reasonably be thought to bear on our independence, and the related safeguards.

Neuilly-sur-Seine and Paris-La Défense, on 16 March 2018

The Statutory Auditors,

Deloitte & Associés
Christophe Patrier

KPMG Audit
Département de KPMG S.A.
Catherine Porta

Consolidated financial statements

Vallourec Group's statement of financial position

In € thousands	Notes	31/12/2015	31/12/2016
NON-CURRENT ASSETS			
Net intangible assets	1	148,821	124,982
Goodwill	1	329,569	382,684
Gross property, plant and equipment	2.1	6,205,411	6,351,197
Less: accumulated amortization, depreciation and provisions	2.1	(3,044,350)	(2,733,583)
Net property, plant and equipment	2.1	3,161,061	3,617,614
Biological assets	2.2	154,694	88,411
Associates	3	176,835	124,800
Other non-current assets	4	233,133	348,571
Deferred tax assets	5	148,783	190,269
TOTAL		**4,352,896**	**4,877,331**
CURRENT ASSETS			
Inventories and work in progress	6	1,066,165	1,034,749
Trade and other receivables	7	544,904	546,218
Derivatives—assets	8	20,341	57,985
Other current assets	9	307,474	283,019
Cash and cash equivalents	10	630,540	1,286,722
TOTAL		**2,569,424**	**3,208,693**
Assets held for sale and discontinued operations	11	68,964	46,327
TOTAL ASSETS		**6,991,284**	**8,132,351**
EQUITY	13		
Capital		271,377	902,476
Additional paid-in capital		1,058,872	1,404,786
Consolidated reserves		2,794,668	1,993,343
Reserves, financial instruments		(54,279)	(33,482)
Foreign currency translation reserve		(500,575)	(176,574)
Net income for the period		(864,753)	(758,016)
Treasury shares		(59,642)	(49,003)
Equity, Group share		**2,645,668**	**3,283,530**
Non-controlling interests	**15**	**391,941**	**494,432**
TOTAL EQUITY		**3,037,609**	**3,777,962**
Shareholder loan	34	—	83,172
NON-CURRENT LIABILITIES			
Bank loans and other borrowings	16	1,762,955	1,120,648
Employee benefit commitments	19	224,477	226,763
Provisions	17	10,515	95,688
Deferred tax liabilities	5	216,172	80,494
Other long-term liabilities	18	31,731	25,712
TOTAL		**2,245,850**	**1,549,305**
CURRENT LIABILITIES			
Provisions	17	238,107	280,296
Overdrafts and other short-term borrowings	16	386,842	1,453,096
Trade payables		523,476	530,391
Derivatives—liabilities	8	152,430	105,293
Tax liabilities		13,981	10,163
Other current liabilities	20	332,854	299,462
TOTAL		**1,647,690**	**2,678,701**
Liabilities held for sale and discontinued operations	11	60,135	43,211
TOTAL EQUITY AND LIABILITIES		**6,991,284**	**8,132,351**

Consolidated income statement

In € thousands	Notes	2015	2016
Revenue	23	3,803,423	2,965,061
Cost of sales[a]	24	(3,352,744)	(2,726,709)
Sales, general and administrative costs[a]	25	(512,829)	(447,602)
Others	26	(15,097)	(9,466)
EBITDA		**(77,247)**	**(218,716)**
Depreciation of industrial assets	28	(302,632)	(283,274)
Other depreciation and amortization	28	(44,279)	(48,522)
Impairment of assets and goodwill	29	(296,222)	(71,391)
Asset disposals, restructuring costs and non-recurring items	29	(117,960)	(127,471)
OPERATING INCOME/(LOSS)		**(838,340)**	**(749,374)**
Financial income		36,764	29,764
Interest expenses		(111,695)	(124,922)
Net interest expenses		(74,931)	(95,158)
Other financial income and expenses		7,423	(26,313)
Other discounting expenses		(7,259)	(8,864)
NET FINANCIAL INCOME/(LOSS)	30	**(74,767)**	**(130,335)**
PRE-TAX INCOME/(LOSS)		**(913,107)**	**(879,709)**
Income tax	31	15,178	80,166
Share in net income/(loss) of associates	33	(25)	(8,003)
NET INCOME/(LOSS) FROM CONTINUING OPERATIONS		**(897,954)**	**(807,546)**
CONSOLIDATED NET INCOME/(LOSS)		**(897,954)**	**(807,546)**
Attributable to non-controlling interests		(33,201)	(49,530)
Group share		**(864,753)**	**(758,016)**
Group share:			
Net earnings per share	14	(6.6)	(2.3)
Net diluted earnings per share	14	(6.6)	(2.3)

(a) Before depreciation and amortization.

Statement of comprehensive income

In € thousands	Notes	2015	2016
CONSOLIDATED NET INCOME/(LOSS)		**(897,954)**	**(807,546)**
Other comprehensive income:			
Actuarial gains and losses on post-employment benefits		20,607	(9,015)
Tax attributable to actuarial gains and losses on post-employment benefits		(32,257)	(1,070)
Items that will not be reclassified to profit or loss		**(11,650)**	**(10,085)**
Exchange differences on translating net assets of foreign entities	13 and 15	(172,450)	340,411
Change in fair value of hedging financial instruments		27,477	13,791
Change in fair value of available-for-sale securities		(8,049)	9,343
Tax relating to the change in fair value of hedging financial instruments		(9,211)	(3,827)
Tax attributable to the change in fair value of available-for-sale securities		—	—
Items that may be reclassified subsequently to profit or loss		**(162,233)**	**359,718**
OTHER COMPREHENSIVE INCOME/(LOSS) (NET OF TAX)		**(173,883)**	**349,633**
TOTAL COMPREHENSIVE INCOME/(LOSS)		**(1,071,837)**	**(457,913)**
Attributable to non-controlling interests		7,698	(31,954)
Group share		**(1,079,535)**	**(425,959)**

Statement of changes in equity, Group share

In € thousands	Capital	Additional paid-in capital	Consolidated reserves	Foreign currency translation reserve	Reserves— changes in fair value of financial instruments— net of tax	Treasu shar
POSITION AS AT 31 DECEMBER 2014	**261,196**	**991,846**	**3,823,895**	**(287,704)**	**(64,507)**	**(57,7**
Change in foreign currency translation reserve	—	—	—	(212,871)	—	—
Financial instruments	—	—	—	—	18,277	—
Actuarial gains and losses on retirement commitments	—	—	(12,139)		—	—
Available-for-sale financial assets	—	—	—	—	(8,049)	—
Other comprehensive income (loss)	—	—	*(12,139)*	*(212,871)*	*10,228*	—
2015 NET INCOME/ (LOSS)	**—**	**—**	**—**	**—**	**—**	—
Comprehensive Income	—	—	*(12,139)*	*(212,871)*	*10,228*	—
Appropriation of 2014 net income/(loss)	—	—	(923,594)	—	—	—
Change in share capital and additional paid-in capital	4,000	13,252	—	—	—	—
Change in treasury shares	—	—	(6,604)	—	—	(1,8
Dividends paid	6,181	53,774	(104,120)	—	—	—
Share-based payments	—	—	1,467	—	—	—
Changes in consolidation scope and other	—	—	15,763	—	—	—
POSITION AS AT 31 DECEMBER 2015	**271,377**	**1,058,872**	**2,794,668**	**(500,575)**	**(54,279)**	**(59,6**
Change in foreign currency translation reserve	—	—	—	322,704	—	—
Financial instruments	—	—	—	—	10,393	—
Actuarial gains and losses on retirement commitments	—	—	(10,383)	—	—	—
Available-for-sale financial assets	—	—	—	—	9,343	—
Other comprehensive income (loss)	—	—	*(10,383)*	*322,704*	*19,736*	—
2016 NET INCOME/ (LOSS)	**—**	**—**	**—**	**—**	**—**	—
Comprehensive Income	—	—	*(10,383)*	*322,704*	*19,736*	—
Appropriation of 2015 net income/(loss)	—	—	(864,753)	—	—	—
Change in share capital and additional paid-in capital	631,099	345,914		—	—	—
Change in treasury shares	—	—	(10,403)	—	—	10,6
Dividends paid	—	—	(207)	—	—	—
Share-based payments	—	—	4,164	—	—	—
Changes in consolidation scope and other (see Note 34)	—	—	80,257	1,297	1,061	—
POSITION AS AT 31 DECEMBER 2016	**902,476**	**1,404,786**	**1,993,343**	**(176,574)**	**(33,482)**	**(49,0**

Statement of changes in non-controlling interests

In € thousands	Consolidated reserves	Foreign currency translation reserve	Reserves—changes in fair value of financial instruments—net of tax	Net income or loss for the period	Non-controlling interests
POSITION AS AT 31 DECEMBER 2014	**342,219**	**37,548**	**839**	**45,647**	**426,253**
Change in foreign currency translation reserve	—	40,421	—	—	40,421
Financial instruments	—	—	(11)	—	(11)
Actuarial gains and losses on retirement commitments	489	—	—	—	489
Available-for-sale financial assets	—	—	—	—	—
Other comprehensive income (loss)	*489*	*40,421*	*(11)*	—	*40,899*
2015 NET INCOME/(LOSS)	**—**	**—**	**—**	**(33,201)**	**(33,201)**
Comprehensive Income	*489*	*40,421*	*(11)*	*(33,201)*	*7,698*
Appropriation of 2014 net income/(loss)	45,647	—	—	(45,647)	—
Dividends paid	(25,080)	—	—	—	(25,080)
Changes in scope and other	(13,710)	(3,220)	—	—	(16,930)
POSITION AS AT 31 DECEMBER 2015	**349,565**	**74,749**	**828**	**(33,201)**	**391,941**
Change in foreign currency translation reserve	—	17,707	—	—	17,707
Financial instruments	—	—	(429)	—	(429)
Actuarial gains and losses on retirement commitments	298	—	—	—	298
Available-for-sale financial assets	—	—	—	—	—
Other comprehensive income (loss)	*298*	*17,707*	*(429)*	—	*17,576*
2016 NET INCOME/(LOSS)	**—**	**—**	**—**	**(49,530)**	**(49,530)**
Comprehensive Income	*298*	*17,707*	*(429)*	*(49,530)*	*(31,954)*
Appropriation of 2015 net income/(loss)	(33,201)	—	—	33,201	—
Dividends paid	(2,162)	—	—	—	(2,162)
Changes in scope and other	135,422	614	571	—	136,607
POSITION AS AT 31 DECEMBER 2016	**449,922**	**93,070**	**970**	**(49,530)**	**494,432**

Statement of cash flows

In € thousands	Notes	2015	2016
Consolidated net income (including non-controlling interests)		**(897,954)**	**(807,546)**
Net amortization, depreciation and provisions		764,051	448,807
Unrealized gains and losses linked to changes in fair value		(11,332)	5,902
Income and expenses linked to share options and equivalent		1,467	4,164
Capital gains and losses on disposals		14,207	43,281
Share of net income in associates	3	25	8,003
Dividends reclassified as other flows linked to investing activities		(1,687)	(1,050)
Cash flow from operating activities after net financial cost and taxes		**(131,223)**	**(298,439)**
Net financial cost	30	74,931	95,158
Tax expense (including deferred taxes)	31	(15,178)	(80,166)
Cash flow from operating activities before net financial cost and taxes		**(71,470)**	**(283,447)**
Interest paid		(111,695)	(124,922)
Tax paid		(82,691)	(20,481)
Interest received		36,764	29,762
Cash flow from operating activities		**(229,092)**	**(399,088)**
Change in operating working capital requirements	12	632,117	179,631
NET CASH FLOW FROM OPERATING ACTIVITIES (1)		**403,025**	**(219,457)**
Cash outflows for acquisitions of property, plant and equipment and intangible assets	2.1	(254,910)	(168,802)
Cash outflows for acquisitions of biological assets	2.1	(13,193)	(6,584)
Cash inflows from disposals of property, plant and equipment and intangible assets		4,575	2,857
Impact of acquisitions (changes in consolidation scope)	34	—	(162,341)
Cash of subsidiaries acquired (changes in consolidation scope)		—	30,510
Impact of disposals (changes in consolidation scope)		—	29,139
Cash of subsidiaries sold (changes in consolidation scope)		—	1,018
Other cash flows from investing activities		(11,322)	11,349
Impact of reclassification to assets held for sale and discontinued operations		(4,000)	(4,646)
NET CASH FLOW FROM (USED IN) INVESTING ACTIVITIES (2)		**(278,850)**	**(267,500)**
Increase and decrease in equity		17,252	979,647
Dividends paid during the year			
• Dividends paid in cash to shareholders in the parent company		(44,165)	—
• Dividends paid to non-controlling interests		(24,998)	(2,427)
Movements in treasury shares		(8,473)	236
Proceeds drawn from new borrowings		416,525	719,823
Repayments of borrowings		(857,736)	(585,601)
Change in percentage interest in controlled companies		—	—
Other cash flows from financing activities		(51,840)	(16,269)
CASH FLOW FROM FINANCING ACTIVITIES (3)		**(553,435)**	**1,095,409**
IMPACT OF CHANGES IN EXCHANGE RATES (4)		**(54,889)**	**44,103**
CHANGE IN CASH (1 + 2 + 3 + 4)		**(484,149)**	**652,555**
Opening net cash		**1,108,708**	**624,559**
Closing net cash		**624,559**	**1,277,114**
Change		(484,149)	652,555

Net cash represents cash and cash equivalents less bank overdrafts with an initial maturity of less than three months.

Statement of cash flows (Continued)

Statement of changes in net debt in 2016

In € thousands	Notes	31/12/2015	Change	31/12/2016
Gross cash (1)	10	630,540	656,182	1,286,722
Bank current accounts in debit and overdrafts (2)	16	5,981	3,627	9,608
CASH (3) = (1) − (2)		**624,559**	**652,555**	**1,277,114**
Gross financial debt (4)	16	2,143,816	420,320	2,564,136
NET FINANCIAL DEBT = (4) − (3)		**1,519,257**	**(232,235)**	**1,287,022**

Statement of changes in net debt in 2015

In € thousands	Notes	31/12/2014	Change	31/12/2015
Gross cash (1)	10	1,146,913	(516,373)	630,540
Bank current accounts in debit and overdrafts (2)	16	38,205	(32,224)	5,981
CASH (3) = (1) − (2)		**1,108,708**	**(484,149)**	**624,559**
Gross financial debt (4)	16	2,655,312	(511,496)	2,143,816
NET FINANCIAL DEBT = (4) − (3)		**1,546,604**	**(27,347)**	**1,519,257**

Notes to the consolidated financial statements for the year ended 31 December 2016

In € thousand (€m) unless stated otherwise

A—Consolidation principles

1. Basis of preparation and presentation of the financial statements

The consolidated financial statements for the year ended 31 December 2016, including the related notes to the consolidated financial statements, were approved by Vallourec's Management Board on 20 February 2017 and will be submitted for approval at the Shareholders' Meeting.

Pursuant to EC Regulation No.1606/2002 adopted on 19 July 2002 for all listed companies in the European Union, Vallourec has prepared its consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union, using the standards and interpretations applicable as at 31 December 2016. These financial statements are available on the Company's website: www.vallourec.fr.

The IFRS framework covers the standards issued by the International Accounting Standards Board (IASB), as well as the International Accounting Standards (IAS) and their interpretations as issued by the Standing Interpretations Committee (SIC) and the International Financial Reporting Interpretations Committee (IFRIC).

The accounting principles and measurement methods have been applied consistently to the periods presented, with the exception of:

New mandatory standards

The application of the standards mandatory as of 1 January 2016 has no significant impact on the consolidated financial statements, with the exception of the amendment to IAS 41"Bearer plants", as the modifications concern bearer plants entering into the scope of application of IAS 16—Property, Plant and Equipment. Products from bearer plants remain within the scope of application of IAS 41. This change was applied prospectively in line with the provisions contained in IAS 8 §24.

New standards not applied early

The IASB issued IFRS 15—Revenue from Contracts with Customers, which introduced a new model of accounting for these revenues for contracts with customers and will replace IAS 11, IAS 18 and the IFRIC and SIC interpretations related to revenue recognition.

The IASB completed its project to replace IAS 39—Financial Instruments: Recognition and Measurement by publishing the final version of IFRS 9—Financial Instruments. IFRS 9 specifically introduces changes to the classification of financial assets, the impairment model, and hedge accounting.

The IASB issued IFRS 16—Leases, which introduces a new accounting model for lease agreements and which will replace IAS 17 and related interpretations.

The Group is currently assessing the potential impact of first-time adoption of these texts which could become mandatory on 1 January 2018 (IFRS 15 and IFRS 9) and on 1 January 2019 (IFRS 16), and does not plan to opt for early application.

The Group has not opted for early application of any other standards or interpretations that will be mandatory for fiscal years beginning on or after 1 January 2017.

2. Accounting principles and methods

2.1 General measurement principles

The consolidated financial statements are prepared using the historical cost convention, except for biological assets, derivative financial instruments that are measured at fair value, as well as financial assets measured at fair value through profit and loss or equity (see Section 2.16).

2. Accounting principles and methods (Continued)

2.2 Use of estimates and judgment

The preparation of the financial statements under IFRS leads Vallourec's management to use estimates and formulate assumptions that affect the carrying amount of certain assets and liabilities, income and expenses, and some of the information in the notes to the financial statements.

Such assumptions are inherently uncertain, and actual results could differ from these estimates. The Group regularly reviews its estimates and assumptions in order to take into account past experience and any factors deemed relevant in prevailing economic conditions. In the current economic climate (uncertainty about business trends, a highly-competitive international environment and volatility in costs of raw materials and energy) the uncertain nature of some estimates may be more pronounced.

Accounts and information subject to significant estimates include the measurement of the following items:

- property, plant and equipment, intangible assets and goodwill (see Sections 2.5, 2.7 and 2.8);
- financial assets (see Section 2.16.1);
- derivative financial instruments (see Section 2.16.4);
- inventories and work in progress (see Section 2.10);
- provisions (see Section 2.12);
- biological assets (see Section 2.5.6);
- assets held for sale and discontinued operations (see Section 2.11); and
- deferred taxes (see Section 2.17).

The Group must use assumptions and judgments to evaluate the level of control in certain associates, notably to define relevant activities and identify substantive rights, as well as the type of joint arrangement in question for a jointly controlled business. These judgments are revised if facts and circumstances change.

2.3 Consolidation of subsidiaries

The consolidated financial statements include the financial statements of Vallourec and its subsidiaries for the period from 1 January to 31 December 2016.

2.3.1 CONTROLLED ENTITIES

Subsidiaries are fully consolidated from the date of acquisition. They cease to be consolidated when control is transferred outside the Group.

Definition

There is control when the Group (i) holds power over an entity, (ii) is exposed to or is entitled to variable returns due to its connections with the entity and (iii) has the capacity to exercise its power over the entity so as to influence the amount of the returns it obtains.

Accounting method

The consolidated financial statements include all of the assets, liabilities, and comprehensive income of the subsidiary.

Non-controlling interests represent the share of interest which is not directly or indirectly attributable to the Group. The results and other items of comprehensive income are divided between the Group and non-controlling interests. The comprehensive income of the subsidiaries is divided between the Group and the non-controlling interests, including when this distribution results in allocating a loss to the non-controlling interests.

2. Accounting principles and methods (Continued)

Changes in the percent interest in subsidiaries that do not result in a change of control are considered transactions impacting equity, as they are transactions that are performed with shareholders acting in this capacity.

The effects of these transactions are recorded in equity for the net tax amount and thus do not have an impact on the Group's consolidated income statement.

These transactions are moreover presented in the cash flow statement under financing or investment operations, as applicable.

The financial results of acquired companies are included in the consolidated income statement from their effective acquisition dates. The results of companies sold are included until the date control ceases.

Cash flows on the income statement and statement of financial position related to intra-Group commercial and financial transactions are eliminated.

2.3.2 CONSOLIDATION OF JOINT OPERATIONS

Definition

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.

Joint operations

The Group, as a co-participant in a joint operation, records the following items as concerns its interests in the joint operation:

- its assets, including its share of the assets that are jointly held, where applicable;
- its liabilities, including its share of the liabilities that are jointly held, where applicable;
- the income it has drawn from the sale of its share of the production that is generated by the joint operation;
- the expenses it has incurred, including its share of the expenses jointly incurred, where applicable.

The consolidated financial statements include, line-by-line, the representative portion of the Group's interests in each item of the assets, liabilities and comprehensive income, established in compliance with IFRS.

Over the course of 2016, the Group took control of its main joint operation, conducted in partnership with Nippon Steel Sumitomo Metal Corp. (NSSMC) in the Vallourec & Sumitomo Tubos do Brasil (VSB) entity. Up until 1 October 2016, the qualification of this entity as a joint operation is underpinned by the legal form and the terms of the joint arrangement.

2.3.3 INTERESTS IN JOINT VENTURES AND ASSOCIATES

Definition

Associates are companies in which the Group exercises significant influence over operating and financial policies without having control.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement.

The Group's investments in joint ventures and associates are accounted for using the equity method.

2. Accounting principles and methods (Continued)

Equity Associates

The equity method provides for an investment in an associate being initially recorded at cost, and then subsequently adjusted for the change in the Group's share in the income and other comprehensive income of the associate.

An investment is recorded under the equity method as of the date when the entity becomes an associate or joint venture. When an associate or joint venture is acquired, the difference between the cost of the investment and the Group share in the net fair value of the identifiable assets and liabilities of the entity is recorded under goodwill. In the event that the net fair value of the identifiable assets and liabilities of the entity is higher than the cost of the investment, the difference is recorded under income.

Shares in the net income of associates are incorporated in the net income of the activities pursued, whether or not their activities are an extension of the Group's activities.

Impairment testing

The provisions of IAS 39—Financial Instruments: Recognition and Measurement, apply to determine whether or not it is necessary to perform an impairment test for its investment in an associate. If necessary, the total book value of the investment (including goodwill) undergoes impairment testing according to the provisions prescribed by IAS 36—Impairment of Assets.

2.3.4 CHANGE OF CONTROL

Loss of significant influence or joint control

Whenever the investment no longer constitutes an associate, the equity method is no longer applied. Any retained interest in the former associate that constitutes a financial asset, is measured at fair value on the date the interest ceases to be an associate or joint venture.

Acquisition of a joint operation or equity-accounted company

Pursuant to IFRS 3, the previously-held equity interests are remeasured at fair value, giving rise to gains and losses on disposals ("Assets disposals, restructuring costs and non-recurring items") and the assets acquired and liabilities assumed are accounted for at fair value as at the acquisition date.

2.4 Foreign currency translation

2.4.1 TRANSLATION OF SUBSIDIARIES' FOREIGN CURRENCY FINANCIAL STATEMENTS

The presentation currency of the consolidated financial statements is the euro.

Assets and liabilities of foreign subsidiaries, including goodwill, are translated at the official exchange rates on the reporting date. The income statements of foreign subsidiaries are translated at the average exchange rate for the period.

The ensuing translation differences are recorded in equity. The Group's share of such differences is recorded on the separate line, "Foreign currency translation reserve".

2.4.2 TRANSLATION OF FOREIGN CURRENCY TRANSACTIONS

Foreign currency transactions are translated into the company's functional currency. When the transaction is subject to a hedge (see paragraph 2.16.4), it is translated at the spot rate on the day the hedging instrument is set up. In the absence of a hedge, foreign currency transactions are translated at the prevailing exchange rates on the transaction date.

Monetary assets and liabilities denominated in foreign currencies are translated at the closing exchange rates prevailing on that date. Translation differences resulting from difference between these rates and the rates at which the transactions were initially recorded are included in financial income or loss.

2. Accounting principles and methods (Continued)

2.5. Property, plant and equipment and biological assets

2.5.1 MEASUREMENT AT COST NET OF DEPRECIATION AND IMPAIRMENT

Except when acquired as part of a business combination, property, plant and equipment are recorded at their acquisition or production cost. They are not subject to remeasurement. At each reporting date, the acquisition cost is reduced by accumulated depreciation and any provisions for impairment determined in accordance with IAS 36—Impairment of Assets (see paragraph 2.9).

2.5.2 COMPONENT APPROACH

The main components of an asset having a useful life different from that of the main asset (furnaces, heavy industrial equipment, etc.) are identified by the technical departments and depreciated over their own useful lives.

Subsequent expenditure on replacement of the component (i.e. the cost of the new component) is capitalized, provided that future economic benefits are still expected to be derived from the main asset.

The component approach is also applied to expenditure on major overhauls that are planned and carried out at intervals of over one year. Such expenditure is identified as a component of the asset's acquisition price, and is depreciated over the period between two overhauls.

2.5.3 MAINTENANCE AND REPAIR COSTS

Recurring maintenance and repair costs that do not meet the criteria for the component approach are expensed when they are incurred.

2.5.4 AMORTIZATION AND DEPRECIATION

Depreciation of property, plant and equipment is calculated on a straight-line basis over the useful lives summarized below. Land is not depreciated.

Main categories of property, plant and equipment	Straight-line depreciation Useful life
Buildings	
Administrative and commercial buildings	40
Industrial buildings/Infrastructure	30
Fixtures and fittings	10
Technical plant, equipment and tools	
Industrial plant	25
Specific production equipment	20
Standard production equipment	10
Other (automated equipment, etc.)	5
Other tangible assets	
Motor vehicles	5
Office equipment and furniture	10
Computer equipment	3

Depreciation of new industrial sites in the development stage is calculated according to the production-units method for assets used directly in the production process and the straight-line depreciation method for other assets.

2. Accounting principles and methods (Continued)

2.5.5 PROPERTY, PLANT AND EQUIPMENT ACQUIRED AS PART OF A BUSINESS COMBINATION

Property, plant and equipment acquired as part of a business combination are measured at fair value on the acquisition date. They are depreciated using the straight-line method over the remaining useful life at the acquisition date.

2.5.6 BIOLOGICAL ASSETS

The Group owns biological assets in Brazil, which mainly consist of eucalyptus plantations cultivated for the Group's coke requirements. They are valued according to the principles defined by IAS 41—Agriculture. The existence of an active market in Brazil requires the Group to measure these assets at fair value less selling costs upon initial recognition and at each reporting date.

2.6 Leases

Assets financed by finance leases, which transfer almost all of the risks and rewards of ownership to the Group, are capitalized on the statement of financial position at the lesser of the fair value of the leased property or the present value of the minimum lease payments. The corresponding liability is recorded under financial liabilities.

Lease payments are split between interest expense and amortization of the obligation so as to obtain a constant interest rate on the balance of the loan liability.

Assets leased under finance leases are depreciated over their useful life in accordance with Group rules (see paragraph 2.5) or the lease term, whichever is shorter.

Leases under which the lessor retains almost all of the risks and rewards of ownership are operating leases. Payments on operating leases are expensed on a straight-line basis over the term of the contract.

2.7 Goodwill

The Group measures goodwill as the surplus of:

- the total of:
    - the fair value of the consideration transferred,
    - the amount of any non-controlling interests in the acquired entity,
    - in the case of a step acquisition, the fair value at the acquisition date of the acquirer's previously held interest in the acquiree; and
- the net fair value at the acquisition date of the identifiable assets acquired and liabilities assumed.

For major acquisitions, fair value measurements are done with the help of independent experts.

The decision to apply the partial or total goodwill method is made separately for each business combination.

Pursuant to IAS 36—Impairment of Assets, they are tested for impairment at least once a year, or more frequently if there is an indication of impairment. The testing procedures are designed to ensure that the recoverable amount of the cash-generating unit to which the goodwill is assigned or allocated is at least equal to its net carrying amount (see paragraph 2.9—Impairment of property, plant and equipment and intangible assets). If an impairment loss is recognized, an irreversible provision is recorded in operating profit under "Impairment of assets and goodwill".

Pursuant to IFRS 3 and IAS 10.22, the Group recognizes in equity the difference between the price paid and the share of non-controlling shareholders acquired or sold in controlled companies.

2. Accounting principles and methods (Continued)

Acquisition costs incurred by the Group in carrying out the business combination, such as referral agents' commissions, legal and due diligence fees and other professional or consultancy fees, are expensed when they are incurred.

2.8 Intangible assets

2.8.1 RESEARCH AND DEVELOPMENT COSTS

In accordance with IAS 38—Intangible Assets, research costs are expensed and development costs are capitalized as intangible assets if the company can show:

- its intention, and its financial and technical capability, to bring the development project to completion;
- that it is probable that the future economic benefits attributable to the development expenditure will flow to the company;
- its ability to reliably measure the cost of the intangible asset during its development phase;
- its ability to use or sell the intangible asset.

Significant R&D projects are reviewed based on information available from the corporate departments coordinating the research in order to identify and analyze any current projects that have entered the development phase, as defined under IAS 38.

The Group's development projects to design new or improved products and manufacturing processes, particularly in its oil and energy-related activities, are already at a very advanced stage before they qualify for capitalization as assets under IAS 38 criteria. It is very difficult to show the existence of long-term additional future economic benefits that can be clearly distinguished from the normal costs of maintaining and upgrading production plants and products to preserve the Group's technological and competitive edge. As a result, in 2016 as in 2015, no costs incurred on major projects were identified that met the standard's criteria.

2.8.2 OTHER INTANGIBLE ASSETS

Intangible assets acquired separately are recognized at cost. They are mainly patents and trademarks, which are amortized on a straight-line basis over their useful lives.

Intangible assets acquired as part of a business combination are recorded separately from goodwill if their fair value can be measured during the acquisition phase. Those with a finite life are amortized over their estimated useful lives for the Company.

Greenhouse gas emission allowances received free of charge are recognized at nil value (in accordance with IAS 20). A provision is recognized when allowances granted by the government are inadequate to cover actual emissions. Notes 17 and 22 to the financial statements contain information about the methods used to value unused allowances at the end of the reporting period.

2.8.3 IMPAIRMENT

Intangible assets are tested for impairment in accordance with the provisions of IAS 36—Impairment of Assets (see paragraph 2.9).

2.9 Impairment of property, plant and equipment and intangible assets

To perform impairment tests, property, plant and equipment and intangible assets are grouped into Cash-Generating Units (CGUs). CGUs are standard groups of assets whose on-going use generates cash inflows which are largely independent of the cash inflows generated by other groups of assets.

2. Accounting principles and methods (Continued)

The recoverable value of a CGU is the higher of the following:

- its value in use, which corresponds to the present value of the forecasted future cash flows it generates, without taking into account planned investment into capacity and expected gains in terms of productivity;
- its fair value less costs of disposal.

The test base of a CGU is comprised of net current and non-current operating assets.

An impairment test is carried out:

- at least once a year for CGUs with indefinite useful lives, a category that, for the Group, is limited to goodwill.
- for the other CGUs, if indications of impairment appear.

A Group stock market value that is less than its consolidated net assets during a business cycle, or a negative outlook associated with the economic, legislative or technological environment or with the business sector, constitutes general indications of impairment liable to result in impairment tests on all the Group's CGUs.

Impairment tests involve comparing the recoverable amount of the CGU with its test base. An impairment is recognized if the value in use is lower than the carrying amount.

When the recoverable amount of the CGU is less than its carrying amount, an impairment loss is recognized on a separate line in the income statement. When a CGU includes goodwill, the impairment loss is first deducted from goodwill and then, where applicable, the CGU's other assets.

2.10 Inventories and work in progress

Inventories are valued at the lesser of cost or net realizable value, and provisions for impairment are recognized if necessary.

Net realizable value is the estimated selling price in the ordinary course of business less estimated costs of completion and the estimated costs necessary to make the sale.

Inventory costs of raw materials, goods for resale and other supplies comprises the purchase price excluding taxes, less discounts, rebates and other payment deductions obtained, plus incidental costs of purchase (transportation, unloading expenses, customs duties, buying commissions, etc.). These inventories are measured at weighted average cost.

The cost of work in progress and intermediate and finished goods consists of the production cost excluding financial expenses. Production costs comprise raw materials, factory supplies and labor, and direct and indirect industrial overheads attributable to processing and production, based on normal capacity. General and administrative expenses are excluded from this measurement.

2.11 Assets held for sale and discontinued operations

A non-current asset or group of related assets and liabilities is considered to be held for sale, in accordance with IFRS 5—Non-current Assets Held for Sale and Discontinued Operations, when:

- it is available for immediate sale in its current condition; and
- its sale is highly probable. This is the case when management is committed to a plan to sell the asset and an active program to locate a buyer at a reasonable price, and the sale is expected to take place in less than one year.

Non-current assets, groups of assets or activities held for sale are measured at the lower of their carrying amount and their fair value (estimated selling price), net of selling costs. They are presented on a separate line in assets and liabilities and are no longer amortized or depreciated.

2. Accounting principles and methods (Continued)

Only entire business lines of discontinued operations are disclosed separately in the income statement.

2.12 Provisions

A provision is recognized when, at the reporting date, the Group has a present obligation (legal or constructive) as a result of a past event and it is probable that an outflow of resources embodying future economic benefits will be required to settle the obligation.

Provisions are discounted to present values if the time value of money is material (for example, in the event of provisions for environmental risks or site clean-up costs). The increase in the provisions associated with the passage of time is recognized as a financial expense.

In the case of restructuring, a provision may be recognized only if, at the reporting date, the Company has announced the restructuring and drawn up a detailed plan or started to implement the plan.

Provisions are booked with regard to disputes (technical, guarantees, tax audits, etc.) if the Group has an obligation to a third party at the reporting date. They are determined based on the best estimate of the expense likely to be required to settle the obligation.

2.13 Retirement commitments and similar obligations

The Group participates in the funding of supplementary retirement plans and other long-term employee benefits, in accordance with constructive or legal requirements. The Group offers these benefits by means of either defined-contribution or defined-benefit plans.

In the case of defined-contribution plans, the Group's only obligation is the payment of premiums. Contributions paid to the plans are recognized as expenses for the period. If applicable, provisions are recognized for outstanding contributions at the reporting date.

Provisions are recognized for retirement commitments and similar obligation arising from defined benefit plans and are measured based on an actuarial calculation performed at least once a year by independent actuaries. The projected unit credit method is applied as follows: each period of service creates an additional unit of benefit entitlement, and each of these units is measured separately to determine the Group's employee benefit obligations.

The calculations take into account the specific features of the various plans and assumptions for the retirement date, career advancement, salary increases, as well as the probability of the employee still being employed by the Group at retirement age (turnover rates, mortality tables, etc.). The obligation is discounted based on the interest rates of long-term bonds of prime issuers.

Retirement commitments and similar obligations mainly relate to the Group's French subsidiaries and its subsidiaries in Germany, the United Kingdom, the United States and Brazil.

Other employee benefits for which the Group recognizes provisions are:

- in the case of French and foreign subsidiaries, benefits in connection with long-service awards;
- in the case of certain subsidiaries in the United States and Brazil, coverage of medical expenses.

The obligation is presented on the statement of financial position, net of plan assets measured at fair value (if applicable).

2.14 Share-based payments

IFRS 2 "Share-based Payment" requires the measurement and recognition of the benefits arising from share option and performance share allocation plans that are equivalent to compensation of the beneficiaries: these are recognized as payroll costs spread over the vesting period, with a corresponding increase in equity.

2. Accounting principles and methods (Continued)

Changes in value after the award date have no impact on the option's initial measurement. The number of options taken into account in measuring the plan is adjusted at each reporting date to reflect the probability of the beneficiaries' continued service at the end of the vesting period.

- Some members of executive management and employees benefit from the share subscription or share purchase options that entitle them to purchase an existing share or to subscribe to a capital increase at an agreed price.

  Options must be measured using the Black & Scholes model on the date they are awarded.

- Some members of executive management and employees benefit from share allocation plans where vesting conditions are related to performance criteria (percentage of consolidated EBITDA). These plans are measured using a binomial model to project share prices.
- Vallourec offers employee shareholding plans reserved for its employees. These plans are measured using a binomial model to project share prices.

2.15 Treasury shares

Treasury shares held by the Group are recognized at their acquisition cost as a deduction from equity. Proceeds from the sale of these shares are booked directly as an increase in equity so that gains or losses on disposal do not affect consolidated profit.

2.16 Financial instruments

Financial instruments include financial assets and liabilities as well as derivatives.

The presentation of financial instruments is defined by IFRS 7 and IAS 32. The measurement and recognition of financial instruments are governed by IAS 39 and IFRS 13.

Changes in the fair value of derivatives are recognized in the financial statements. Changes in the fair value of hedged items are also recognized at each reporting date (see paragraph 2.16.4—Derivative instruments and hedge accounting).

In addition, in accordance with IAS 32, the sale of puts to non-controlling interest shareholders of a company under exclusive control results in the recognition of a financial liability equal to the discounted fair value of the estimated repurchase amount. The Group recognizes this financial liability by deducting it from the amount attributable to non-controlling interests and, for the remaining portion of the liability, by deducting it from equity, Group share.

2.16.1 FINANCIAL ASSETS (EXCLUDING HEDGE DERIVATIVES)

Financial assets include:

- non-current financial assets: other equity interests and associated receivables, construction participation loans and guarantees;
- current financial assets, including accounts receivable and other trade receivables, short-term derivative instruments and cash and cash equivalents (investment securities).

Initial measurement

Non-derivative financial assets are initially measured at fair value on the transaction date, including transaction costs, except for assets measured at fair value through profit or loss.

In most cases, the fair value on the transaction date is the historical cost, (i.e. the acquisition cost of the asset).

2. Accounting principles and methods (Continued)

Classification and measurement at the end of the reporting period

Financial assets (excluding hedging derivatives) are classified according to IAS 39 in one of the following four categories for their measurement on the balance sheet:

Category	Measurement	Recognition of changes in value
Financial assets measured at fair value through profit or loss	Fair value	Changes in fair value recognized in profit or loss
Held-to-maturity assets	Amortized cost	Not applicable
Loans and receivables	Amortized cost	Not applicable
Available-for-sale financial assets	General convention: fair value	Changes in fair value recognized in other comprehensive income
	But amortized cost for equity instruments whose fair value cannot be reliably estimated (e.g. shares not listed on an active market)	Not applicable

Financial assets for which changes in fair value are recognized in profit or loss

This category of assets includes:

- assets held for transactional purposes, i.e. that have been acquired by the business with the aim of generating short-term income; in the Group, the assets concerned are all cash assets (investment securities, cash and cash equivalents, etc.).

  Investment securities (French SICAV and FCP mutual funds, etc.) are measured at fair value at the reporting date, and changes in fair value are recognized in financial income/(loss). They are therefore not tested for impairment. Fair value is determined mainly by reference to market quotations;

- asset derivative instruments that are not expressly designated as hedging instruments.

Held-to-maturity assets

These are non-derivative financial assets with fixed or determinable payments and fixed maturities that the Company has the intention and ability to hold to maturity, other than loans and receivables and financial assets classified by the Company in the other two categories (measured at fair value through profit or loss; available-for-sale).

In the Group, the only assets in this category are security deposits and guarantees.

Loans and receivables

These are mainly non-derivative financial assets with fixed or determinable payments that are not listed on an active market.

In the Group, this category includes:

- receivables associated with participating interests, long-term loans and construction participation loans;
- accounts receivable and other trade receivables.

The amortized cost of short-term receivables such as trade receivable is usually equal to their historical cost.

2. Accounting principles and methods (Continued)

Loans to employees are measured using the effective interest rate method applied to estimated future cash flows until the maturity dates of the loans.

Available-for-sale financial assets

Available-for-sale financial assets are mainly those that have not been classified in any of the other three categories.

In the Group, the main assets in this category are investments in equity instruments. In general, these are:

- unlisted shares whose fair value cannot be reliably estimated. They are recorded at their cost and undergo impairment testing when the consolidated financial statements are prepared;
- listed shares measured at their fair value at the reporting date. This fair value is determined based on the stock market price at the reporting date.

Changes in fair value are recognized directly in equity, unless a significant or long-term fall in fair value below the acquisition cost is recorded. In this case, the corresponding loss is definitively recorded in the income statement.

The "significant or long-term" nature is defined in Note 4—Other non-current assets, on a case-by-case basis.

Impairment testing of financial assets

Financial assets measured at amortized cost and available-for-sale financial assets measured at cost must be tested for impairment at each reporting date if there is any indication of impairment, such as:

- significant financial difficulties or a high probability that the counterparty will suffer bankruptcy or restructuring;
- a high risk of non-recovery of receivables;
- the lender, for economic or legal reasons relating to the borrower's financial difficulties, granting the borrower payment facilities not initially provided for;
- an effective breach of contract, such as the failure to make a payment (of interest, principal or both);
- the disappearance of an active market for the financial asset concerned.

In the case of assets measured at amortized cost, the amount of impairment is equal to the difference between the carrying amount of the asset and the present value of the estimated future cash flows, taking into account the counterparty's situation, and determined on the basis of the financial instrument's original effective interest rate.

The impairment thus determined is recognized in financial income or loss for the period.

As regards held-to-maturity investment and loans and receivables, if, during subsequent financial years, the conditions that led to the impairment cease to exist, the impairment must be reversed, although the reversal must not result in a carrying amount that, on the date the impairment is reversed, exceeds what the amortized cost would have been had the impairment not been recognized.

As regards unlisted equity interests classified as available-for-sale whose fair value cannot be reliably determined, no impairment previously recognized in the income statement may be reversed in subsequent periods, even in the event of an increase in the value of the securities concerned.

2.16.2 CASH AND CASH EQUIVALENTS

This item consists of bank current account balances and investment securities (units in short-term cash UCITS and mutual and investment funds) that are immediately available (not pledged), risk-free and have a low volatility level.

2. Accounting principles and methods (Continued)

The cash flow statement is drawn up on the basis of the cash as defined above, net of overdrafts and other short-term bank borrowings that mature in less than three months.

The net debt referred to in the cash flow statement corresponds to total financial debt less cash and cash equivalents.

2.16.3 FINANCIAL LIABILITIES

The Group's financial liabilities include bank loans which bear interest, bond issues and finance leases, as well as liability derivatives.

Borrowings are classified as current liabilities for the portion to be repaid within 12 months after the reporting date and as non-current liabilities for payments due in more than 12 months.

Interest-bearing borrowings are initially recorded at fair value less associated transaction costs. These costs (loan issue expenses and premiums) are taken into account in the calculation of the amortized cost using the effective interest rate method. They are recognized in financial profit or loss on an actuarial basis over the life of the liability.

At each reporting date, financial liabilities are then measured at amortized cost using the effective interest rate method, in addition to the specific procedures associated with hedge accounting (see below).

Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of swaps, linked to movements in interest rates, are recognized in equity for the effective portion, with the balance being recognized in financial profit or loss.

2.16.4 DERIVATIVE INSTRUMENTS AND HEDGE ACCOUNTING

Group exposure to foreign exchange risk on commercial transactions

In addition to the hedging of certain financial liabilities (see paragraph 2.16.3), the Group enters into hedging contracts mainly to manage its exposure to foreign exchange risks arising from the orders and sales of certain subsidiaries in currencies other than their functional currency. In particular, a significant share of Vallourec's revenue is invoiced by European companies in US dollars. Exchange rate fluctuations between the euro and the dollar may therefore affect the Group's operating margin.

The Group manages its exposure to foreign exchange risk by setting up hedges based on regularly updated forecasts of customer orders. Operating receivables and incomes that will be generated by the orders are thus hedged by financial instruments, mainly forward currency sales.

To a lesser extent, the Group also enters into forward currency purchases to hedge its foreign currency purchase commitments.

Measurement and presentation of derivatives

Changes in the value of derivatives with respect to their date of implementation are measured at each reporting date.

The fair value of forward currency contracts is calculated on the basis of market data and conditions. Since they hedge commercial transactions, these derivatives are presented on the statement of financial position under current assets and current liabilities.

Hedge accounting

Hedging of commercial transactions falls within the category of cash flow hedges.

The Group applies hedge accounting in strict compliance with the criteria of IAS 39:

- documentation of the hedging relationship: nature of the underlying hedged item, term of the hedge, hedging instrument used, spot rate of the hedge, forward points etc.;

2. Accounting principles and methods (Continued)

- in the case of cash flow hedges, carrying out an effectiveness test on implementation of the derivative and updating the test at least once per quarter.

Hedge accounting within the Group is as follows:

At the reporting date, changes in the hedging instrument with respect to its date of implementation are measured at fair value and recognized on the statement of financial position as derivative assets or liabilities. The following are shown separately:

- the change in the intrinsic value of the hedging instrument (difference between the spot rate on the date of implementation of the hedge and the spot rate on the measurement date, i.e. the reporting date).

  If the hedge is effective, and as long as the sale (or purchase) hedged is not recognized, changes in the intrinsic value are recognized in equity, in accordance with the principles of cash-flow hedge accounting,

  If the hedging instrument is not effective (a rare occurrence, given the procedures introduced by the Group), the change in the intrinsic value of the derivative is recognized in financial income or loss;

- the change in the time value (premium/discount). This change is systematically recognized in financial profit or loss, since this component is not included in the hedging relationship.

The revenue (purchase) corresponding to the sales forecasts (purchase orders) hedged is recognized at the spot rate on the date of implementation of the hedging contract. The account receivable (account payable) is initially recognized at the same spot rate.

At the end of each reporting period, hedged foreign currency accounts receivable and accounts payable are measured and recognized at the exchange rate applicable on the reporting date. The difference between that rate and the rate used on initial recognition (spot rate on the date of implementation of the hedge) or the rate applicable on the last reporting date constitutes an exchange gain or loss recognized in financial profit or loss for the period.

Once the hedged item (foreign currency receivable or payable) is recorded on the statement of financial position, the change in the intrinsic value of the hedging instrument previously recognized in equity is recorded in financial income or loss. Changes in the value of the hedging instrument and the receivable or debt covered then have a symmetrical impact on financial income or loss.

2.17 Income tax

Income tax expense comprises current tax and deferred tax.

In accordance with IAS 12, deferred taxes are recognized, using the liability method, for temporary differences existing at the reporting date between the tax bases of assets and liabilities and their carrying amounts and unused tax losses, under the conditions set out below.

The main types of deferred tax recognized are:

- long-term deferred tax assets (provisions for retirement commitment of French companies), which are likely to be recovered in the foreseeable future;
- deferred tax assets for short-term recurring items (provision for paid time off, etc.) or non-recurring items (employee profit-sharing, provisions for liabilities that are not deductible for tax purposes, etc.) when they are likely to be recovered in the foreseeable future;
- deferred tax associated with the cancellation of entries made solely for tax purposes in local financial statements (regulated provisions, etc.) and any restatements to ensure the consistency and comparability of the parent company or consolidated financial statements;
- tax loss carryforwards.

2. Accounting principles and methods (Continued)

The rates used to calculate deferred taxes are the tax rates expected to apply during the period in which the asset will be realized or the liability settled, based on tax regulations that have been adopted or substantially adopted at the reporting date.

Deferred taxes are not discounted to present value.

Current and deferred tax expenses are recognized as income or expenditure in the income statement unless they relate to a transaction or event that is recognized under other comprehensive income or directly in equity (see hedge accounting in paragraph 2.16.4 and actuarial gains and losses on post-employment obligations in 2.13—Retirement benefits and similar obligations).

Deferred taxes are presented on separate lines in the statement of financial position under non-current assets and non-current liabilities.

Net deferred tax assets are recognized only for those companies and tax groups that, based on a review at each reporting date, appear reasonably likely to recover these assets in the foreseeable future.

2.18 Revenue

Revenues from the sale of finished goods are recognized in the income statement when the following conditions are satisfied:

- the main risks and rewards of ownership have been transferred to the buyer;
- the seller retains neither managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- it is likely that the financial benefits associated with the sale will flow to the entity;
- the amount of the revenues and costs incurred (or to be incurred) as a result of the sale can be reliably determined.

Revenues from services are recognized in the income statement in proportion to the stage of completion at the reporting date.

No revenue is recognized if there are significant uncertainties as to the recovery of the amount due or the associated costs.

In the event of a sale with reservation of title, the sale is recognized on delivery of the goods if the risks and rewards have been transferred to the buyer.

Revenues are measured at the fair value of the consideration received or receivable, as determined by the agreement entered into between the Company and the customer, net of any trade discounts or volume rebates agreed.

See paragraphs 2.4.2 and 2.16.4 for the procedures for recognizing sales denominated in foreign currencies.

2.19 Determination of operating income

The income statement format used by the Group employs a classification by function.

Operating income or loss is calculated as the difference between pre-tax revenues and expenses other than those of a financial nature or relating to the income or losses of associates, and excluding any income or losses from discontinued operations or assets held for sale.

EBITDA is an important indicator for the Group, enabling it to measure its performance from continuing operations. It is calculated by taking operating profit before amortization and depreciation and excluding certain operating revenues and expenses that are unusual in nature or occur rarely, such as:

- impairment of goodwill and fixed assets determined in the context of impairment tests in accordance with IAS 36 (see paragraph 2.9);

2. Accounting principles and methods (Continued)

- significant restructuring expenses, or those related to adjustments to headcount in respect of major events or decisions;
- capital gains or losses on disposals;
- revenue and expenses resulting from major litigation, significant roll-out operations or capital transactions (e.g. costs of integrating a new activity).

2.20 Earnings per share

Earnings per share are calculated by dividing consolidated net profit or loss by the weighted average number of shares outstanding during the fiscal year.

Diluted earnings per share are calculated taking into account the maximum impact of the conversion of dilutive common shares (options, performance shares) and using the "share repurchase" method as defined in IAS 33 "Earnings per Share".

3. Segment information

The segments presented according to the Group's internal organization comply with the definition of operating segments identified and grouped according to IFRS 8. This information corresponds to that reviewed by the Executive Committee.

The Group presents its segment information based on the following operating segments, reconciled with consolidated data:

- Seamless tubes. This segment covers all the entities with production and marketing plants dedicated to the Group's main activity, i.e. the production of hot-rolled seamless carbon and alloy steel tubes, both smooth and threaded, for the oil and gas industry. This activity is characterized by a highly integrated manufacturing process, from production of the steel and hot-rolling to the final stages, facilitating the manufacture of products that are suitable for a variety of markets (including oil & gas, power generation, chemicals and petrochemicals, automotive and mechanical engineering);
- Specialty Products. This segment incorporates a number of activities whose characteristics are very different from those described above, but which are not presented separately due to their relative immateriality. This treatment is authorized by IFRS 8. This activity includes the production of stainless steel and titanium tubes as well as specific forming and machining activities.

In addition, geographical information is presented, distinguishing between five areas determined based on an analysis of the specific risks and returns associated with them:

- the European Union;
- North America (United States, Mexico and Canada);
- South America (mainly Brazil);
- Asia;
- rest of the world (mainly the Middle East).

Operating segments

Note 32 shows, for each operating segment, information on the income and results as well as selected information on the assets, liabilities and capital expenditure for fiscal years 2016 and 2015.

Geographical information

In addition to segment information, Note 32 shows, by geographical area, information on sales (by geographical location of customers), capital expenditure and selected information on assets (by operating areas) for fiscal years 2016 and 2015.

B—Consolidation scope

	% interest 31/12/2015	% control 31/12/2015	% interest 31/12/2016	% control 31/12/2016
Fully consolidated companies				
Kestrel Wave Investment Ltd—Hong Kong	100.0	100.0	100.0	100.0
P.T. Citra Tubindo Tbk—Indonesia	81.72	81.72	81.72	81.72
Serimax Angola Ltd—United Kingdom(4)	100.0	100.0	80.0	80.0
Serimax Australia Pty Ltd—Australia(4)	100.0	100.0	80.0	80.0
Serimax Do Brasil Serviços de Soldagem e Fabricaçao Ltda—Brazil(4)	100.0	100.0	80.0	80.0
Serimax Field Joint Coating Ltd—United Kingdom(4)	60.0	100.0	48.0	80.0
Serimax Holdings S.A.S.—France(4)	100.0	100.0	80.0	80.0
Serimax Ltd—United Kingdom(4)	100.0	100.0	80.0	80.0
Serimax North America Llc—United States(4)	100.0	100.0	80.0	80.0
Serimax OOO—Russia(4)	100.0	100.0	80.0	80.0
Serimax Russia S.A.S.—France(4)	100.0	100.0	80.0	80.0
Serimax S.A.S.—France(4)	100.0	100.0	80.0	80.0
Serimax South East Asia Pte Ltd—Singapore(4)	100.0	100.0	80.0	80.0
Serimax Welding Services Malaysia sdn bhd—Malaysia(4)	100.0	100.0	80.0	80.0
Tianda Oil Pipe Co. Ltd—China(5)	19.5	19.5	99.0	99.0
Tubos Soldados Atlântico—Brazil	100.0	100.0	100.0	100.0
Umax Services Ltd—Great Britain	100.0	100.0	—	—
Vallourec Al Qahtani Tubes LLC—Saudi Arabia	75.0	75.0	75.0	75.0
Valinox Nucléaire S.A.S.—France	100.0	100.0	100.0	100.0
Valinox Nucléaire Tubes Guangzhou Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Changzhou Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Asia Pacific Corp. Pte Ltd—Singapore	100.0	100.0	100.0	100.0
Vallourec Automotive Components (Changzhou) Co., Ltd—China(1)	95.0	100.0	—	—
Vallourec Bearing Tubes—France	100.0	100.0	100.0	100.0
Vallourec Beijing Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Canada Inc.—Canada	100.0	100.0	100.0	100.0
Vallourec Deutschland GmbH—Germany	100.0	100.0	100.0	100.0
Vallourec Drilling Oil Equipment Manufacturing LLC—United Arab Emirates	100.0	100.0	100.0	100.0
Vallourec Drilling Products France—France	100.0	100.0	100.0	100.0
Vallourec Drilling Products Middle East FZE—Dubai	100.0	100.0	100.0	100.0
Vallourec Drilling Products USA Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Fittings—France	100.0	100.0	100.0	100.0
Vallourec Florestal Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Heat Exchanger Tubes—France(1)	95.0	95.0	—	—
Vallourec Heat Exchanger Tubes (Changzhou) Co., Ltd—China(1)	62.5	100.0	—	—
Vallourec Heat Exchanger Tubes Asia—France(1)	62.5	65.8	—	—
Vallourec Heat Exchanger Tubes Inc.—United States(1)	95.0	100.0	—	—
Vallourec Heat Exchanger Tubes Ltd—India(1)	95.0	100.0	—	—
Vallourec Holdings Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Industries Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Middle East FZE—United Arab Emirates	100.0	100.0	100.0	100.0
Vallourec Mineração Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Nigeria Ltd—Nigeria	100.0	100.0	100.0	100.0
Vallourec O and G Nigeria Ltd—Nigeria	100.0	100.0	100.0	100.0
Vallourec Oil & Gas (China) Co., Ltd—China	100.0	100.0	100.0	100.0
Vallourec Oil & Gas France S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Oil & Gas Kenya Limited.—Kenya	—	—	100.0	100.0

	% interest 31/12/2015	% control 31/12/2015	% interest 31/12/2016	% control 31/12/2016
Vallourec Oil & Gas Nederland B.V.—Netherlands	100.0	100.0	100.0	100.0
Vallourec Oil & Gas UK Ltd—United Kingdom	100.0	100.0	100.0	100.0
Vallourec Oil & Gas Mexico SA de CV—Mexico	100.0	100.0	100.0	100.0
Vallourec One S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Russia—Russia	100.0	100.0	100.0	100.0
Vallourec S.A.—France	100.0	100.0	100.0	100.0
Vallourec Saudi Arabia Ltd—Saudi Arabia	80.0	80.0	80.0	80.0
Vallourec Services S.A.—France	100.0	100.0	100.0	100.0
Vallourec Star, LP—United States	80.5	80.5	80.5	80.5
Vallourec Soluções Tubulares do Brasil—Brazil(3)	—	—	84.6	84.6
Vallourec Transportes e Serviços do Brasil Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Tube-Alloy LP—United States	100.0	100.0	100.0	100.0
Vallourec Tubes France S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Tubes S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Tubos do Brasil S.A.—Brazil	100.0	100.0	100.0	100.0
Vallourec Umbilicals S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Uruguay—Uruguay	100.0	100.0	—	—
Vallourec USA Corporation—United States	100.0	100.0	100.0	100.0
VAM Changzhou Oil & Gas Premium Equipments—China(2)	51.0	50.0	100.0	100.0
VAM Far East—Singapore	51.0	51.0	51.0	51.0
VAM Field Services Angola—Angola	100.0	100.0	100.0	100.0
VAM Field Services Beijing—China	51.0	51.0	51.0	51.0
VAM Holding Hong Kong Limited—Hong Kong(2)	51.0	50.0	100.0	100.0
VAM USA—United States	51.0	51.0	51.0	51.0
Joint operations				
Vallourec & Sumitomo Tubos do Brasil Ltda—Brazil(3)	56.0	50.0	—	—
Associates				
Hüttenwerke Krupp Mannesmann (HKM)—Germany	20.0	20.0	20.0	20.0
Poongsan Valinox—Korea(1)	47.5	50.0	—	—
Xi'an Baotimet Valinox Tubes—China(1)	37.1	49.0	—	—

- The main changes in scope of consolidation in fiscal year 2016 were as follows:

  (1) On 29 April 2016, Vallourec completed the sale of its subsidiary Vallourec Heat Exchanger Tubes to American Industrial Acquisition Corporation (AIAC).

  (2) In August 2016, Vallourec acquired all shares in VAM Holding Hong Kong Ltd, a holding company, and in Vam Changzhou Oil and Gas (a threading business in China). These two companies are consolidated as joint operations until 30 September 2016, then fully consolidated into the Group's financial statements.

  (3) On 1 October 2016, Vallourec completed the contribution of the tubular activity of Vallourec Tubos do Brasil (VBR), a wholly-owned subsidiary, to Vallourec & Sumitomo Tubos do Brasil (VSB), a joint operation in which Vallourec holds a 56% interest. This transaction resulted in Vallourec acquiring control of VSB (renamed Vallourec Soluções Tubulares do Brasil), by increasing its holding from 56% to 84.6%, with the remaining 15.4% non-controlling interests being transferred to the NSSMC and Sumitomo Corp. partners. The new entity, VSB, is fully consolidated in the Group's financial statements as of 1 October 2016, and the Japanese partners' interests are recorded as non-controlling interests.

  (4) On 28 October 2016, Serimax and Technip finalized a strategic partnership in the field of offshore pipeline welding. As part of this partnership, Technip acquired a 20% shareholding in Serimax.

  (5) As of 2 December 2016, Vallourec holds 99.0% of the capital of Tianda Oil Pipe after acquiring in November a majority share of 50.6% and 28.9% by an unconditional mandatory takeover bid followed by withdrawal from the Hong Kong stock market. Tianda Oil Pipe was consolidated using the equity method (19.5%) for 2016 and the acquisition was recorded in the Group's balance sheet as at 31 December 2016.

  The effects of the main transactions are set out in detail in Note 34. If the changes in scope had taken place on 1 January 2016, Group revenue would have stood at €3,277 million, compared to €2,965 million.

  There are no significant unconsolidated subsidiaries or interests.

- There was no significant change in scope in fiscal year 2015.

C—Notes to the financial statements (in € thousand)

NOTE 1	Intangible assets and goodwill	F-134
NOTE 2.1	Property, plant and equipment	F-136
NOTE 2.2	Biological assets	F-137
NOTE 2.3	Impairment of property, plant and equipment and intangible assets	F-138
NOTE 3	Associates	F-141
NOTE 4	Other non-current assets	F-142
NOTE 5	Deferred taxes	F-143
NOTE 6	Inventories and work in progress	F-146
NOTE 7	Trade and other receivables	F-147
NOTE 8	Financial instruments	F-147
NOTE 9	Other current assets	F-159
NOTE 10	Cash and cash equivalents	F-159
NOTE 11	Assets held for sale and discontinued operations	F-160
NOTE 12	Change in operating working capital requirements	F-160
NOTE 13	Equity	F-161
NOTE 14	Earnings per share	F-162
NOTE 15	Non-controlling interests	F-163
NOTE 16	Bank loans and other borrowings	F-164
NOTE 17	Provisions	F-168
NOTE 18	Other long-term liabilities	F-169
NOTE 19	Employee benefit commitments	F-170
NOTE 20	Other current liabilities	F-181
NOTE 21	Information on related parties	F-181
NOTE 22	Contingent liabilities and commitments	F-182
NOTE 23	Revenue	F-183
NOTE 24	Cost of sales	F-184
NOTE 25	Sales, general and administrative costs	F-184
NOTE 26	Others	F-185
NOTE 27	Fees paid to the statutory auditors and members of their networks	F-185
NOTE 28	Accumulated depreciation and amortization	F-185
NOTE 29	Impairment of assets and goodwill, asset disposals and restructuring costs	F-186
NOTE 30	Financial income/(loss)	F-186
NOTE 31	Reconciliation of theoretical and actual tax expense	F-187
NOTE 32	Segment information	F-187
NOTE 33	Share in net income/(loss) of associates	F-190
NOTE 34	Business combinations	F-190
NOTE 35	Subsequent events	F-192

Notes 1 to 20 provide details of changes in balance sheet.

During the 2016 fiscal year, for each item under assets and liabilities, the changes in scope described in Section 6.1.7.B were presented in detail in two specific lines:

- "Acquisitions from business combinations". These concern the full consolidation of Vallourec & Sumitomo Tubos do Brasil, Tianda Oil Pipe, VAM Holding Hong Kong, and VAM Changzhou leading to the recording of the assets and liabilities of these entities at fair value.
- "Disposals from business combinations". These concern the disposal of assets and liabilities held by companies previously under joint control (Vallourec & Sumitomo Tubos do Brasil (56%), VAM Holding Hong Kong (51%) and VAM Changzhou (51%)).

NOTE 1 Intangible assets and goodwill

	Concessions, patents, licenses and other rights	Other intangible assets	Total intangible assets	Goodwill
GROSS VALUES				
As at 31/12/2014	**99,805**	**494,489**	**594,294**	**550,994**
Acquisitions	711	1,896	2,607	—
Disposals	(272)	(556)	(828)	—
Reclassification to assets held for sale and discontinued operations	(3,556)	(12,620)	(16,176)	(6,415)
Impact of changes in exchange rates	(3,255)	36,585	33,330	53,124
Other changes	6,096	2,476	8,572	
As at 31/12/2015	**99,529**	**522,270**	**621,799**	**597,703**
Acquisitions	412	1,091	1,503	—
Disposals	—	(575)	(575)	—
Acquisitions from business combinations (see Note 34)	1,044	—	1,044	40,239
Disposals from business combinations	(5,332)	—	(5,332)	—
Reclassification to assets held for sale and discontinued operations	(1,132)	—	(1,132)	—
Impact of changes in exchange rates	3,207	17,398	20,605	18,693
Other changes	(3,764)	1,773	(1,991)	(3,509)
AS AT 31/12/2016	**93,964**	**541,957**	**635,921**	**653,126**
DEPRECIATION AND IMPAIRMENT				
AS AT 31/12/2014	**(71,420)**	**(356,964)**	**(428,384)**	**(218,776)**
Net depreciation expenses for the fiscal year	(7,100)	(26,999)	(34,099)	—
Impairment (see Notes 2.3, 28 and 29)	—	—	—	(36,316)
Disposals	268	495	763	—
Reclassification to assets held for sale and discontinued operations	3,306	11,657	14,963	6,415
Impact of changes in exchange rates	3,266	(30,353)	(27,087)	(19,457)
Other changes	989	(123)	866	—
As at 31/12/2015	**(70,691)**	**(402,287)**	**(472,978)**	**(268,134)**
Net depreciation expenses for the fiscal year	(6,898)	(25,236)	(32,134)	—
Impairment (see Notes 2.3, 28 and 29)	(82)	—	(82)	—
Disposals	—	569	569	—
Disposals from business combinations	4,640	—	4,640	—
Reclassification to assets held for sale and discontinued operations	888	—	888	—
Impact of changes in exchange rates	(2,863)	(12,681)	(15,544)	(5,948)
Other changes	3,086	616	3,702	3,640
AS AT 31/12/2016	**(71,920)**	**(439,019)**	**(510,939)**	**(270,442)**
NET VALUES				
As at 31/12/2015	28,838	119,983	148,821	329,569
AS AT 31/12/2016	**22,044**	**102,938**	**124,982**	**382,684**

NOTE 1 Intangible assets and goodwill (Continued)

Intangible assets

Vallourec devotes significant efforts on an on-going basis to Research and Development, particularly in the field of energy. These efforts cover three main areas:

- manufacturing processes (charcoal, steel-making, tube-rolling, nondestructive testing, forming, welding and machining);
- new products and product improvements;
- new services (customer support for tube design, use and processing).

No costs were identified in connection with major projects that meet the criteria for capitalization as assets.

Other intangible assets relate to technology and know-how, trademarks, order books and customer relationships acquired mainly in connection with business combinations. They are amortized on a straight-line basis over their useful life (amortization period of 5.5 to 15 years).

Other than goodwill, there are no intangible assets with indefinite useful lives.

Goodwill

Cash-generating unit (CGU) (see Section 2.9—Impairment of property, plant and equipment and intangible assets)	Vallourec do Brasil	Vallourec North America	Vallourec Europe	Serimax	Others	Total
As at 31/12/2014	**3,136**	**292,583**	**—**	**36,316**	**183**	**332,218**
Impact of changes in exchange rates	(55)	33,905	—		(183)	33,667
Impairment (see Notes 2.3, 28 and 29)	—	—	—	(36,316)	—	(36,316)
As at 31/12/2015	**3,081**	**326,488**	**—**	**—**	**—**	**329,569**
Impact of changes in exchange rates and other	2,021	10,855	—	—	—	12,876
Impairment (see Notes 2.3, 28 and 29)	—	—	—	—	—	—
Acquisitions (see Note 34)	35,625	—	4,614	—	—	40,239
AS AT 31/12/2016	**40,727**	**337,343**	**4,614**	**—**	**—**	**382,684**

The impairment tests as at 31 December 2016 are presented in Note 2.3.

NOTE 2.1 Property, plant and equipment

	Land	Buildings	Technical installations, industrial equipment and tools	Current property, plant and equipment	Other tangible assets	Total
GROSS VALUES						
As at 31/12/2014	**118,326**	**972,721**	**4,694,984**	**328,406**	**291,808**	**6,406,246**
Acquisitions	974	6,209	23,175	187,181	17,469	235,008
Disposals	(14)	(6,442)	(51,313)	(142)	(11,746)	(69,657)
Reclassification to assets held for sale and discontinued operations	(1,410)	(13,217)	(62,589)	(1,717)	(3,353)	(82,286)
Impact of changes in exchange rates	(15,950)	(36,652)	(162,885)	(19,638)	(20,201)	(255,326)
Other changes	2,524	35,985	189,714	(253,054)	(3,743)	(28,574)
As at 31/12/2015	**104,450**	**958,604**	**4,631,086**	**241,036**	**270,234**	**6,205,411**
Acquisitions	—	7,055	38,538	110,819	11,978	168,390
Disposals	(3,511)	(1,424)	(41,655)	(2,822)	(6,930)	(56,342)
Reclassification to assets held for sale and discontinued operations	(200)	(59,649)	(230,658)	(3,440)	(1,998)	(295,945)
Acquisitions from business combinations (see Note 34)	23,570	106,734	600,149	31,486	3,492	765,431
Disposals from business combinations	(2,803)	(196,442)	(758,293)	(17,294)	(29,634)	(1,004,466)
Impact of changes in exchange rates	15,625	65,254	319,974	13,207	35,968	450,028
Other changes	13,729	27,068	211,756	(238,585)	104,722	118,690
AS AT 31/12/2016	**150,860**	**907,200**	**4,770,897**	**134,407**	**387,832**	**6,351,197**
DEPRECIATION AND IMPAIRMENT						
As at 31/12/2014	**(27,610)**	**(408,164)**	**(2,298,490)**	**(4,685)**	**(144,048)**	**(2,882,997)**
Net depreciation expenses for the fiscal year	(1,263)	(34,329)	(209,611)	(94)	(54,600)	(299,897)
Impairment losses (Note 2.3)	—	(26,059)	(135,796)	(800)	(547)	(163,202)
Disposals	—	3,015	44,678	—	11,270	58,963
Reclassification to assets held for sale and discontinued operations	—	7,823	48,811	—	2,164	58,798
Impact of changes in exchange rates	4,622	26,287	127,788	(210)	10,504	168,991
Other changes	(74)	960	(6,495)	964	19,639	14,994
As at 31/12/2015	**(24,325)**	**(430,467)**	**(2,429,115)**	**(4,825)**	**(155,618)**	**(3,044,350)**
Net depreciation expenses for the fiscal year	(1,324)	(32,533)	(221,442)	837	(37,963)	(292,425)
Impairment losses (Note 2.3)	(10,013)	(207)	(44,356)	(3,034)	(462)	(58,072)
Disposals	3,510	2,399	36,723	2,593	2,020	47,245
Disposals from business combinations	1,340	112,777	448,316	—	13,010	575,443
Reclassification to assets held for sale and discontinued operations	48	56,431	218,413	—	1,793	276,685
Impact of changes in exchange rates	(4,927)	(26,159)	(151,007)	122	(16,529)	(198,500)
Other changes	(6,321)	(11,719)	(9,466)	445	(12,548)	(39,609)
AS AT 31/12/2016	**(42,012)**	**(329,478)**	**(2,151,934)**	**(3,862)**	**(206,297)**	**(2,733,583)**
NET VALUES						
As at 31/12/2015	**80,125**	**528,137**	**2,201,971**	**236,211**	**114,616**	**3,161,061**
AS AT 31/12/2016	**108,848**	**577,722**	**2,618,963**	**130,545**	**181,535**	**3,617,614**

"Impairment losses" recorded as at 31 December 2016 are primarily linked to the strategic initiatives announced on 1 February 2016, chiefly consisting in the closure of two rolling mills (Saint-Saulve and

NOTE 2.1 Property, plant and equipment (Continued)

Deville in France), one threading line (Mülheim in Germany), one heat treatment line (Bellshill in Scotland), and a blast furnace in Brazil.

Capital expenditure excluding changes in scope

	2015			2016		
	Intangible assets and property, plant and equipment		Biological	Intangible assets and property, plant and equipment		Biological (see Note 2.2)
Europe	108,711		—	95,600		—
North America	66,370		—	18,001		—
South America	46,396		13,193	47,151		6,584
Asia	15,501		—	9,020		—
Others	637		—	120		—
TOTAL	**237,615**		**13,193**	**169,892**		**6,584**
		250,808			**176,476**	
Note 1: acquisition of intangible assets	2,607		—	1,503		—
Note 2.1: acquisition of property, plant and equipment	235,008		13,193	168,390		6,584
TOTAL CAPITAL EXPENDITURE	**237,615**		**—**	**169,893**		**—**
Changes in fixed asset liabilities and partner contributions	17,295			(1,090)		
TOTAL	**254,910**		**13,193**	**168,802**		**6,584**
Statement of cash flows: capital expenditure paid out during the period:		268,103			175,386	

Leases

The finance lease signed in 2010 by Vallourec Soluções Tubulares do Brasil (formerly VSB) for the construction of a water treatment facility had a net carrying amount of €72 million as at 31 December 2016.

NOTE 2.2 Biological assets

Change in biological assets	2015	2016
As at 1 January	**213,923**	**154,694**
Investments	13,193	6,584
Valuation at fair value	9,848	6,756
Net depreciation expenses for the period	(12,915)	(7,237)
Impairment losses	(7,290)	(3,957)
Reclassification to inventory	(8,744)	(9,660)
Foreign exchange differences	(53,321)	28,033
Other changes	—	(86,802)
AS AT 31 DECEMBER	**154,694**	**88,411**

The Group's Brazilian subsidiary Vallourec Florestal cultivates eucalyptus plantations mainly to produce the charcoal used in the blast furnaces of Vallourec do Brasil and Vallourec & Sumitomo do Brasil.

As at 31 December 2016, the company cultivated approximately 113,224 hectares of eucalyptus over a total area of 230,441 hectares.

NOTE 2.2 Biological assets (Continued)

In 2016, Vallourec Florestal posted revenue of €54.2 million, against €68.7 million in 2015.

As a result of the amendments to IAS 16 and IAS 41 applicable as of 1 January 2016, eucalyptus roots are considered as bearer biological assets, and are reclassified under property, plant and equipment (see Note 2.1).

NOTE 2.3 Impairment of property, plant and equipment and intangible assets

Cash-Generating Units

As at 31 December 2015, the main CGUs used in the Group's configuration and organization were Vallourec Europe, Vallourec do Brasil, Vallourec North America, Vallourec Heat Exchanger Tubes, Valinox Nucléaire, Serimax, and Vallourec & Sumitomo Tubos do Brasil.

The contribution of the tubular activity of Vallourec Tubos do Brasil (Vallourec do Brasil CGU) to Vallourec & Sumitomo Tubos do Brazil, on 1 October 2016, led to the combining of assets held in Brazil under a new CGU, Vallourec do Brasil. The figures for Vallourec do Brasil and Vallourec & Sumitomo Tubos Do Brasil between 2015 and 2016 are therefore not comparable. In addition, Vallourec Heat Exchanger Tubes was sold in 2016.

As a result of this new configuration, the Group's CGUs as at 31 December 2016 are Vallourec Europe, Vallourec do Brasil, Vallourec North America, Valinox Nucléaire, and Serimax.

Impairment indications

The Group has faced a deteriorating economic environment since 2014 (a drop in exploration and production investments by oil companies, volatility of raw materials and energy, and a highly competitive international environment) which has continued throughout 2015 and 2016. In response to the continued decline in oil prices since the end of 2014, oil and gas companies have further tightened their cost control, leading them to reduce capital expenditure and rationalize inventories in the areas of exploration, production and development of oil and natural gas reserves. This has had a significant impact on the demand for pipes and on their prices. This reduction in demand, combined with lower prices resulting from competitive pressures from incumbent gas operators and the arrival of new competitors, exacerbated by the deflationary pressures of our customers, has significantly altered the Group's competitiveness and the profitability of activities, and has been analyzed as a general indication of impairment, requiring the implementation of impairment tests for all the Group's CGUs as at 31 December 2014, including those that do not contain intangible assets with an unlimited useful life. This led the Group to recognize an impairment of €1,061 million as at 31 December 2014 on property, plant and equipment and intangible assets of the Vallourec Europe CGU (€539 million) and the Vallourec & Sumitomo do Brasil CGU (€522 million).

The tests performed as at 31 December 2015 led the Group to recognize impairment losses on the Serimax CGU (€36 million impairment of goodwill, see Note 1), in addition to impairments of individual assets that were recognized elsewhere (see Note 2.1).

As at 31 December 2016, the Group has performed impairment tests on all CGUs in order to monitor impairment on property, plant and equipment recorded in 2014.

Test bases

The test bases of the Vallourec Europe and Vallourec North America CGUs consist of the following:

In € million	Vallourec Europe	Vallourec North America
Non-current operating assets	973	1,788
Current operating assets	424	165
Test base	1,397	1,953

NOTE 2.3 Impairment of property, plant and equipment and intangible assets (Continued)

The test base of the Vallourec Europe CGU comprises the assets of several subsidiaries that are active in the production cycle of the products marketed by this CGU: rolling mills in France, Germany, and China, and tube finishing lines. The Saint Saulve steel mill was reclassified as at 31 December 2016 under "assets held for sale" and is not included in the test base.

These bases are net of depreciation.

Recoverable value

For each CGU tested, the recoverable value is considered as equal to the value in use.

It therefore corresponds to the present value of the forecasted future cash flows it generates.

Future cash flows

For the term of the BPs, i.e. 5 years

The Group's five-year strategic plan was presented to the Supervisory Board in December 2016. In this plan, the Group used assumptions for 2017 that were consistent with the data recorded in late 2016. Its assumptions also included a gradual recovery of the Oil & Gas business in 2017 in certain markets, and in 2018 for the others.

The next five years should bring a gradual increase in investment by oil companies, as well as a deflationary environment in part offset by (i) optimization of the new industrial routes presented in the Vallourec transformation plan in February 2016, (ii) a favorable change in the values of the main currencies (USD and BRL), and (iii) the benefits of the competitiveness plans launched by the Group since 2015.

Exchange rate assumptions are consistent over the period with those used at the end of 2016.

A three-year extrapolation period from 2022 to 2024

Given that the main players in the Oil & Gas market have been subject to profound structural changes since 2014, the effects of which are expected beyond the five-year period, the return of investment by oil companies to normal levels is not expected by the end of the term of the strategic plan.

These new circumstances have led us to model a three-year extrapolation period after the final year of the strategic plan.

This period, taken into account for the first time in 2016, also makes it possible to gradually converge the revenue growth rates for the final year of the strategic plan towards the perpetuity growth rate.

2025 is projected to perpetuity by applying a growth rate of 1.5% to 2%, depending on the CGU concerned. These perpetuity growth rates take account of long-term inflation and growth forecasts for Vallourec's main markets, particularly Oil & Gas.

Discount rate

The CGU discount rates correspond to their weighted average cost of capital ("WACC"), corresponding to the weighted average cost of equity and the cost of debt after tax.

The main components of weighted average cost of capital are:

- the risk-free rate corresponding to the 10-year French Treasury bond (OAT) rate,
- the systematic risk obtained by combining:
    - the Europe share market risk premium corresponding to the expected yield rate on this market minus the risk-free rate,
    - betas per activity calculated on the basis of samples of listed companies in the sector strictly comparable to the CGU in terms of activity;

NOTE 2.3 Impairment of property, plant and equipment and intangible assets (Continued)

- the specific risk linked to countries ("country risk") for activities situated outside of Europe.

The cost of debt after tax is calculated by adding to the risk-free rate the loan spread observed on the bond maturing on 30 September 2024 issued by Vallourec and taking tax into account.

Sectoral gearing which makes it possible to weight the cost of equity and the cost of debt after tax, and which corresponds to the net financial debt/stock market capitalization median of comparable companies.

All of the above parameters have been calculated over an average period of five years.

Applying these parameters leads to a discount rate of 7.8% for Europe, 7.3% for North America, 8.8% for Vallourec do Brasil, 7.6% for Serimax and 6.8% for Valinox Nucléaire.

Impairment test results

The tests performed do not result in the recognition of impairment losses.

The adaptive measures regarding the seamless pipe production units, announced in February 2016, have led to the recognition of €70 million in impairment (€49 million for the Vallourec Europe CGU and €24 million for the Vallourec do Brasil and Vallourec North America CGUs).

It should be noted that if the extrapolation period had not been taken into account and the 2015 WACC components not been maintained to calculate the 2016 WACC, this would not have led to the recognition of impairment losses in 2016 for the main CGUs.

Sensitivity analyses

The results of the sensitivity analyses of the Vallourec Europe and Vallourec North America CGUs are presented in the table below.

CGU sensitivity analysis (in millions of euros)		**Vallourec Europe**	**Vallourec North America**
Test bases as at 31 December 2016		1,397	1,953
CGU VALUE IN USE		**2,304**	**3,094**
Sensitivity to the discount rate	+0.5 pt	2,067	2,772
	−0.5 pt	2,583	3,485
EBITDA sensitivity	−10% per year	1,917	2,416
	+10% per year	2,691	3,754
EUR/USD foreign exchange rate sensitivity	+5 cts	1,717	2,852
	−5 cts	2,949	3,361
Perpetuity growth rate sensitivity	+0.5 pt	2,477	3,383
	−0.5 pt	2,156	2,855
IMPAIRMENT LOSS		—	—

The table above shows that:

- for the Vallourec Europe and Vallourec North America CGUs, the values of use as at 31 December 2016 are higher than the test bases, as indicated above;
- the future cash flows of these CGUs are sensitive to changes in the value of their export transactions denominated in a currency other than that of the country where they are based (mainly USD). Unhedged cash flows were measured at the exchange rate of 31 December 2016, consistent with the balance sheet values to be tested.

Given the sensitivity of DCF calculations to the assumptions used, the Group decided to maintain the impairment losses recorded at the end of 2014 and 2015 on the Vallourec Europe CGU.

NOTE 2.3 Impairment of property, plant and equipment and intangible assets (Continued)

In 2016, the acquisition of VSB resulted in the valuation of the assets of the Jeceaba plant (Brazil) at fair value, thereby fixing the impairment recorded in 2014.

NOTE 3 Associates

The Group's main associates (individual carrying amount greater than €50 million) are listed below.

Activity Business location	HKM Steel mill Germany	Tianda Oil Pipe Tube manufacturing China	Others	Total
As at 31/12/2014	**76,688**	**57,446**	**49,991**	**184,125**
Capital increase	4,000	—	4,074	8,074
Impact of changes in exchange rates	—	2,370	4,136	6,506
Dividends paid	(6)	(6,272)	(4,474)	(10,752)
Reclassification to assets held for sale and discontinued operations	—	—	(11,044)	(11,044)
Others	—	—	(49)	(49)
Contribution to net income of the period		(436)	411	(25)
As at 31/12/2015	**80,682**	**53,108**	**43,045**	**176,835**
Capital increase	—	—	—	—
Impact of changes in exchange rates	—	(2,726)	1,098	(1,628)
Dividends paid	(1)	(7,261)	—	(7,262)
Changes in consolidation scope	—	(35,521)	379	(35,142)
Others	—	—	—	—
Contribution to net income of the period	5	(7,600)	(408)	(8,003)
AS AT 31/12/2016	**80,686**	**—**	**44,114**	**124,800**

As at 31 December 2015, only HKM and Tianda Oil Pipe were identified as significant associates of the Group. As at 31 December 2016, Vallourec acquired Tianda Oil Pipe, which is now fully consolidated with a holding rate of 99.03%, after the acquisition in November of a majority share of 50.61% and the successful unconditional mandatory takeover bid. Tianda Oil Pipe was consolidated using the equity method (19.5%) for 2016 and the acquisition was recorded in the Group's balance sheet as at 31 December 2016 (see Note 34).

The condensed financial data (100%) for HKM is presented below.

HKM	31/12/2015	31/12/2016
Non-current assets	651,985	689,483
Current assets	565,029	689,409
Non-current liabilities	584,339	465,117
Current liabilities	229,267	510,343
Net assets	**403,408**	**403,432**
Sales	2,001,550	1,831,087
Operating income/(Loss)	4,474	2,706
Net income from continuing operations	—	—
Other comprehensive income (loss)	—	—
Total comprehensive income (loss)	—	25
Dividends paid to the Group	6	5

NOTE 3 Associates (Continued)

The reconciliation of the condensed financial data from the HKM associate with the book value of the Group's interests in this associate is as follows:

HKM	31/12/2015	31/12/2016
Net assets	403,408	403,432
Group's percentage interest in HKM	20%	20%
Goodwill	—	—
Others	—	—
Value of investments in equity affiliates	80,682	80,686
HKM net income/(loss)	—	25
Group's percentage interest in HKM	20%	20%
Share of net income	—	5

The Group likewise holds interests in other associates (which, considered individually, are not significant) for an overall book value of €44 million as at 31 December 2016, compared with €43 million as at 31 December 2015.

NOTE 4 Other non-current assets

	Other equity interests	Loans	Other financial assets	Other non-current assets	Provisions	Total
As at 31/12/2014	**73,885**	**6,713**	**41,571**	**314,375**	**(1,480)**	**435,064**
Impact of changes in exchange rates	(300)	19	(6,550)	(40,732)	374	(47,189)
Changes in gross values	(6,419)	(1,902)	9,175	(147,634)	(173)	(146,953)
Other changes	—	(171)	(7,534)	(84)	—	(7,789)
As at 31/12/2015	**67,166**	**4,659**	**36,662**	**125,925**	**(1,279)**	**233,133**
Impact of changes in exchange rates	548	124	6,047	22,193	(523)	28,389
Changes in gross values	9,278	(8)	3,396	20,714	—	33,380
Increase in provisions	—	—	—	—	(1,828)	(1,828)
Reversals of provisions	—	—	—	—	2,919	2,919
Acquisitions from business combinations (see Note 34)	—	853	7,478	104,823	—	113,154
Disposals from business combinations	—	(477)	(4,188)	(67,581)	—	(72,246)
Other changes	2,584	(120)	8,639	9,209	(8,642)	11,670
AS AT 31/12/2016	**79,576**	**5,031**	**58,034**	**215,283**	**(9,353)**	**348,571**

At 31 December 2016, available-for-sale equity securities (included in "Other equity interests") related almost exclusively to Nippon Steel & Sumitomo Metal Corp., listed on the Tokyo Stock Exchange and acquired in 2009 for a total of €81.9 million.

A seven-year partnership agreement signed on 31 December 2009 between Vallourec and Nippon Steel & Sumitomo Metal Corp. includes a cross-shareholding in which each company holds a stake of about USD 120 million in the other. Nippon Steel & Sumitomo Metal Corp. and Vallourec are partners in Vallourec & Sumitomo Tubos do Brasil, working together to produce the VAM® line of premium joints.

In view of the strategic and long-term nature of the investment, Vallourec set thresholds above which a decline in net asset value of the Nippon Steel & Sumitomo Metal Corp. shares would be an event of a "significant or long-term nature" requiring the recognition of an impairment loss in the income statement:

- 3 years for the prolonged nature of a decline;
- 40% for the significant nature of a decline.

NOTE 4 Other non-current assets (Continued)

At 31 December 2016, the change in fair value of these shares, based on their NAV of €73.3 million, shows a gain for the period of €9.4 million recognized in equity. For the record, the NAV of these shares as at 31 December 2015 was €63.9 million. The aggregate loss of €8.6 million as at end December 2016 is recorded in equity.

Other financial investments consist mainly of interest-bearing security deposits, mainly paid in connection with tax disputes in Brazil (€41 million at 31 December 2016; see also Note 16).

Other non-current assets consist mainly of €178.6 million in deferred tax receivables in Brazil and the United States.

In 2015, the impact of the application of the Amendment to IFRS 11 resulted in a €165 million drop in non-current assets, in consideration for long-term liabilities.

Maturities of other non-current assets	1 to 5 years	5 years or more	Total
GROSS VALUES AS AT 31/12/2015			
Loans	2,357	2,302	4,659
Other investments in equity instruments	—	67,166	67,166
Other financial assets	103,659	58,928	162,587
TOTAL	**106,016**	**128,396**	**234,412**
GROSS VALUES AS AT 31/12/2016			
Loans	3,414	1,617	5,031
Other investments in equity instruments	—	79,576	79,576
Other financial assets	208,287	65,030	273,317
TOTAL	**211,701**	**146,223**	**357,924**

NOTE 5 Deferred taxes

The main bases used to calculate deferred taxes are:

- recurring: provisions for paid leave and the additional social security levy on businesses *(contribution sociale de solidarité des sociétés)*;
- non-recurring: cancellation of regulated provisions, employee profit-sharing, non-tax deductible provisions and any restatements to ensure the consistency and comparability of the parent company or consolidated financial statements;
- long-term recurring: non-tax deductible provisions for retirement commitments, non-tax deductible provisions for assets and remeasurements of assets acquired in connection with a business combination.

Deferred taxes are recognized using the liability method.

The rates used are the recovery rates known at the reporting date.

The French supplementary business taxes (*Cotisation Foncière des Entreprises and Cotisation sur la Valeur Ajoutée des Entreprises*) are recognized as operating expenses.

	2015	2016
Deferred tax assets	148,783	190,269
Deferred tax liabilities	216,172	80,494
NET DEFERRED TAX ASSETS/(DEFERRED TAX LIABILITIES)	**(67,389)**	**109,775**

NOTE 5 Deferred taxes (Continued)

Presentation of deferred taxes by type

As at 31/12/2016	Assets	Liabilities	Net deferred tax liabilities
Non-current assets	—	241,012	
Other assets and liabilities	39,836		
Inventories	28,154	—	
Employee benefit commitments	9,380	—	
Derivatives	748	—	
Distributable reserves and foreign currency translation reserves	—	1,851	
NET BALANCE	**78,118**	**242,863**	**(164,745)**
Recognition of tax losses	274,520	—	274,520
TOTAL	**352,638**	**242,863**	**109,775**

As at 31/12/2015	Assets	Liabilities	Net deferred tax liabilities
Non-current assets	—	210,260	
Other assets and liabilities	—	42,001	
Inventories	21,273	—	
Employee benefit commitments	12,717	—	
Derivatives	165	—	
Distributable reserves and foreign currency translation reserves	—	1,851	
NET BALANCE	**34,155**	**254,112**	**(219,957)**
Recognition of tax losses	152,568	—	152,568
TOTAL	**186,723**	**254,112**	**(67,389)**

The Group's deferred taxes (gross values) as at 31 December 2016 and 31 December 2015 are broken down as follows:

As at 31/12/2016	Gross value	Corresponding deferred tax	Recognized deferred tax	Unrecognized or impaired deferred tax
Tax loss carryforwards	2,447,210	787,571	274,520	513,051
Other tax assets	—	—	(84,251)	421,281
TOTAL TAX ASSETS	**—**	**787,571**	**190,269**	**934,332**
Tax liabilities	—	—	(80,494)	—
TOTAL TAX LIABILITIES	**—**	**—**	**(80,494)**	**—**
TOTAL	**—**	**—**	**109,775**	**934,332**

As at 31/12/2015	Gross value	Corresponding deferred tax	Recognized deferred tax	Unrecognized or impaired deferred tax
Tax loss carryforwards	1,565,529	487,253	152,568	334,686
Other tax assets	—	—	(3,785)	246,788
TOTAL TAX ASSETS	**—**	**487,253**	**148,783**	**581,474**
Tax liabilities	—	—	(216,172)	—
TOTAL TAX LIABILITIES	**—**	**—**	**(216,172)**	**—**
TOTAL	**—**	**—**	**(67,389)**	**581,474**

NOTE 5 Deferred taxes (Continued)

Tax loss carryforwards relate mainly to Vallourec Soluções Tubulares do Brasil (formerly VSB), the French tax group, Vallourec Changzhou (China), Vallourec Star (United States) and Vallourec Deutschland (Germany) and Vallourec Saudi Arabia.

The deferred tax assets are recognized when there is reasonable assurance of being able to recover these deferred tax assets in the foreseeable future. When it is estimated that allocating these carryforwards to future taxable profits would be uncertain, no deferred tax asset is recognized and, where applicable, deferred tax assets at the opening date are impaired.

As at 31 December 2016, Vallourec & Sumitomo Tubos do Brasil, previously 56% consolidated, is fully consolidated following the acquisition of the company on 1 October 2016. Analyses conducted concluded with reasonable assurance that the net deferred tax assets could be recovered within a period of more than 10 years, but less than the average useful life of the industrial assets (in the amount of €139.2 million).

Changes in deferred taxes are broken down as follows:

Net deferred tax assets/(liabilities)	2015	2016
AS AT 1 JANUARY	**(33,144)**	**(67,389)**
Impact of changes in exchange rates	(34,755)	20,244
Recognized in profit or loss	45,037	119,500
Recognized in reserves	(12,753)	(4,725)
Reclassification to assets held for sale and discontinued operations	(3,936)	—
Others	(27,838)	42,145
AS AT 31 DECEMBER	**(67,389)**	**109,775**

The amount of the deferred tax recognized in reserves corresponds mainly to the change in deferred taxes calculated on derivatives and actuarial gains and losses on retirement commitments and similar obligations.

NOTE 6 Inventories and work in progress

	Raw materials and merchandise	Goods in production	Intermediate and finished goods	Total
GROSS VALUES				
As at 31/12/2014	**555,308**	**612,725**	**495,428**	**1,663,461**
Changes in inventories recognized in the income statement	(66,443)	(292,395)	(48,881)	(407,719)
Impact of changes in exchange rates	(12,049)	37,953	(35,426)	(9,522)
Reclassification to assets held for sale and discontinued operations	(13,545)	(284)	(12,386)	(26,215)
Other changes	5,300	—	8,742	14,042
As at 31/12/2015	**468,571**	**357,999**	**407,477**	**1,234,047**
Changes in inventories recognized in the income statement	(51,142)	(43,414)	(73,642)	(168,198)
Impact of changes in exchange rates	25,584	1,494	26,953	54,031
Acquisitions from business combinations (see Note 34)	133,274	1,546	104,534	239,354
Disposals from business combinations	(56,308)	(622)	(55,014)	(111,944)
Reclassification to assets held for sale and discontinued operations	(24,500)	—	—	(24,500)
Other changes	3,241	1,812	12,670	17,723
AS AT 31/12/2016	**498,720**	**318,815**	**422,977**	**1,240,512**
IMPAIRMENT				
As at 31/12/2014	**(89,206)**	**(25,799)**	**(58,425)**	**(173,430)**
Impact of changes in exchange rates	980	(1,320)	4,419	4,079
Allowances[(a)]	(38,789)	(8,208)	(38,921)	(85,918)
Reversals of provisions	33,454	13,572	34,816	81,842
Reclassification to assets held for sale and discontinued operations	2,127	—	2,927	5,054
Other changes	(959)	1,425	25	491
As at 31/12/2015	**(92,393)**	**(20,330)**	**(55,159)**	**(167,882)**
Impact of changes in exchange rates	(3,220)	247	(4,428)	(7,401)
Allowances[(a)]	(52,973)	(11,806)	(32,761)	(97,540)
Reversals of provisions	33,904	6,666	35,112	75,683
Disposals from business combinations	57	—	5,515	5,572
Reclassification to assets held for sale and discontinued operations	11,211	—	—	11,211
Other changes	(3,018)	655	(23,043)	(25,406)
AS AT 31/12/2016	**(106,432)**	**(24,567)**	**(74,764)**	**(205,763)**

(a) Provisions for inventories of raw materials and consumables include a €9 million impairment loss in 2016 for spare parts related to industrial assets (€11 million in 2015).

NOTE 6 Inventories and work in progress (Continued)

The cost of any underutilized capacity is excluded from the value of inventories. Made-to-order products are impaired, where applicable, for the unaffected portion and valued at scrap-metal prices (if applicable). Inventories are impaired based on their net realizable values.

Net values	Raw materials and merchandise	Goods in production	Intermediate and finished goods	Total
As at 31/12/2015	376,178	337,669	352,318	1,066,165
AS AT 31/12/2016	**392,288**	**294,248**	**348,213**	**1,034,749**

NOTE 7 Trade and other receivables

	Advances and partial payments on orders	Trade and other receivables (gross)	Provisions for depreciation	Total
As at 31/12/2014	**35,471**	**1,128,838**	**(18,655)**	**1,145,654**
Impact of changes in exchange rates	(4,992)	(98)	3,714	(1,376)
Changes in gross values	(17,311)	(480,791)	—	(498,102)
Increase in provisions	—	—	(58,599)	(58,599)
Reversals of provisions	—	—	10,462	10,462
Reclassification to assets held for sale and discontinued operations	(531)	(24,148)	209	(24,470)
Other changes	—	(36,719)	8,054	(28,665)
As at 31/12/2015	**12,637**	**587,082**	**(54,815)**	**544,904**
Impact of changes in exchange rates	1,580	22,879	(3,429)	21,030
Changes in gross values	(2,870)	(120,533)	—	(123,403)
Increase in provisions	—	—	(8,690)	(8,690)
Reversals of provisions	—	—	28,654	28,654
Acquisitions from business combinations (see Note 34)	21,139	90,322	—	111,461
Disposals from business combinations	(1,326)	(21,092)	147	(22,271)
Reclassification to assets held for sale and discontinued operations	(13)	(7,217)	—	(7,230)
Other changes	(3,032)	(388)	5,183	1,763
AS AT 31/12/2016	**28,115**	**551,053**	**(32,950)**	**546,218**

NOTE 8 Financial instruments

Financial assets and liabilities

Financial assets and liabilities are measured and presented in the statement of financial position in accordance with the various categories specified by IAS 39.

8.1 Impact of IAS 32 and IAS 39 on equity and net income

As explained in Section 2.16—Accounting principles and methods, the main impact of IAS 32 and IAS 39 relates to the accounting treatment of hedging contracts entered into by the Group in connection with commercial purchase and sale transactions in foreign currencies and the accounting treatment of available-for-sale financial assets. The other effects of the transition to IAS 32 and IAS 39 have had little impact on the financial statements (measurement of housing loans to employees using the effective interest rate method and measurement at fair value of investment securities).

Regarding foreign exchange hedges, the hedging relationship is based on the spot exchange rates. Premiums and discounts on derivatives are systematically considered ineffective and recognized in the

NOTE 8 Financial instruments (Continued)

income statement (financial income or loss). Currency receivables and payables have been revalued at the spot rate at 31 December.

From a net liability position of €131.5 million as at 31 December 2015, hedging assets moved to a net liability position of €47.3 million as at 31 December 2016.

Fluctuations in the euro against the US dollar in 2016 accounts for most of the €16.1 million change in the intrinsic value of hedges of forecast sales and purchases in foreign currencies and the €24.7 million change in the intrinsic value of hedges of foreign currency receivables and payables.

Financial instruments of a speculative nature remain exceptional and arise when a hedging relationship is ineffective under the terms of IAS 39. Their changes in value do not have a material impact on foreign exchange gains or losses.

Statement of financial position items	As at 31/12/2015	As at 31/12/2016	Changes in 2016		
			Total	Reserves	Net Income
1—Derivatives recognized in the statement of financial position[(a)]					
Changes in the intrinsic value of forward sales of currencies and forward purchases[(b)] associated with order books and commercial tenders	(40,727)	(24,626)	16,101	13,149	2,952
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with trade receivables (and accounts payable[(b)])*	(41,788)	(17,140)	24,648	2,109	22,539
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with finance receivables (and financial payables)	(54,701)	(18,193)	36,508	180	36,328
Recognition of premium/discount*	4,062	9,785	5,723	8,012	(2,289)
Recognition of changes in fair value of interest rate swaps	—	—	—	—	—
Changes in values linked to hedging instruments set up under employee share ownership plans	1,625	2,866	1,241	56	1,185
SUBTOTAL: DERIVATIVES	**(131,529)**	**(47,308)**	**84,221**	**23,506**	**60,715**
• of which derivatives—assets	20,341	57,985			
• of which derivatives—liabilities	152,429	105,293			
• of which reclassification to assets held for sale	(559)	—			
2—Receivables (payables) hedged in currencies—translation gain/loss					
Measurement as at the reporting date exchange rate (trade payables[(b)] and accounts receivable)	36,877	20,389	(16,488)	—	(16,488)
Measurement as at the reporting date exchange rate (financial liabilities and accounts receivable)	55,299	16,907	(38,392)	—	(38,392)
IMPACT OF HEDGING TRANSACTIONS	**(39,353)**	**(10,012)**	**29,341**	**23,506**	**5,835**
3—Measurement of other investments in equity instruments at fair value	**(13,951)**	**(8,665)**	**5,286**	**5,286**	**—**
TOTAL	**(53,304)**	**(18,677)**	**34,627**	**28,792**	**5,835**

(a) Assets and liabilities offset in this table: + = asset, ( ) = liability.

(b) Non-significant amounts.

* The impact on reserves includes, in particular, the effects of the acquisition of Vallourec & Sumitomo Tubos do Brasil.

NOTE 8 Financial instruments (Continued)

The change in the fair value of financial instruments hedging foreign exchange risk, which affected equity as at 31 December 2015, was −€40.7 million. In 2016, around 94% of the positive change in fair value attached to the order book and commercial tenders at the end of 2015 was transferred from equity to the statement of comprehensive income, under "translation gain/loss". This amount represents the impact of the changes in value of foreign exchange hedges for the order book and commercial tenders as at 31 December 2015, which were fully or partially unwound or converted into receivables during 2016.

This corresponds mainly to the hedges of receivables in US dollars, which represent over 85% of the hedges with an impact on equity as at 31 December 2016.

Statement of financial position items	As at 31/12/2014	As at 31/12/2015	Changes in 2015		
			Total	Reserves	Net Income
Derivatives recognized in the statement of financial position[(a)]					
Changes in the intrinsic value of forward sales of currencies and forward purchases[(b)] associated with order books and commercial tenders	(71,636)	(40,727)	30,909	30,188	721
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with trade receivables (and accounts payable[(b)])	(55,329)	(41,788)	13,541	—	13,541
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with finance receivables (and finance payables)	(29,459)	(54,701)	(25,242)	—	(25,242)
Recognition of premium/discount	9,077	4,062	(5,015)	(2,449)	(2,566)
Recognition of changes in fair value of interest rate swaps	—	—	—	—	—
Changes in values linked to hedging instruments set up under employee share ownership plans	2,259	1,625	(634)	(262)	(372)
SUBTOTAL: DERIVATIVES	**(145,088)**	**(131,529)**	**13,559**	**27,477**	**(13,918)**
• of which derivatives—assets	28,211	20,341			
• of which derivatives—liabilities	173,300	152,429			
• of which reclassification to assets held for sale	—	(559)			
2—Receivables (payables[(b)]) hedged in currencies—translation gain/loss					
Measurement as at the reporting date exchange rate (trade payables[(b)] and accounts receivable)	52,584	36,877	(15,707)	—	(15,707)
Measurement as at the reporting date exchange rate (financial liabilities and accounts receivable)	30,529	55,299	24,770	—	24,770
IMPACT OF HEDGING TRANSACTIONS	**(61,975)**	**(39,353)**	**22,622**	**27,477**	**(4,855)**
3—Measurement of other investments in equity instruments at fair value	(6,321)	(13,951)	(7,630)	(7,630)	—
TOTAL	**(68,296)**	**(53,304)**	**14,992**	**19,847**	**(4,855)**

(a) Assets and liabilities offset in this table: + = asset, ( ) = liability.

(b) Non-significant amounts.

The change in the fair value of financial instruments hedging foreign exchange risk, which affected equity as at 31 December 2014, was −€71.6 million. In 2015, around 81% of the positive change in fair value attached to the order book and commercial tenders at the end of 2014 was transferred from equity to the

NOTE 8 Financial instruments (Continued)

statement of comprehensive income, under "translation gain/loss". This amount represents the impact of the changes in value of foreign exchange hedges for the order book and commercial tenders as at 31 December 2014, which were fully or partially unwound or converted into receivables during 2015.

This corresponds mainly to the hedges of receivables in US dollars, which represent nearly all the hedges with an impact on equity as at 31 December 2015.

8.2 Information on the nature and extent of market risk and how it is managed by the Group

Market risk is comprised of interest rate, foreign exchange (conversion and transactions), credit and equity risk. Liquidity risk is addressed in Note 16.

Interest rate risk

Management of medium- and long-term financing within the euro zone is centralized at Vallourec and the sub-holding company Vallourec Tubes.

Total liabilities

As at 31/12/2016	Other borrowings	Cash
Fixed rate on date granted	2,325,628	—
Variable rate on date granted swapped to fixed rate	—	—
Fixed rate	**2,325,628**	**—**
Variable rate	**247,460**	**1,286,722**
TOTAL	**2,573,088**	**1,286,722**

As at 31/12/2015	Others borrowings	Cash
Fixed rate on date granted	1,990,269	—
Variable rate on date granted swapped to fixed rate	—	—
Fixed rate	**1,990,269**	**—**
Variable rate	**159,528**	**630,540**
TOTAL	**2,149,797**	**630,540**

The Group is exposed to interest rate risk on its variable rate debt.

The amount of loans with fixed rates on the dates granted primarily consists of bonds and commercial paper issued by Vallourec:

- on 7 December 2011, Vallourec issued a €650 million bond maturing in February 2017, with a fixed annual coupon of 4.25%;
- in August 2012, two long-term private bond issues for a total of €455 million. The amounts and terms of these two private bond issues are €400 million for seven years with an annual coupon of 3.25% for one, and €55 million for 15 years with an annual coupon of 4.125%;
- on 30 September 2014, a €500 million bond issue, maturing in September 2024, with a fixed annual coupon of 2.25%;
- outstanding commercial paper in the amount of €307.2 million.

Furthermore, in December 2009, Vallourec Soluções Tubulares do Brasil took out a loan with BNDES (Banco National de Desenvolvimento Econômico e Social). As at 31 December 2016, BRL 56.9 million of

NOTE 8 Financial instruments (Continued)

this loan, at a fixed rate of 4.5%, had been drawn. Vallourec Soluções Tubulares do Brasil also concluded a fixed-rate finance lease in 2010.

As at 31 December 2016, financial debt exposed to changes in variable interest rates was €247.5 million (about 10% of total liabilities).

No significant line of fixed-rate financing will reach contractual maturity during the 12 months after 31 December 2016, except for:

- the €650 million bond issue maturing in February 2017;
- €307.2 million in outstanding commercial paper maturing in more than one year;
- €82 million for various lines of financing in the Group's subsidiaries.

Given the Group's interest rate risk hedging policy, the impact of a 1% rise in short-term rates in the euro zone, on Brazilian and Chinese rates and UK and US money market rates would result in a €2.5 million increase in the Group's annual financial expenses, based on an assumption of complete stability of the financial liabilities and constant exchange rates, and after taking into account the effects of any hedging instruments. This impact does not take into account the interest rate risk on commercial paper with a more than one year maturity or on short-term cash investments (of no more than three months).

Foreign currency translation risk

The assets, liabilities, revenues and expenses of the Group's subsidiaries are expressed in various currencies. The Group financial statements are presented in euros. The assets, liabilities, revenues and expenses denominated in currencies other than the euro have to be translated into euros at the applicable rate so that they can be consolidated.

If the euro rises (or falls) against another currency, the value in euros of the various assets, liabilities, revenues and expenses initially recognized in that other currency will fall (or rise). Therefore, changes in the value of the euro may have an impact on the value in euros of the assets, liabilities, revenues and costs not denominated in euros, even if the value of these items in their original currency has not changed.

In 2016, net income, Group share, was generated to a significant extent by subsidiaries that prepare their financial statements in currencies other than the euro (mainly in US dollars and the Brazilian real). A 10% change in exchange rates would have had an upward or downward impact on net income, Group share, of around €55.2 million.

In addition, the Group's sensitivity to long-term foreign exchange rate risk is reflected in the changes that have occurred in recent years in the foreign currency translation reserves booked to equity (−€176,6 million as at 31 December 2016) which, in recent years, have been linked mainly to movements in the US dollar and Brazilian real.

Foreign currency translation reserve—Group share	31/12/2015	31/12/2016
USD	320,968	343,878
GBP	(5,789)	(11,583)
Brazilian real (BRL)	(863,699)	(529,697)
Chinese yuan (CNY)	58,473	34,276
Others	(10,528)	(13,448)
TOTAL	**(500,575)**	**(176,574)**

Transaction risk

The Group is subject to exchange rate risks due to its business exposure linked to sales and purchase transactions entered into by some of its subsidiaries in currencies other than their functional currency.

NOTE 8 Financial instruments (Continued)

The main foreign currency involved is the US dollar (USD): a significant portion of Vallourec's transactions (approximately 42.5% of Group sales in 2016) are invoiced in US dollars by companies whose functional currency is not the US dollar.

Exchange rate fluctuations between the euro, the Brazilian real (BRL) and the US dollar may therefore affect the Group's operating margin. Their impact is, however, very difficult to quantify for two reasons:

1. There is an adjustment effect on selling prices denominated in US dollars related to market conditions in the various sectors of activity in which Vallourec operates;
2. Certain sales and purchases, even though they are denominated in euros or Brazilian reals, are influenced by the level of the US dollar. They are therefore indirectly and at some time in the future affected by movements in the US currency.

The Group actively manages its exposure to foreign exchange risk to reduce the sensitivity of its net profits to currency fluctuations by setting up hedges once the order is placed and sometimes once a quotation is given.

Order cancellations could therefore result in the cancellation of hedges in place, leading to the recognition in the consolidated income statement of gains and losses with regard to these canceled hedges.

We estimate that a 10% rise or fall in the currencies used in all hedges implemented by the Group would result in a €71.3 million decrease or increase in the intrinsic value recognized in consolidated equity as at 31 December 2016. Most of these amounts would be due to changes in the US dollar against the euro, and to a lesser extent, the Brazilian real against the US dollar.

To be eligible for hedge accounting as defined under IAS 39, the Vallourec Group has developed its cash management and invoicing systems to facilitate the traceability of hedged transactions throughout the duration of the hedging instruments.

At 31 December 2016, the following amounts were outstanding under forward foreign exchange contracts to hedge purchases and sales denominated in foreign currencies:

Hedging contracts with regard to commercial transactions—Exchange rate risk	2015	2016
Forward exchange contract: forward sales	1,065,094	1,074,559
Forward exchange contract: forward purchases	55,879	45,218
Currency options: sales	—	—
Currency options: purchases	—	—
Raw materials and energy: call options	—	—
TOTAL	**1,120,973**	**1,119,777**

Contract maturities at 31 December 2016

Contracts on commercial transactions	Total	< 1 year	1 to 5 years	> 5 years
Exchange contracts: forward sales	1,074,559	1,057,065	17,494	—
Exchange contracts: forward purchases	45,218	45,120	98	—
Currency options: sales	—	—	—	—
Currency options: purchases	—	—	—	—
Raw materials and energy: call options	—	—	—	—
TOTAL	**1,119,777**	**1,102,185**	**17,592**	**—**

Forward sales correspond mainly to sales of US dollars (€1,074 million of the €1,119 million total). These contracts were transacted at an average forward EUR/USD rate of 1.14 and an average forward USD/ BRL rate of 3.70.

NOTE 8 Financial instruments (Continued)

In 2016, as in 2015, the hedges entered into generally covered an average period of about 10 months and mainly hedged highly probable future transactions and foreign currency receivables.

In addition to hedges on commercial transactions, Vallourec has implemented hedging contracts for financial loans and receivables denominated in foreign currencies:

- since 2011, forward sales for USD 276.8 million (€243.5 million).

These instruments are intended to hedge either the debt denominated in USD, or the foreign currency loans established by the financial holding company Vallourec Tubes in the currency of the subsidiaries receiving them. The forward purchases and sales mature at various times in 2017, as and when the hedged loans and borrowings mature.

Other than its foreign-currency-denominated borrowings, Vallourec does not hedge any of the other foreign currency assets and liabilities in its consolidated statement of financial position (foreign currency translation risks).

Credit risks

Vallourec is subject to credit risk in respect of its non-impaired financial assets. Failure to recover these assets could affect the Company's results and financial position.

The Group has identified four main types of receivables that have these characteristics:

- 1% building loans granted to Group employees;
- security deposits paid in connection with tax disputes and the tax receivables due to the Group in Brazil;
- trade and other receivables;
- derivatives that have a positive fair value.

1. 1% building loans granted to the Group's employees: these loans do not expose the Group to any credit risk since the full amount of the loan is written off as soon as there is any delay in the collection of the amounts due. It should be noted that these loans are valued using the effective interest rate method applied to the expected cash flows until the maturity date of these loans (contractual interest rates may be lower);
2. Security deposits and tax receivables due to the Group in Brazil: there is no specific risk with respect to these receivables, even if the outcome of the disputes is unfavorable, since the risk has already been assessed and a provision recognized for these receivables, and the funds have already been paid in full or in part;
3. The Group's policy on the impairment of trade receivables is to recognize a provision when indications of impairment are identified. The impairment is equal to the difference between the carrying amount of the asset and the present value of expected future cash flows, taking into account the position of the counterparty.

The Group considers that as at 31 December 2016 there is no reason to assume that there is any risk in respect of receivables for which no provision has been made and which are less than 90 days overdue. Trade receivables more than 90 days past due and not impaired amounted to €16.4 million at 31 December 2016, or 3% of the Group's total net trade receivables.

Vallourec considers that the risk is limited given its existing customer risk management procedures, which include:

- the use of credit insurance and documentary credits;
- the long-standing nature of the Group's commercial relations with major customers;
- the commercial collection policy.

NOTE 8 Financial instruments (Continued)

Vallourec remains subject to country risk which could impact the payment of some of its receivables.

In addition, as at 31 December 2016, trade receivables not yet due amounted to €436.2 million, or 81% of total net trade receivables.

4. As concerns the derivatives that have a positive fair value, the Group only deals with highly-rated counterparties. The credit risk is considered to be insignificant.

The maturities of these trade receivables are as follows (in € thousands):

As at 31/12/2016	0 to 30 days	30 to 60 days	60 to 90 days	90 to 180 days	> 180 days	Total
Trade receivables outstanding	229,394	115,136	50,707	40,570	388	436,195

Equity risk

Treasury shares held by Vallourec as at 31 December 2016 include:

Shares allocated to various share ownership plans for some of the Group's employees, executive management and corporate officers.

In this context, Vallourec holds:

- 3,094 treasury shares acquired in 2008 after the definitive allocation of 26,844 shares in 2011, 70,050 shares in 2013 and 12 shares in 2014, under the various performance share plans;
- 55,036 treasury shares acquired in 2011 under the share buyback plan of 7 June 2011, upon the definitive allocation of 27,534 shares in 2012, 86,377 shares in 2013, 91,929 shares in 2014, 108,600 shares in 2015 and 30,524 shares in 2016 under the various performance share plans;
- 79,716 treasury shares acquired in 2012 under the share buyback program of 31 May 2012, upon the definitive allocation of 94,600 shares in 2014 and 225,684 shares in 2016 under the various performance share plans;
- 300,000 treasury shares acquired in 2014.

The Management Board, in consultation with the Supervisory Board, has decided to allocate these treasury shares to cover the Group's performance share and employee share ownership plans.

Additionally, Vallourec signed a liquidity contract with Rothschild & Cie Banque in 2012. It was implemented under the annual general authorization for the share buyback program approved by the Ordinary and Extraordinary Shareholders' Meeting of 6 April 2016 (seventeenth resolution).

On 8 April 2014, Vallourec committed to a supplementary contribution of €12.5 million, €5 million of which were paid at the end of 2014 in order to allow Rothschild & Cie Banque to ensure its continued participation under the contract.

As at 31 December 2016, the liquidity account at Rothschild & Cie Banque comprised the following:

- 2,400,000 shares valued at €15.7 million as at 31 December;
- €5,627,237.

NOTE 8 Financial instruments (Continued)

Classification and measurement of financial assets and liabilities

The amounts recognized in the statement of financial position are based on the measurement methods used for each financial instrument.

2016	Notes	Category[a]	Gross value at 31/12/2016	Amortized cost	Fair value through equity	Fair value through profit or loss
ASSETS						
Other non-current assets	**4**					
Listed equity interests		AFS	73,282	—	73,282	—
Other equity interests		AFS	6,294	—	6,294	—
Loans		L&R	5,031	5,031	—	—
Other financial assets		L&R/AHM[2]	58,034	58,034	—	—
Trade and other receivables	**7**	**L&R**	**551,053**	**551,053**	**—**	**—**
Derivatives—assets	**8**					
Hedging financial instruments		CFH	1,764	—	1,764	—
Hedging financial instruments[f]		A-FVTPL	56,222	—	—	56,222
Speculative financial instruments		A-FVTPL	—	—	—	—
Other current assets	**9**	**L&R**	**283,019**	**283,019**	**—**	**—**
Cash and cash equivalents	**10**	**A-FVTPL**	**1,286,722**	**—**	**—**	**1,286,722**
LIABILITIES						
Bank loans and other borrowings[c][e]	**16**	**AC-EIR**	**214,556**	**214,556**	**—**	**—**
Others	**16**	**AC-EIR**	**636,348**	**636,348**	**—**	**—**
Finance leases	**16**	**AC-EIR**	**113,031**	**113,031**	**—**	**—**
Bond issue	**16**	**AC-EIR**	**950,373**	**950,373**	**—**	**—**
Overdrafts and other short-term borrowings[d][e]	**16**	**AC-EIR**	**659,436**	**659,436**	**—**	**—**
Trade and other payables		**AC**	**530,391**	**530,391**	**—**	**—**
Derivatives—liabilities	**8**					
Hedging financial instruments		CFH	26,390	—	26,390	—
Hedging financial instruments		L-FVTPL	78,901	—	—	78,901
Speculative financial instruments		L-FVTPL	2	—	—	2
Other current liabilities	**20**	**AC**	**299,462**	**299,462**	**—**	**—**

(a) A-FVTPL—Financial assets measured at fair value through profit or loss

AHM—Assets held to maturity

L&R—Loans and receivables

AFS—Available-for-sale financial assets

CFH—Cash flow hedges

L-FVTPL—Financial liabilities measured at fair value through profit or loss

AC—Amortized cost

AC-EIR—Amortized cost according to the effective interest rate method

(b) In the Group, the only assets in this category are security deposits and guarantees.

(c) Borrowings classified within non-current liabilities maturing in more than 12 months.

(d) Borrowings that must be repaid within 12 months are classified as current liabilities.

(e) Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity to the extent of their effectiveness. Otherwise, they are recognized under financial income.

(f) Including the Value 12, Value 13, Value 14, Value 15 and Value 16 warrants, whose fair value as at 31 December 2016 was €1.7 million.

NOTE 8 Financial instruments (Continued)

Financial instruments measured at fair value are classified by category on the basis of their measurement method. Fair value is measured:

(A) mainly based on quoted prices on an active market; equity securities are valued this way;

(B) on the basis of observable methods and data and with reference to the financial markets (yield curve, forward prices, etc.).

2016 Statement of financial position headings and classes of instruments	Category	Total fair value on statement of financial position	Fair value		
			Listed prices (A)	Internal model with observable inputs (B)	Internal model with unobservable inputs
ASSETS					
Listed equity interests	AFS	73,282	73,282	—	—
Other equity interests	AFS	6,294	—	6,294	—
Derivatives—assets					
Hedging financial instruments	CFH	1,764	—	1,764	—
Speculative financial instruments	L-FVTPL	—	—	—	—
Cash and cash equivalents	**A-FVTPL**	**1,286,722**	**1,286,722**	**—**	**—**
LIABILITIES					
Derivatives—liabilities					
Hedging financial instruments	CFH	105,291	—	105,291	—
Speculative financial instruments	L-FVTPL	2	—	2	—

NOTE 8 Financial instruments (Continued)

2015	Notes	Category(a)	Gross value at 31/12/2015	Amortized cost	Fair value through equity	Fair value through profit or loss
ASSETS						
Other non-current assets	**4**					
Listed equity interests		AFS	63,939	—	63,939	—
Other equity interests		AFS	3,227	—	3,227	—
Loans		L&R	4,659	4,659	—	—
Other financial assets		L&R/AHM(2)	36,662	36,662	—	—
Trade and other receivables	**7**	**L&R**	**587,082**	**587,082**	**—**	**—**
Derivatives—assets	**8**					
Hedging financial instruments		CFH	5,126	—	5,126	—
Hedging financial instruments(f)		A-FVTPL	15,215			15,215
Speculative financial instruments		A-FVTPL	—	—	—	—
Other current assets	**9**	**L&R**	**307,474**	**307,474**	**—**	**—**
Cash and cash equivalents	**10**	**A-FVTPL**	**630,540**	**—**	**—**	**630,540**
LIABILITIES						
Bank loans and other borrowings(c)(e)	**16**	**AC-EIR**	**238,010**	**238,010**	**—**	**—**
Others	**16**	**AC-EIR**	**229,873**	**229,873**	**—**	**—**
Finance leases	**16**	**AC-EIR**	**78,017**	**78,017**	**—**	**—**
Bond issue	**16**	**AC-EIR**	**1,597,916**	**1,597,916**	**—**	**—**
Overdrafts and other short-term borrowings(d)(e)	**16**	**AC-EIR**	**5,981**	**5,981**	**—**	**—**
Trade and other payables		**AC**	**523,476**	**523,476**	**—**	**—**
Derivatives—liabilities	**8**					
Hedging financial instruments		CFH	45,833	—	45,833	—
Hedging financial instruments(f)		L-FVTPL	106,596	—	—	106,596
Speculative financial instruments		L-FVTPL	—	—	—	
Other current liabilities	**20**	**AC**	**332,854**	**332,854**	**—**	**—**

(a) A-FVTPL—Financial assets measured at fair value through profit or loss
AHM—Assets held to maturity
L&R—Loans and receivables
AFS—Available-for-sale financial assets
CFH—Cash flow hedges
L-FVTPL—Financial liabilities measured at fair value through profit or loss
AC—Amortized cost
AC-EIR—Amortized cost according to the effective interest rate method

(b) In the Group, the only assets in this category are security deposits and guarantees.

(c) Borrowings classified within non-current liabilities maturing in more than 12 months.

(d) Borrowings that must be repaid within 12 months are classified as current liabilities.

(e) Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity to the extent of their effectiveness. Otherwise, they are recognized under financial income.

(f) Including the Value 11, Value 12, Value 13, Value 14 and Value 15 warrants, whose fair value as at 31 December 2015 was €1.6 million.

NOTE 8 Financial instruments (Continued)

Financial instruments measured at fair value are classified by category on the basis of their measurement method. Fair value is measured:

(A) mainly based on quoted prices on an active market; equity securities are valued this way;

(B) on the basis of observable methods and data and with reference to the financial markets (yield curve, forward prices, etc.).

2015 Statement of financial position headings and classes of instruments	Category	Total fair value on statement of financial position	Fair value		
			Listed prices (A)	Internal model with observable inputs (B)	Internal model with unobservable inputs
ASSETS					
Listed equity interests	AFS	63,939	63,939	—	—
Other equity interests	AFS	3,227	—	3,227	—
Derivatives—assets					
Hedging financial instruments	CFH	5,126	—	5,126	—
Speculative financial instruments	L-FVTPL	—	—	—	—
Cash and cash equivalents	**A-FVTPL**	**630,540**	**630,540**	**—**	**—**
LIABILITIES					
Derivatives—liabilities					
Hedging financial instruments	CFH	152,429	—	152,429	—
Speculative financial instruments	L-FVTPL		—	—	—

NOTE 9 Other current assets

	Employee-related receivables and recoverable payroll taxes	Tax receivables excluding income tax	Prepaid expenses	Government, income tax	Other receivables	Total
As at 31/12/2014	**5,951**	**105,667**	**50,609**	**44,458**	**136,470**	**343,155**
Impact of changes in exchange rates	(730)	(11,936)	(1,370)	(8,843)	(14,267)	(37,146)
Provision allowances or reversals	—	—	—	—	(1,495)	(1,495)
Reclassification to assets held for sale and discontinued operations	(60)	(508)	(295)	(253)	(1,975)	(3,091)
Other changes	(1,232)	(15,370)	779	17,741	4,133	6,051
As at 31/12/2015	**3,929**	**77,853**	**49,723**	**53,103**	**122,866**	**307,474**
Impact of changes in exchange rates	436	10,232	2,804	6,636	11,320	31,428
Provision allowances or reversals	—	—	—	—	4,110	4,110
Acquisitions from business combinations (see Note 34)	85	29,635	3,173	10,479	79,790	123,162
Disposals from business combinations	(48)	(16,596)	(1,776)	(5,868)	(28,834)	(53,122)
Reclassification to assets held for sale and discontinued operations	(139)	(801)	(718)	—	—	(1,658)
Other changes	592	11,233	(2,183)	(25,697)	(112,320)	(128,375)
AS AT 31/12/2016	**4,855**	**111,556**	**51,023**	**38,653**	**76,932**	**283,019**

The decrease in the "Other changes" item is explained by the elimination of the 44% share in the receivables with VSB at the end of 2016.

NOTE 10 Cash and cash equivalents

	Investment securities (gross)	Cash and cash equivalents	Total
As at 31/12/2014	**806,485**	**340,428**	**1,146,913**
Impact of changes in exchange rates	(61,317)	8,885	(52,432)
Reclassification to assets held for sale and discontinued operations	—	(4,000)	(4,000)
Other changes	(284,642)	(175,299)	(459,941)
As at 31/12/2015	**460,526**	**170,014**	**630,540**
Impact of changes in exchange rates	50,408	(5,856)	44,552
Reclassification to assets held for sale and discontinued operations	—	(4,646)	(4,646)
Acquisitions from business combinations (see Note 34)	47,871	6,953	54,824
Disposals from business combinations	(25,921)	(688)	(26,609)
Other changes	417,592	170,469	588,061
AS AT 31/12/2016	**950,476**	**336,246**	**1,286,722**

NOTE 10 Cash and cash equivalents (Continued)

Cash and cash equivalents" comprises cash in bank current accounts and investment securities (shares in short-term cash UCITS and mutual and investment funds) that are immediately available (not pledged), risk-free and have a low volatility level.

NOTE 11 Assets held for sale and discontinued operations

Net values	31/12/2015	31/12/2016
Assets held for sale and discontinued operations	68,964	46,327
Liabilities held for sale and discontinued operations	(60,135)	(43,211)
NET CARRYING AMOUNT OF ASSETS / LIABILITIES HELD FOR SALE	**8,829**	**3,116**

These assets and liabilities are as follows:

	31/12/2015	31/12/2016
Non-current assets	40,360	19,505
Current assets	80,608	26,822
Non-current liabilities	(2,107)	(3,232)
Current liabilities	(58,028)	(39,979)
Impairment of assets	(52,004)	—
NET CARRYING AMOUNT OF ASSETS / LIABILITIES HELD FOR SALE	**8,829**	**3,116**

On 29 April 2016, Vallourec completed the sale of its subsidiary Vallourec Heat Exchanger Tubes (VHET), classified under assets held for sale at the end of 2015, to American Industrial Acquisition Corporation (AIAC).

On 21 July 2016, Vallourec announced that it had entered into exclusive negotiations with the Ascometal Group with a view to selling it a majority interest in the steel mill at Saint-Saulve.

Vallourec and Asco Industries completed the acquisition on 26 January 2017 by the latter of a majority interest in the steel mill at Saint-Saulve.

Accordingly, these assets are presented under assets held for sale at the end of December 2016.

NOTE 12 Change in operating working capital requirements

Gross values	31/12/2015	Translation difference	Change	Changes in consolidation scope, reclassifications and other	31/12/2016
Inventories	1,234,047	54,031	(168,198)	120,632	1,240,512
Trade receivables	599,719	24,459	(123,403)	78,393	579,168
Trade payables	(523,476)	(8,235)	84,172	(82,852)	(530,391)
Other receivables and payables	7,306	28,826	5,281	41,265	82,678
Gross working capital (1)	**1,317,596**	**99,081**	**(202,148)**	**157,438**	**1,371,967**
Impact of hedging instruments (2)			**22,517**		
TOTAL (1) + (2)			**(179,631)**		
Change in working capital in the statement of cash flows			179,631		

NOTE 13 Equity

Capital

Vallourec's issued capital is comprised of 451,238,005 ordinary shares with a nominal value of €2 per share, fully paid-up, compared with 135,688,432 as at 31 December 2015.

2016

On 3 May 2016, Vallourec increased its capital maintaining shareholders' preferential subscription right for a gross amount of €480 million, resulting in the creation of 217,101,488 new shares. This capital increase, combined with the reserved issuance of mandatory convertible bonds for a gross amount of €514 million subscribed by Bpifrance Participations SA and Nippon Steel & Sumitomo Metal Corporation, enabled Vallourec to complete the overall capital increase for a net amount of €951 million.

Upon the issuance of the capital increase maintaining shareholders' preferential subscription right and redemption of the bonds on 3 May 2016 for BPI and on 20 June 2016 for NSSMC, the capital stands at 444,638,049 ordinary shares with a par value of €2 each (compared to 135,688,432 as at 31 December 2015).

On 14 December 2016, under the Value 16 employee share ownership plan 6,599,956 new shares were subscribed at a price of €3.99 for the leveraged plan and €3.75 for the standard plan, for a capital increase of €25.9 million, including issue premium net of expenses.

2015

On 25 June 2015, the option for payment of the dividend in shares, approved by the Ordinary and Extraordinary Shareholders' Meeting of 28 May 2015, resulted in the creation of 3,090,460 new shares issued at the price of €19.40, for a capital increase of €59.9 million, including additional paid-in capital net of expenses.

On 15 December 2015, under the Value 15 employee share ownership plan 1,999,997 new shares were subscribed at a price of €8.83 for the leveraged plan and €8.32 for the standard plan, for a capital increase of €17.3 million, including issue premium net of expenses.

Reserves, financial instruments

Under IAS 39 Financial Instruments, postings to this reserve account are made for two types of transaction:

- effective currency hedges assigned to the order book and commercial tenders. Changes in the intrinsic values at the year-end are recognized in equity;
- variable rate borrowings for which interest rate swaps (fixed rate) have been contracted. These are accounted for in accordance with the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity.

Foreign currency translation reserve

This reserve arises as a result of the translation of the equity of subsidiaries outside the euro zone. The change in the reserve corresponds to fluctuations in exchange rates used to translate the equity and net

NOTE 13 Equity (Continued)

profit of these subsidiaries. Components of the reserve are reversed to income only in the case of a partial or total disposal and loss of control of the foreign entity.

	USD	GBP	Brazilian real (BRL)	Chinese yuan (CNY)	Others	Total
As at 31/12/2014	**158,184**	**(8,728)**	**(479,818)**	**50,497**	**(7,839)**	**(287,704)**
Change	162,784	2,939	(383,881)	7,976	(2,689)	(212,871)
As at 31/12/2015	**320,968**	**(5,789)**	**(863,699)**	**58,473**	**(10,528)**	**(500,575)**
Change	22,910	(5,794)	334,002	(24,197)	(2,920)	324,001
AS AT 31/12/2016	**343,878**	**(11,583)**	**(529,697)**	**34,276**	**(13,448)**	**(176,574)**

Main exchange rates used (euro/currency): translation of balance sheet items (closing rate) and income statement items (average rate)

For €1.00	USD	GBP	Brazilian real (BRL)	Chinese yuan (CNY)
2015				
Average rate	1.11	0.73	3.70	6.97
Reporting date rate	1.09	0.73	4.31	7.06
2016				
Average rate	1.11	0.82	3.86	7.35
Reporting date rate	1.05	0.86	3.43	7.32

NOTE 14 Earnings per share

Basic earnings per share are calculated by dividing the net income for the year attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding in the same period.

Diluted earnings per share are calculated by dividing the net income for the year attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding in the same period, adjusted for the dilution effect of options.

Details of the earnings and numbers of shares used to calculate basic and diluted earnings per share are presented below:

Earnings per share	2015	2016
Net income (loss) attributable to ordinary shareholders for basic earnings per share	**(864,753)**	**(758,016)**
Weighted average number of ordinary shares for basic earnings per share	130,613,382	332,737,362
Weighted average number of treasury shares for basic earnings per share	(486,826)	(2,279,971)
Weighted average number of shares for earnings per share	130,126,556	330,457,391
EARNINGS PER SHARE *(in €)*	**(6.6)**	**(2.3)**
Earnings per share comparable to 2016 *(in €)*	(6.6)	
Dilution effect—stock purchase and subscription options and performance shares	—	155,548
Weighted average number of ordinary shares for diluted earnings per share	130,126,556	330,612,939
DILUTED EARNINGS PER SHARE *(in €)*	**(6.6)**	**(2.3)**
Earnings per share comparable to 2016 *(in €)*	(6.6)	

Dividends paid during the year:	2015	2016
• for the previous fiscal year *(in €)*	0.81	
• interim dividend for the current fiscal year *(in €)*	—	—

NOTE 15 Non-controlling interests

	Reserves	Translation difference	Net income/ (loss)	Total
As at 31/12/2015	350,393	74,749	(33,201)	391,941
AS AT 31/12/2016	**450,892**	**93,070**	**(49,530)**	**494,432**

Contribution at reporting date	As at 31/12/2015	As at 31/12/2016
Main American entities[(a)]	368,447	330,144
Others	23,494	164,288
TOTAL	**391,941**	**494,432**

(a) Non-controlling interests are primarily held by Sumitomo Corp. and Nippon Steel Sumitomo Metal Corp.

The increase in 2016 of non-controlling interests is explained by the changes in the scope of consolidation described in Section 6.1.7.B, chiefly concerning VSB and Serimax.

Contributions to net income	As at 31/12/2015	As at 31/12/2016
Main American entities[(a)]	(28,701)	(48,404)
Others	(4,500)	(1,126)
TOTAL	**(33,201)**	**(49,530)**

(a) Non-controlling interests are primarily held by Sumitomo Corp. and Nippon Steel Sumitomo Metal Corp.

The amounts presented are the amounts which appear in the financial statements for wholly-owned entities, which were prepared in accordance with IFRS, upon fair value adjustments made at the time of acquisition, and adjustments for standardization with the Group's accounting principles.

Main American entities	As at 31/12/2015	As at 31/12/2016
Current assets	217,372	222,682
Non-current assets	1,694,943	1,632,387
Current liabilities	251,636	393,127
Non-current liabilities	222,366	191,400
NET ASSETS	**1,438,313**	**1,270,542**
Non-controlling interests	368,447	330,144
Revenue	671,788	426,730
Net income	(148,385)	(207,413)
Other comprehensive income (loss)	153,564	28,079
TOTAL COMPREHENSIVE INCOME	**5,179**	**(179,334)**
Net income attributable to non-controlling interests	(28,701)	(48,404)
Other items of comprehensive income attributable to non-controlling interests	39,004	10,438
Cash flow from operating activities	85,137	(52,381)
Cash flow used in investing activities	(61,474)	(16,045)
Cash flow from (used in) financing activities	(113,209)	(36,393)
Impact of changes in exchange rates	(10,958)	(7,624)
NET CASH FLOWS	**(100,504)**	**(112,443)**

NOTE 16 Bank loans and other borrowings

Liquidity risk

The Group's financial resources are composed of bank financing and market financing.

The majority of long-term and medium-term bank financing has been put in place in Europe through Vallourec and its sub-holding company Vallourec Tubes and, to a lesser extent, via the subsidiaries in Brazil and the United States (see below).

Market financing is arranged exclusively by Vallourec.

In Europe

In February 2014, Vallourec took out a multi-currency revolving credit facility for an amount of €1.1 billion, maturing in February 2019, plus two one-year extension options. In addition to the first one-year extension obtained for €1.078 billion, the second extension was granted in July 2016 for the sum of €989 million and maturity rescheduled for 2021. This credit line is available for the Group's general funding purposes. As at 31 December 2016 this line had not been drawn.

In June 2015, Vallourec agreed a bilateral line of €90 million until February 2019 with two one-year extension options, which were granted in July 2016. As at 31 December 2016 this line had not been drawn.

In September 2015, Vallourec took out a revolving credit facility for €400 million, maturing in July 2019, with a one-year extension option which was granted in July 2016 for the full amount, and maturity rescheduled for 2020. This replaces four medium-term bilateral lines of €100 million each granted to Vallourec Tubes and maturing in July 2017. As at 31 December 2016 this line had not been drawn.

In May 2016, Vallourec took out a revolving credit line for €450 million maturing in February 2020. As at 31 December 2016 this line had not been drawn.

In addition to the financing put in place by Vallourec, Vallourec Tubes has available two medium-term bilateral lines of €100 million each, maturing in July 2017. As at 31 December 2016, neither of these two lines was drawn.

Each of these bank facilities requires Vallourec to maintain its consolidated net debt-to-equity ratio at no more than 75%, calculated as at 31 December each year. A change in control of Vallourec could require the repayment of some or all of the debt, which would be decided separately by each bank. It is also stipulated that the entire debt will be immediately due and payable if the Group defaults on one of its debt obligations (cross default), or in case of a major event with consequences for the Group's business or financial position and its ability to repay its debt.

In addition to bank financing, the Group has sought to diversify its funding sources by using market financing. For example, Vallourec launched a commercial paper program on 12 October 2011 to meet its short-term needs. The program has a €1 billion ceiling.

At 31 December 2016, Vallourec had an outstanding debt of €307.2 million for maturities of up to one year. This commercial paper program was rated B by Standard & Poor's.

On 7 December 2011, Vallourec issued a €650 million bond maturing in February 2017, with a fixed annual coupon of 4.25%.

In August 2012, Vallourec also issued two long-term private bonds totaling €455 million. The amounts and terms of these two private bond issues are €400 million for seven years with an annual coupon of 3.25% for one, and €55 million for 15 years with an annual coupon of 4.125%.

On 30 September 2014, Vallourec issued a €500 million bond, maturing in September 2024, with a fixed annual coupon of 2.25%.

The market values of these fixed-rate bonds issues are €651.8 million, €416.2 million, €63 million and €530.2 million, respectively.

NOTE 16 Bank loans and other borrowings (Continued)

These bond issues were intended to diversify and increase the amount and extend the maturity of the financial resources available to the Group.

These bond issues specifically include a change-of-control clause that would trigger the mandatory prepayment of the bonds at the request of each bondholder in the event of a change of control of the Company (in favor of a person or a group of people acting in concert) leading to a downgrade of Vallourec's financial rating.

In addition, these bonds may be subject to a request for prepayment should any of the common default scenarios for this type of transaction arise. Early redemption may also be requested in some cases by either the Company or the bondholder, particularly in respect of a change in Vallourec's position or tax status.

As at 31 December 2016, the Group complied with its covenants and the terms and conditions for obtaining and maintaining all of the above facilities. Together, the above resources were sufficient to cover the Group's cash requirements as at 31 December 2016.

In Brazil

In December 2009, Vallourec Soluções Tubulares do Brasil (formerly VSB), contracted a loan of BRL 448.8 million from BNDES (Banco Nacional de Desenvolvimento Econômico e Social). This fixed-rate loan at 4.5% is denominated in Brazilian reals and has a term of eight years. It is amortizable from 15 February 2012. As at 31 December 2016, BRL 56.9 million of this loan had been drawn.

In 2010, this same company in Brazil concluded a finance lease with a nominal value of BRL 570 million relating to equipment needed to operate the plant at Jeceaba. As at 31 December 2016, the residual amount outstanding on this finance lease was BRL 323.3 million.

In the United States

The Group's US companies have a set of bilateral bank lines that were renewed in 2016 for a total of USD 80 million. The amount used as at 31 December 2016 totaled USD 80 million. These under 12 month facilities include clauses relating to the debt of each of the companies involved and a change of control clause.

In 2013, Vallourec Star set up a finance lease with a nominal value of USD 64.3 million and a final maturity of five years. As at 31 December 2016, the residual amount outstanding on this finance lease was USD 35.9 million.

NOTE 16 Bank loans and other borrowings (Continued)

Financial liabilities—Non-current liabilities

	Bank borrowings	Finance leases	Bond issue	Other borrowings	Total
As at 31/12/2014	**84,303**	**101,575**	**1,595,662**	**333**	**1,781,873**
New debt	22,002	—	2,254	7,556	31,812
Repayments	(4,544)	(12,329)	—	(3,463)	(20,336)
Impact of changes in exchange rates	(23,057)	(11,034)	—	2,936	(31,155)
Other changes	—	(195)	—	956	761
As at 31/12/2015	**78,704**	**78,017**	**1,597,916**	**8,318**	**1,762,955**
New debt	—	—	942	—	942
Repayments	(39,526)	(13,834)	—	(232)	(53,592)
Impact of changes in exchange rates	15,075	12,833	—	(10,289)	17,619
Current/non-current reclassifications	—	—	(648,485)	(21)	(648,506)
Acquisitions from business combinations (see Note 34)	4,865	81,853	—	(4,527)	82,191
Disposals from business combinations	(2,724)	(45,838)	—	7,761	(40,801)
Other changes	—	—	—	(160)	(160)
AS AT 31/12/2016	**56,394**	**113,031**	**950,373**	**850**	**1,120,648**

Financial liabilities—Current liabilities

	Bank overdrafts	Bond issues	Bank borrowings (< 1 year)	Accrued interest not yet due on bank borrowings	Other financial liabilities (< 1 year)	Total
As at 31/12/2014	**38,195**	**—**	**234,481**	**33,656**	**605,302**	**911,634**
Impact of changes in exchange rates	2,503	—	(5,867)	22	(50,144)	(53,486)
Reclassification to assets held for sale and discontinued operations	—	—	(1)	—	—	(1)
Other changes	(34,717)	—	(69,307)	(306)	(366,975)	(471,305)
As at 31/12/2015	**5,981**	**—**	**159,306**	**33,372**	**188,183**	**386,842**
Current/non-current reclassifications	—	648,485	—	(3)	21	648,503
Impact of changes in exchange rates	41	—	15,751	—	44,939	60,731
Acquisitions from business combinations (see Note 34)	—	—	49,085	—	250,683	299,768
Disposals from business combinations	—	—	(27,487)	—	(144,109)	(171,596)
Other changes	3,586	1,343	(38,493)	74	262,338	228,848
AS AT 31/12/2016	**9,608**	**649,828**	**158,162**	**33,443**	**602,055**	**1,453,096**

Debt by currency

	USD	EUR	BRL	Others	Total
As at 31/12/2015—in thousands of currency unit	261,770	1,715,789	739,043	n/a	n/a
As at 31/12/2015—in € thousand	240,443	1,715,789	171,404	22,161	2,149,797
As at 31/12/2016—in thousands of currency unit	**448,869**	**1,948,186**	**604,012**	**n/a**	**n/a**
AS AT 31/12/2016—IN € THOUSANDS	**425,832**	**1,948,186**	**176,071**	**23,655**	**2,573,744**

NOTE 16 Bank loans and other borrowings (Continued)

Breakdown by maturity of non-current loans and other financial liabilities (> 1 year)

	> 1 year	> 2 years	> 3 years	> 4 years	5 years or more	Total
As at 31/12/2015	**702,822**	**42,682**	**412,558**	**14,078**	**590,815**	**1,762,955**
Finance leases	37,017	10,606	10,636	10,672	44,101	113,032
Other non-current borrowings	16,979	411,006	12,387	3,991	563,253	1,007,616
AS AT 31/12/2016	**53,996**	**421,612**	**23,023**	**14,663**	**607,354**	**1,120,648**

Breakdown by maturity of current loans and other financial liabilities

2016	< 3 months	> 3 months and < 1 year	Total
Non-convertible bond issues	649,828	—	649,828
Bank borrowings	18,747	139,415	158,162
Other borrowings	286,053	297,715	583,768
Finance lease liabilities	1,924	16,363	18,287
Accrued interest on borrowings	24,463	8,980	33,443
Bank overdrafts (negative cash and cash equivalents)	9,606	2	9,608
AS AT 31/12/2016	**990,621**	**462,475**	**1,453,096**

Debt by interest rate

The following table groups the current and non-current portions of bank and other borrowings.

	Rate < 3%	Rate 3 to 6%	Rate 6 to 10%	Rate > 10%	Total
As at 31/12/2015					
Fixed rate on date granted	673,482	1,240,592	76,195	—	1,990,269
Variable rate on date granted swapped to fixed rate	—	—	—	—	—
Fixed rate	673,482	1,240,592	76,195	—	1,990,269
Variable rate	129,978	2,232	22,001	5,317	159,528
TOTAL	**803,460**	**1,242,824**	**98,196**	**5,317**	**2,149,797**
As at 31/12/2016					
Fixed rate on date granted	814,145	1,481,302	12,521	18,316	2,326,284
Variable rate on date granted swapped to fixed rate	—	—	—	—	—
Fixed rate	814,145	1,481,302	12,521	18,316	2,326,284
Variable rate	2,256	127,123	116,051	2,030	247,460
TOTAL	**816,401**	**1,608,425**	**128,572**	**20,346**	**2,573,744**

Debt contracted at a rate higher than 6% relates to companies based in Brazil.

Debt at a fixed rate of less than 3% on the date granted relates mainly to commercial paper and to the €500 million bond issue.

NOTE 17 Provisions

Non-current liabilities	Provisions for environmental risks	Reorganization measures	Tax risks (income and other taxes, inspections, etc.)	Others	Total
As at 31/12/2014	**13,437**	**—**	**—**	**—**	**13,437**
Provisions for the period	752	—	—	—	752
Provisions used	—	—	—	—	—
Impact of changes in exchange rates	(3,452)	—	—	—	(3,452)
Others	(222)	—	—	—	(222)
As at 31/12/2015	**10,515**	**—**	**—**	**—**	**10,515**
Provisions for the period	629	13,988	14,222	6,451	35,290
Provisions used	(8)	(3,034)	(2,935)	(5,301)	(11,278)
Impact of changes in exchange rates	2,921	89	8,041	497	11,548
Acquisitions from business combinations (see Note 34)	—	—	—	2,780	2,780
Disposals from business combinations	—	—	—	(477)	(477)
Current/non-current reclassifications	—	11,000	25,512	9,172	45,684
Other changes	1,323	140	929	(766)	1,626
AS AT 31/12/2016	**15,380**	**22,183**	**45,769**	**12,356**	**95,688**

Provisions for use in over one year (e.g., provisions for tax disputes in Brazil) were reclassified as non-current.

Provisions for environmental risks

The environment provision covers the cost of treating industrial land, as well as the clean-up costs for the mine in Brazil: amounts are provided as and when minerals are extracted, based on the volumes extracted.

Provision for tax risks

This provision mainly relates to risks in connection with tax disputes in Brazil, some of which are covered by security deposits (see Note 4).

Current liabilities	Disputes and commercial commitments	Unfilled orders—losses on completion	Reorganization measures	Tax risks (income and other taxes, inspections, etc.)	Others	Total
As at 31/12/2014	**41,602**	**27,559**	**22,265**	**34,481**	**37,089**	**162,996**
Provisions for the period	32,478	61,783	73,453	11,926	15,881	195,521
Provisions used	(24,255)	(27,559)	(13,063)	(4,770)	(10,422)	(80,069)
Other reversals	(6,880)	—	(949)	(7,308)	(6,216)	(21,353)
Impact of changes in exchange rates	(5,073)	(258)	(3)	(8,605)	(7,130)	(21,069)
Reclassification to liabilities held for sale and discontinued operations	(451)	(390)	—	—	(104)	(945)
Changes in scope and other	—	(275)	(583)	19	3,865	3,026
As at 31/12/2015	**37,421**	**60,860**	**81,120**	**25,743**	**32,963**	**238,107**
Provisions for the period	37,566	65,912	98,336	75	20,499	222,388
Provisions used	(22,607)	(20,429)	(34,965)	(10)	(28,958)	(106,969)
Other reversals	(4,719)	(2,433)	—	—	—	(7,152)
Impact of changes in exchange rates	5,109	2,592	(168)	(1)	5,845	13,377
Acquisitions from business combinations (see Note 34)	—	22,497	—	—	1,067	23,564
Disposals from business combinations	—	—	—	—	(598)	(598)
Reclassification to liabilities held for sale and discontinued operations	—	—	(26,000)	—	(40)	(26,040)
Current/non-current reclassifications	(3,673)	(32)	(11,000)	(25,512)	(5,467)	(45,684)
Other changes	112	(20,657)	(20,569)	—	10,417	(30,697)
AS AT 31/12/2016	**49,209**	**108,310**	**86,754**	**295**	**35,728**	**280,296**

NOTE 17 Provisions (Continued)

Provisions for disputes, commercial commitments and losses on unfilled orders

Provisions are booked with regard to disputes if the Group has an obligation to a third party at the reporting date. They are determined based on the best estimate of the expense likely to be required to settle the obligation.

Provisions for adaptation and restructuring measures

The provisions for adaptation and restructuring measures cover the estimated costs of the plans announced in 2015 and 2016, mainly concerning Europe. They include the following costs:

- redundancy and end-of-contract compensation paid to personnel no longer required by the company;
- costs of maintaining personnel after the shutdown of operations and until the site closure (compensation for unworked notice periods, for example);
- contract termination compensation paid to suppliers;
- outstanding rents payable after the shutdown of operations until the end of the rental agreement.

Other current provisions

This item comprises various provisions with regard to customer discounts, late-payment penalties and other risks identified at the reporting date, with none being individually material.

Contingent liabilities

In connection with investigations by Brazilian authorities relating to procedures involving Petrobras and targeting its tube suppliers, V&M do Brasil S.A. was cited in the decision of a federal judge dated 19 May 2016. This decision provided for authorities to visit the facilities of certain tube suppliers for purposes of collecting evidence. V&M do Brasil S.A. was not one of the suppliers that was visited. The company is offering its cooperation with judicial authorities in connection with the pursuit of these investigations. No provision has been constituted in relation to this matter.

For 2016 and 2015, actual annual greenhouse gas emissions were lower than the allowance granted by the French government, so no provisions were booked in this regard.

NOTE 18 Other long-term liabilities

Other long-term liabilities	
As at 31/12/2014	**215,426**
Impact of changes in exchange rates	(32,902)
Other changes	(150,793)
As at 31/12/2015	**31,731**
Impact of changes in exchange rates	4,637
Other changes	(10,656)
AS AT 31/12/2016	**25,712**

Other long-term liabilities are primarily composed of other non-operating liabilities of more than one year and a €165 million shareholder loan granted on 31 December 2014 to Vallourec & Sumitomo Tubos do Brasil, a joint operation. In 2015, the impact of the application of the Amendment to IFRS 11 translated to a €165 million drop in long-term liabilities, offset by non-current assets, which declined by the same amount (see Note 4).

NOTE 19 Employee benefit commitments

	Germany	France	United Kingdom	Others	Total
As at 31/12/2015					
Present value of the obligation	**289,596**	**54,246**	**140,527**	**85,336**	**569,705**
Retirement benefits	251,294	51,929	140,527	80,657	524,407
Early retirement commitments	23,068	—	—	—	23,068
Long-service awards and medical benefits	15,234	2,317	—	4,679	22,230
Fair value of plan assets	(151,402)	(7,875)	(156,572)	(29,379)	(345,228)
NET LIABILITY	**138,194**	**46,371**	**(16,045)**	**55,957**	**224,477**
As at 31/12/2016					
Present value of the obligation	**315,841**	**38,251**	**135,041**	**94,818**	**583,951**
Retirement benefits	260,016	36,657	135,041	70,723	502,437
Early retirement commitments	39,765	—	—	—	39,765
Long-service awards and medical benefits	16,060	1,594	—	24,095	41,749
Fair value of plan assets	(166,984)	(8,022)	(148,517)	(33,665)	(357,188)
NET LIABILITY	**148,857**	**30,229**	**(13,476)**	**61,153**	**226,763**

The main actuarial assumptions used for the measurement of post-employment benefit obligations, taking account of the plans' durations, are as follows:

Main actuarial assumptions	Germany	France	United Kingdom	Others
As at 31/12/2015				
Discount rate	2.10%	2.10%	3.80%	from 4.35% to 17.95%
Actual return on plan assets	2.10%	2.10%	3.80%	from 4.35% to 17.95%
Salary increase rate	2.00%	1.30%	3.35%	from 3% to 11.5%
As at 31/12/2016				
Discount rate	1.55%	1.55%	2.70%	from 4.15% to 10.39%
Long-term return on plan assets	1.55%	1.55%	2.70%	from 4.15% to 10.39%
Salary increase rate	2.00%	1.40%	3.50%	from 3% to 10%

Commitments are valued by independent actuaries. The assumptions used take account of the specific characteristics of the plans and companies concerned.

Experience gains and losses in 2016 generated €9.7 million in gains for the Group (against €9.5 million in gains in 2015).

In 2017, the Group expects to pay €34.1 million of benefits under defined benefit plans, including €21.9 million in Germany, €5.7 million in the United Kingdom, €2.1 million in France and €2.5 million in Brazil.

Plans that are fully or partially outsourced represented a total obligation of €501 million at 31 December 2016 for assets of €357 million.

In the euro zone, the discount rate is based on the iBoxx index (AA-rated corporate bonds with a maturity of 10 or more years, estimated on the date the obligations are valued). This index uses a basket of bonds of financial and non-financial companies. The rates have not been restated to reflect credit risk not factored into the selected bond baskets.

Actual returns on plan assets exceeded estimates by €28 million. In 2016, a general drop in discount rates resulted in an overall increase in liabilities, generating actuarial losses for the year of €48.6 million.

Over the course of the year, the Group carried out restructuring plans that affected employee benefit commitments, particularly in France and Germany.

NOTE 19 Employee benefit commitments (Continued)

France

Obligations in France correspond to retirement benefits, supplemental pension plans and long-service award-type benefits.

On 31 December 2016 a sensitivity test to the discount rate was performed: a 1% variation of this rate would result in a change of about €3.9 million in these commitments.

On 14 September 2005, a supplemental pension plan with its own plan assets was set up for executive management. The plan is partially outsourced to an insurance company. Since it is a defined benefit plan, it is valued on an actuarial basis and recognized in accordance with revised IAS 19 in the case of active employees.

During the fiscal year, the plan was closed and the benefits frozen, resulting in a €4.9 million reduction in commitment.

As at 31 December 2016, the obligation represents €11.5 million for assets of €7.8 million.

The restructuring plan in France reduced commitments by €10.5 million.

Germany

The Group's employees in Germany benefit from a variety of mechanisms (retirement benefits, deferred compensation, long-service awards and early retirement), which constitute long-term obligations for the Group.

On 31 December 2016 a sensitivity test to the discount rate was performed: a 1% variation of this rate would result in a change of about €30.9 million in these commitments.

The restructuring plan has increased commitments by €16.6 million (early retirement).

United Kingdom

The Group helps fund a defined benefit pension plan for Group employees. The obligations are outsourced and managed by leading institutions in the financial markets.

On 31 December 2016 a sensitivity test to the discount rate was performed: a 1% variation of this rate would result in a change of about €24.8 million in these commitments.

Brazil

In Brazil, employers help to fund termination benefits and long-service awards. Retirement benefits are partially outsourced in a pension fund with total assets of €1.1 million in 2016 (vs. €0.4 million in 2015). A €0.8 million contribution was paid (€0.4 million in 2015).

Mexico

Obligations in Mexico are not material for the Group.

USA

The assumption for increased medical benefits is regressive from 2016 to 2021: from 6.0% to 4.0% for workers and retirees.

There were no significant events during 2016 that could have a material impact on the obligation.

Other countries

Provisions are made for obligations in other countries in accordance with local standards. They are not considered material at Group level.

NOTE 19 Employee benefit commitments (Continued)

Expenses incurred during the year include the additional rights acquired for an additional year of service, the change in existing rights at the beginning of the year due to discounting, past service costs recorded in the period, the actual return on plan assets, the effects of plan reductions or liquidations and the amortization of actuarial gains and losses. The portion relating to the discounting of rights is recognized in financial income/ (loss) and the return on plan assets is recorded in investment income. These expenses are broken down as follows:

Expenses for the fiscal year

In € thousands	Germany	France	United Kingdom	Others	Total
As at 31/12/2016					
Current service cost	9,336	2,173	2,719	3,529	17,757
Interest expense	5,882	923	4,682	6,481	17,968
Actual return on plan assets	(3,179)	(165)	(5,295)	(1,293)	(9,932)
Net actuarial losses/(gains) for the year	2,612	45	—	1,145	3,802
Cost of past services[(a)]	—	(4,922)	—	(4,680)	(9,602)
Impact of any reduction or liquidation[(b)]	16,388	(10,556)	1,073	(3,677)	3,228
NET EXPENSE	**31,039**	**(12,502)**	**3,179**	**1,505**	**23,221**
ACTUAL RETURN ON PLAN ASSETS	**7,617**	**147**	**28,289**	**1,884**	**37,937**

(a) In France, corresponds to the closing and freezing of the 2005 supplemental pension plan for executive management.

(b) Primarily consists of the restructurings in France (reduction of the obligation in return for the creation of a restructuring provision) and in Germany (increase in the early retirement plan).

In € thousands	Germany	France	United Kingdom	Others	Total
As at 31/12/2015					
Current service cost	8,114	3,734	3,862	4,208	19,918
Interest expense	4,662	948	5,515	5,676	16,801
Actual return on plan assets	(2,502)	(135)	(5,502)	(1,284)	(9,423)
Net actuarial losses/(gains) for the year	4,027	(69)	—	(505)	3,453
Cost of past services	(3,065)	41	—	(702)	(3,726)
Impact of any reduction or liquidation	11,190	(2,169)	—	(465)	8,556
NET EXPENSE	**22,426**	**2,350**	**3,875**	**6,928**	**35,579**
ACTUAL RETURN ON PLAN ASSETS	**2,038**	**169**	**437**	**(518)**	**2,126**

NOTE 19 Employee benefit commitments (Continued)

The changes in assets associated with these benefits are as follows:

Changes in related assets	Germany	France	United Kingdom	Others	Total
As at 31/12/2014	**147,164**	**7,706**	**149,691**	**28,058**	**332,619**
Value of assets	147,164	7,706	149,691	28,058	332,619
Actual return on assets	2,038	169	437	(518)	2,126
Contributions	2,200	—	6,100	590	8,890
Benefits paid	—	—	(8,837)	(1,381)	(10,218)
Acquisitions, disposals, liquidations	—	—	—	(225)	(225)
Impact of changes in exchange rates	—	—	9,181	2,855	12,036
As at 31/12/2015	**151,402**	**7,875**	**156,572**	**29,379**	**345,228**
Value of assets	151,402	7,875	156,572	29,379	345,228
Actual return on assets	7,617	147	28,289	1,884	37,937
Contributions	7,965	—	5,514	2,827	16,306
Benefits paid	—	—	(18,872)	(1,413)	(20,285)
Acquisitions, disposals, liquidations	—	—	—	97	97
Impact of changes in exchange rates	—	—	(22,986)	891	(22,095)
AS AT 31/12/2016	**166,984**	**8,022**	**148,517**	**33,665**	**357,188**

Changes in the obligation	Germany	France	United Kingdom	Others	Total
As at 31/12/2014	**282,228**	**57,275**	**153,075**	**84,323**	**576,901**
Current service cost	8,114	3,784	3,862	4,208	19,968
Interest expense	4,662	973	5,515	5,676	16,826
Employee contributions	—	—	751	79	830
Actuarial losses (+)/gains (−) generated during the year	—	—	—	—	—
Remeasurement:					
• Experience-related adjustments	14,718	(612)	(6,290)	1,699	9,515
• Actuarial gains and losses arising from changes in demographic assumptions	(460)	—	(1,455)	(966)	(2,881)
• Actuarial gains and losses arising from changes in financial assumptions	(12,187)	(206)	(15,705)	(3,017)	(31,115)
Acquisitions/disposals	—	—	—	11	11
Benefits payments	(15,710)	(3,056)	(8,837)	(3,104)	(30,707)
Plan amendments	(3,065)	—	—	(687)	(3,752)
Reclassification to assets/liabilities held for sale	—	(1,666)	—	—	(1,666)
Foreign exchange differences	—	—	9,611	(2,190)	7,421
Others	11,296	(2,246)	—	(696)	8,354
As at 31/12/2015	**289,596**	**54,246**	**140,527**	**85,336**	**569,705**

NOTE 19 Employee benefit commitments (Continued)

Changes in the obligation	Germany	France	United Kingdom	Others	Total
As at 31/12/2015	**289,596**	**54,246**	**140,527**	**85,336**	**569,705**
Current service cost	9,336	2,173	2,719	3,529	17,757
Interest expense	5,882	923	4,682	6,481	17,968
Employee contributions	—	—	582	38	620
Actuarial losses (+)/gains (−) generated during the year	—	—	—	—	—
Remeasurements:					
• Experience-related adjustments	(168)	(1,694)	(5,938)	(1,891)	(9,691)
• Actuarial gains and losses arising from changes in demographic assumptions	—	—	—	(813)	(813)
• Actuarial gains and losses arising from changes in financial assumptions	11,829	2,726	30,977	3,018	48,550
Acquisitions/disposals	(93)	(72)	—	627	462
Benefits payments	(17,134)	(1,450)	(18,872)	(3,889)	(41,345)
Plan amendments	—	(4,922)	—	(4,325)	(9,247)
Reclassification to assets/liabilities held for sale	—	(3,192)	—	—	(3,192)
Foreign exchange differences	—	—	(20,709)	7,822	(12,887)
Other[(a)]	16,593	(10,487)	1,073	(1,115)	6,064
As at 31/12/2016	**315,841**	**38,251**	**135,041**	**94,818**	**583,951**

(a) Primarily consists of the restructurings in France (reduction of the obligation in return for the allowance of a restructuring provision) and in Germany (increase in the early retirement plan).

Movements during the year in net liabilities recognized on the statement of financial position were as follows:

Change in net liability	Germany	France	United Kingdom	Others	Total
NET LIABILITY/(ASSET) AT 31/12/2014	**135,064**	**49,569**	**3,384**	**56,265**	**244,282**
Total expense for the period	22,426	2,350	3,875	6,928	35,579
Amount recognized in Other comprehensive income—Remeasurement	(1,492)	(648)	(18,385)	(82)	(20,607)
Benefits or contributions to funds	(17,910)	(3,069)	(5,349)	(2,217)	(28,545)
Reclassification to assets/liabilities held for sale	—	(1,666)	—	—	(1,666)
Impact of changes in exchange rates	—	—	429	(4,560)	(4,131)
Changes in scope and other	106	(165)	1	(377)	(435)
NET LIABILITY/(ASSET) AT 31/12/2015	**138,194**	**46,371**	**(16,045)**	**55,957**	**224,477**
Total expense for the period	31,039	(12,502)	3,179	1,505	23,221
Amount recognized in Other comprehensive income—Remeasurement	4,611	1,008	2,045	1,351	9,015
Benefits or contributions to funds	(25,099)	(1,450)	(4,932)	(5,264)	(36,745)
Reclassification to assets/liabilities held for sale	—	(3,192)	—	—	(3,192)
Impact of changes in exchange rates	—	—	2,277	6,569	8,846
Changes in scope and other	112	(6)	—	1,035	1,141
NET LIABILITY/(ASSET) AT 31/12/2016	**148,857**	**30,229**	**(13,476)**	**61,153**	**226,763**

NOTE 19 Employee benefit commitments (Continued)

Plan assets are broken down as follows:

United Kingdom	31/12/2016 In share	31/12/2015 In share
Equities (UK and overseas)	43.00%	45.00%
Bonds	4.00%	21.00%
Real Estate	13.00%	14.00%
Other (Cash and Index-Linked Gilts)	40.00%	20.00%

USA	31/12/2016 In share	31/12/2015 In share
Equities	53.00%	52.00%
Bonds	37.00%	37.00%
Real Estate	8.00%	9.00%
Others	2.00%	2.00%

Germany	31/12/2016 In share	31/12/2015 In share
Equities	24.00%	25.48%
Bonds	76.00%	74.52%
Real Estate	—	—
Others	—	—

In France, 100% of the assets are placed in the general assets of an insurance company.

Sensitivity analysis

Calculating the projected obligation of a defined benefit plan is sensitive to the above assumptions.

A change of 1% in the respective assumptions would have the following impacts on the defined benefit obligation at the reporting date:

In € million	1% increase	1% decrease
Discount rate	(70)	86
Salary increase rate	16	(10)
Guaranteed rate of pension increase	40	(34)

Amounts expensed for defined contribution plans	Production staff	Directors, management, technical and supervisory staff	Total
As at 31/12/2015			
Employer's share of retirement contributions	6,217	12,971	19,188
Life insurance paid by the employer	3,889	2,807	6,696
Other retirement contributions	378	12	390
TOTAL	**10,484**	**15,790**	**26,274**
As at 31/12/2016			
Employer's share of retirement contributions	4,026	8,581	12,607
Life insurance paid by the employer	3,650	2,625	6,275
Other retirement contributions	—	567	567
TOTAL	**7,676**	**11,773**	**19,449**

NOTE 19 Employee benefit commitments (Continued)

Other employee benefits (options and performance shares)

The impact on the income statement of employee share ownership plans is presented in Note 25.

After application of the adjustments provided for in Articles L.228-99 et R.228-91 of the French Commercial Code and pursuant to the rules governing performance share and share option plans. At its meeting on 2 May 2016, the Vallourec Supervisory Board sought to protect the rights of holders of performance shares and share options by ensuring that the capital increase decided on 7 April 2016 did not affect said rights. The information below takes into account the impacts of this decision.

Share subscription plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized share subscription plans from 2009 to 2016 for some executive management and corporate officers of the Group.

The characteristics of these plans are as follows (figures for the 2009 plan are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares):

	2009 Plan	2010 Plan	2011 Plan	2012 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan
Grant date	01/09/2009	01/09/2010	01/09/2011	31/08/2012	02/09/2013	15/04/2014	15/04/2015	18/05/2016
Maturity date	01/09/2013	01/09/2014	01/09/2015	01/03/2017	03/03/2018	15/04/2018	15/04/2019	18/05/2020
Expiration date	01/09/2019	01/09/2020	01/09/2021	30/08/2020	01/09/2021	15/04/2022	15/04/2023	18/05/2024
Exercise price in euros	31.02	42.72	36.44	22.21	27.70	23.13	13.57	3.90
Number of options granted	964,107	853,641	1,140,431	883,602	1,003,746	622,261	683,413	537,895

CHANGE IN NUMBER OF UNEXPIRED OPTIONS

For all of these plans, the change in the number of unexpired options is as follows:

In number of options	2015	2016
Options outstanding as at 1 January	3,190,049	2,860,088
Options exercised	—	—
Options lapsed	(143,600)	—
Options canceled[a]	(596,711)	(62,852)
Impact of the capital increase on the plans prior to 2016	—	1,667,736
Options distributed	410,350	537,895
OPTIONS OUTSTANDING AS AT 31 DECEMBER	**2,860,088**	**5,002,867**
Options available for exercise	960,423	1,318,249

(a) The reported figures correspond to the theoretical number of shares originally allocated with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

NOTE 19 Employee benefit commitments (Continued)

As at 31 December 2016, the average exercise price is €40 and the average remaining lifespan 5 years.

Measurement of Plans[a]	2015 Plan	2016 Plan
Share price at allocation date	26.03 €	3.36 €
Volatility[b]	29.00%	31.00%
Risk-free rate[c]	0.21%	0.35%
Exercise price	13.57 €	3.90 €
Dividend rate[d]	3.00%	3.00%
Fair value of the option[e]	3.37 €	0.53 €

(a) The binomial model of projecting share prices has been used to measure the fair value of the options granted.

(b) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(c) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(d) The expected dividend rates have been determined on the basis of analysts' expectations and the Group's dividend policy.

(e) The fair value for the Management Board and the Operational Committee is €0.53 for the 2016 plan.

Performance share allocation plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized performance share plans from 2011 to 2016 for some employees and corporate officers of the Group.

The characteristics of these plans are as follows:

Performance share plans	2011 Plan	2012 Plan	2013 Plan	2014 Plan	2015 Plan	2016 Plan
Allocation date	30/03/2011	30/03/2012	29/03/2013	16/12/2014	15/04/2015	18/05/2016
Vesting period	2 years (French residents and members of the Management Board) or 4 years (non-French residents)	2 years (French residents and members of the Management Board) or 4 years (non-French residents)	3 years (French residents and members of the Management Board) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)
Holding period	2 years (French residents and members of the Management Board) or none (non-French residents)	2 years (French residents and members of the Management Board) or none (non-French residents)	2 years (French residents and members of the Management Board) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)
Performance conditions	Yes[a]	Yes[b]	Yes[c]	Yes[d]	Yes[e]	Yes[f]
Theoretical number of shares allocated	214,271	286,718	391,200	661,861	388,583	610,001

(a) Definitive allocation of shares in 2013 for French residents and members of the Management Board, and in 2015 for non-French residents. For all beneficiaries (excluding Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2011 and 2012. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Management Board, the definitive allocation of shares in 2013 will be based on the following three criteria assessed for fiscal years 2011 and 2012: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext

NOTE 19 Employee benefit commitments (Continued)

Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(b) Definitive allocation of shares in 2014 for French residents and members of the Management Board, and in 2016 for non-French residents. For all beneficiaries (excluding Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2012 and 2013. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation of shares will be based on the following three criteria assessed for fiscal years 2012 and 2013: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(c) Definitive allocation of shares in 2016 for French residents and members of the Management Board, and in 2017 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2013, 2014 and 2015. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation will be based on the following three criteria assessed for fiscal years 2013, 2014 and 2015: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(d) Definitive allocation of shares in 2017 for French residents and members of the Management Board, and in 2018 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2014, 2015 and 2016. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, final allocation shall depend on the following four criteria, assessed in 2014, 2015 and 2016: the rate of return on capital employed (ROCE), compared with the ROCE in the budget, consolidated revenue on a like-for-like basis, as compared with the revenue in the budget, the relative stock market performance of the Vallourec share on the regulated NYSE Euronext market in Paris, as compared with a benchmark panel, and the relative EBITDA performance as compared with the same panel as for the previous criterion. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(e) Definitive allocation of shares in 2018 for French residents and members of the Management Board, and in 2019 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2015, 2016 and 2017. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the final award will depend on the following two criteria, assessed for 2015, 2016 and 2017: the rate of return on capital employed on a consolidated basis (ROCE), compared to the ROCE in the strategic plan, and the Total Shareholder Return (TSR) for 2015, 2016 and 2017. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(f) Definitive allocation of shares in 2019 for French residents and members of the Management Board, and in 2020 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the consolidated EBITDA achieved by the Group in 2016, 2017 and 2018 reported in the budget. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the final award will depend on the following two criteria, assessed for 2016, 2017 and 2018: the rate of return on capital employed on a consolidated basis (ROCE), compared to the ROCE in the strategic plan, and the Total Shareholder Return (TSR) for 2016, 2017 and 2018. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

NOTE 19 Employee benefit commitments (Continued)

International performance share allocation plans for employees	2 - 4 - 6 Plan (2011)	2 - 4 - 6 Plan (2012)	2 - 4 - 6 Plan (2013)	2 - 4 - 6 Plan (2014)
Allocation date	15/12/2011	30/03/2012	29/03/2013	15/04/2014
Vesting period	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)	3 years (French residents) or 4 years (non-French residents)
Holding period	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)	2 years (French residents) or none (non-French residents)
Performance condition	Ratio of EBITDA to revenue (2012 and 2013)	Ratio of EBITDA to revenue (2012 and 2013)	Ratio of EBITDA to revenue (2013, 2014 and 2015)	Ratio of EBITDA to revenue (2014, 2015 and 2016)
Theoretical number of shares allocated	78,318	130,116	191,144	208,100

Free share allocation plans (without performance condition)	Value 11 Plan	Value 12 Plan	Value 13 Plan	Value 14 Plan	Value 15 Plan	Value 16 Plan
Allocation date	18/11/2011	06/12/2012	10/12/2013	16/12/2014	15/12/2015	14/12/2016
Vesting period	4.6 years	4.6 years	4.6 years	4.6 years	4.6 years	4.6 years
Theoretical number of shares allocated	10,339	7,032	6,445	6,336	2,744	3344

In 2016, in order to meet the legal and tax requirements of each country, several different employee share ownerships plans (ESOP) were offered:

- Leveraged company mutual fund *(fonds commun de placement entreprise levier—FCPE levier)*: employees subscribe via a company mutual fund to a number of Vallourec shares at a price discounted by 15% and receive, at the end of the vesting period, a performance multiple on their Vallourec shares as well as protection of their initial investment, excluding currency effects. The increase multiple is achieved through the transfer of the discount, dividends and other financial rights related to ownership of the shares to the bank structuring the transaction through a swap contract;
- Standard company mutual fund (fonds commun de placement classique—FCPE classique): employees subscribe via a company mutual fund to Vallourec shares at a price discounted by 20% and receive any dividends;
- Share and Stock Appreciation Rights (SAR): employees, by buying one share at a price discounted by 15%, receive one SAR (protection on their initial investment, excluding currency effects, and a performance multiple on said share), which will be paid by the employer, in cash, at the end of the holding period. The resulting liability (SAR) is covered by warrants provided to the employer by the bank structuring the transaction. The warrants are issued in consideration of the issue of shares reserved for the bank at a price discounted by 15%.
- Cash and Stock Appreciation Rights (SAR): employees, by depositing funds in an interest-bearing bank account, receive SARs (performance multiple on the deposit), which will be paid to the employee by the employer in cash at the end of the holding period. The resulting liability (SAR) is covered by warrants provided to the employer by the bank structuring the transaction. The warrants are issued in consideration of the issue of shares reserved for the bank at a price discounted by 15%.

NOTE 19 Employee benefit commitments (Continued)

The IFRS 2 expense resulting from the benefit granted to the employee under the terms of the ESOP is measured on the grant date. The fair value of the benefit corresponds, in the case of the standard offering, to the value of the economic benefit granted less the cost to the employee of the non-transferability of the share, and, for the leveraged plans, to the estimated present value of the amounts ultimately paid to the employee. In the case of the "Share and SAR" plan, the discount on the share held by the employee and the measurement of the option protecting the initial investment are added.

This benefit led to the recognition of a personnel cost of €1.28 million in 2016 compared to €0.7 million in 2015.

The IFRS 2 expense resulting from the SARs is measured again at each quarter-end by reference to the fair value corresponding to the estimated present value of the amounts ultimately paid to the employee. The liability to employees resulting from SARs resulted in an expense included in personnel costs of €0.1 million.

In accordance with IAS 39, the income from warrants is remeasured at each quarter-end by reference to the fair value of the derivative instrument.

The expense corresponding to the warrants paid by the bank to the employer was added to the employees' investment and recognized in personnel expenses for €0.1 million in 2016 since it is intended to cover income associated with SARs (see above).

CHANGE IN NUMBER OF SHARES

For all of these plans, the change in the number of shares being vested is as follows:

(in number of shares)	2015	2016
Number of shares being vested as at 1 January	1,530,765	1,455,690
Shares delivered	(153,652)	(252,486)
Shares canceled[(a)]	(165,964)	(250,602)
Impact of the capital increase on the plans prior to 2016	—	636,709
Shares allocated	244,541	610,001
NUMBER OF SHARES BEING VESTED AS AT 31 DECEMBER	**1,455,690**	**2,199,312**

(a) The reported figures correspond to the theoretical number of shares originally allocated, with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

Measurement of Plans[(a)]	2015 Plan	Value 15 Plan	2016 Plan	Value 16 Plan
Share price at allocation date	26.03 €	9.09 €	3.36 €	4.83 €
Risk-free rate[(b)]	0.03%	0.03%	−0.10% (France), −0.22% (other countries)	−0.29%
Dividend rate[(c)]	3%	3%	3%	3%
Fair value of the share	€13,26 (French residents) or €14,40 (non-French residents)	4.88 €	€2.74 (French residents) or €2.97 (non-French residents)	4.15 €

(a) The binomial model of projecting share prices has been used to determine the fair value of the shares allocated. The employee benefit corresponds to the fair value of the shares allocated, taking into account the impossibility of receiving dividends during the vesting period and the cost to the employee of the non-transferability of shares during the holding period.

(b) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(c) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

NOTE 20 Other current liabilities

	Social security liabilities	Tax liabilities	Liabilities associated with the acquisition of assets	Deferred income	Other current liabilities	Total
As at 31/12/2014	**279,324**	**51,764**	**46,923**	**8,540**	**51,706**	**438,257**
Impact of changes in exchange rates	(7,061)	(2,773)	(3,326)	192	1,575	(11,393)
Reclassification to liabilities held for sale and discontinued operations	(6,734)	(1,911)	(306)	—	(422)	(9,373)
Other changes	(45,688)	(15,060)	(18,443)	(3,269)	(2,177)	(84,637)
As at 31/12/2015	**219,841**	**32,020**	**24,848**	**5,463**	**50,682**	**332,854**
Impact of changes in exchange rates	8,314	725	1,233	—	2,667	12,939
Acquisitions from business combinations (see Note 34)	16,235	3,129	1,208	—	16,542	37,114
Disposals from business combinations	(7,916)	(1,754)	(677)	—	(3,209)	(13,556)
Reclassification to liabilities held for sale and discontinued operations	(4,101)	(69)	(1,630)	—	—	(5,800)
Other changes	(34,991)	(4,154)	(4,488)	(4,179)	(16,277)	(64,089)
AS AT 31/12/2016	**197,382**	**29,897**	**20,494**	**1,284**	**50,405**	**299,462**

NOTE 21 Information on related parties

The following transactions were entered into with related parties:

	Sales to related parties	Purchases from related parties	Related party receivables	Related party payables
As at 31/12/2015				
HKM	2,602	257,524	386	59,736
Rothschild & Cie[(a)]	—	1,011	—	—
Joint operations	39,803	135,958	70,847	52,794
As at 31/12/2016				
HKM	601	212,294	21	46,340

(a) Rothschild & Cie is deemed to be a related party because the Chairman of the Rothschild group's merchant bank was a member of the Group's Supervisory Board until May 2015.

Purchases mainly concern the acquisition of steel rounds from HKM, which are used as raw manufacturing materials by the European rolling mills of Vallourec Deutschland and Vallourec Tubes France.

NOTE 21 Information on related parties (Continued)

Compensation of the management and supervisory boards

The total compensation paid to members of the Executive Committee, as constituted at 31 December (9 people in 2016, against 9 in 2015), as well as pension liabilities at the reporting date, were as follows:

	2015	2016
Compensation and benefits in kind	5,530	5,489
Share-based payments*	163	95
Pension commitments	968	1,020
Supplementary pension commitments	9,491	7,857

* Information provided based on the 2016, 2015, 2014, 2013, 2012 and 2011 share subscription option, performance share and employee share ownership plans.

As regards post-employment benefits for executive management, there is no specific plan. Executive management are covered by the Vallourec Group's supplemental pension plan (a benefit plan introduced in 2005 and closed on 31 December 2015), as well as by plans under Articles 83 and 82 of the French General Tax Code set up on 1 April 2016. These plans do not give rise to any commitments.

At 31 December 2016, no loans or guarantees had been granted to executive management by the parent company or its subsidiaries.

NOTE 22 Contingent liabilities and commitments

For its activities in Europe, the Group was granted a greenhouse gas emissions allowance of 322,128 metric tons in 2016.

Vallourec is concerned by the third emissions trading period (2013-2020), not only for the Saint Saulve steel mill, but for its tube mills as well. Although since 2013, some of the quotas granted are no longer free and are auctioned on the market, the metallurgy sector has been classed as exposed to the risk of "carbon leakage" and will benefit from free quotas up until 2020. The European authorities are currently working on the rules applicable after 2020, but all indications suggest that the metallurgy sector will continue to benefit from free allocations.

Off-statement of financial position commitments received (excluding financial instruments)

	2015	2016
Firm non-current asset orders	8,556	12,203
Guarantees and commitments received	119,735	99,255
Other commitments received	17,619	14,697
TOTAL	**145,910**	**126,155**
OFF-STATEMENT OF FINANCIAL POSITION COMMITMENTS GIVEN (EXCLUDING FINANCIAL INSTRUMENTS)	**466,157**	**657,324**

NOTE 22 Contingent liabilities and commitments (Continued)

Commitments given by maturity

	2016	< 1 year	> 1 year	> 5 years
Statement of financial position				
Long-term financial debts	2,573,744	1,453,096	513,294	607,354
Off-statement of financial position				
Market guarantees and letters of credit given	123,351	57,247	66,104	—
Other securities, mortgages and pledges given	136,688	—	2,255	134,433
Long-term lease*	269,712	23,203	190,393	56,116
Firm asset orders given	12,203	12,203	—	—
Other obligations	115,370	45,923	69,447	—
TOTAL	**657,324**	**138,576**	**328,199**	**190,549**

* In light of the future application of IFRS 16—Leases, lease agreements have been subject to an extensive review.

	2015	< 1 year	> 1 year	> 5 years
Statement of financial position				
Long-term financial debts	2,149,797	386,842	1,172,140	590,815
Off-statement of financial position				
Market guarantees and letters of credit given	139,385	110,325	29,060	—
Other securities, mortgages and pledges given	62,000	97	1,794	60,109
Long-term lease	70,793	10,461	28,519	31,813
Firm asset orders given	6,758	2,145	4,613	—
Other obligations	187,221	151,661	26,962	8,598
TOTAL	**466,157**	**274,689**	**90,948**	**100,520**

The main exchange rates used for income statement items are set out in Note 13.

Income statement items are translated at the average rate.

NOTE 23 Revenue

	2015	2016
Europe	849,351	646,620
North America (NAFTA)	1,095,599	559,314
South America	596,171	466,819
Asia and the Middle East	852,413	847,677
Rest of the world	409,889	444,631
TOTAL	**3,803,423**	**2,965,061**

If the changes in scope had taken place on 1 January 2016, revenue would have stood at €3,277 million, compared to €2,965 million.

NOTE 24 Cost of sales

	2015	2016
Direct cost of sales	(214,653)	(157,163)
Cost of raw materials consumed	(1,201,140)	(934,634)
Labor costs	(836,619)	(746,980)
Other manufacturing costs	(956,744)	(891,984)
Change in non-raw material inventories	(143,588)	4,052
TOTAL	**(3,352,744)**	**(2,726,709)**
Depreciation and amortization	(302,632)	(283,274)
TOTAL (INCLUDING DEPRECIATION AND AMORTIZATION)	**(3,655,376)**	**(3,009,983)**

Other manufacturing costs" mainly include the costs of energy and consumables, and the costs of outsourcing, maintenance and provisions.

NOTE 25 Sales, general and administrative costs

	2015	2016
Research and Development costs	(81,938)	(60,453)
Selling and marketing costs	(99,155)	(86,400)
General and administrative costs	(331,736)	(300,749)
TOTAL	**(512,829)**	**(447,602)**
Depreciation and amortization	(44,279)	(48,522)
TOTAL (INCLUDING DEPRECIATION AND AMORTIZATION)	**(557,108)**	**(496,124)**

Personnel expenses and average headcount of consolidated companies

	2015	2016
Personnel costs expenses		
Wages and salaries	(796,209)	(762,855)
Employee profit-sharing and bonuses	(32,802)	(18,716)
Expenses related to share subscription and share purchase options and performance shares[(a)]	(1,467)	(4,164)
Social security costs	(289,079)	(208,278)
TOTAL	**(1,119,557)**	**(994,013)**

(a) Including a €0.8 million expense for all share subscription plans for 2016 (compared to 0.8 million for 2015).

Closing headcount of consolidated companies[(a)]	2015	2016
Managers	3,358	3,299
Technical and supervisory staff	3,334	3,107
Production staff	12,615	12,836
TOTAL	**19,307**	**19,242**

(a) In 2015, the headcount of companies recognized as joint operations is included based on the percentage interest held by the Group.

Group headcount as at 31 December 2016 was 19,242 people, compared with 19,307 as at 31 December 2015.

NOTE 25 Sales, general and administrative costs (Continued)

Changes in the scope of the Group in 2016 had the following effects on headcount: an increase of 1,514 people linked to the consolidation of Tianda OP, and 699 people linked to the acquisition of VSB (previous 44% share not taken into account) and a reduction of 583 people following the sale of VHET.

NOTE 26 Others

	2015	2016
Employee profit-sharing and bonuses	(32,802)	(21,605)
Fees for concessions and patents	30,653	20,798
Other income and expenses	(12,948)	(8,659)
TOTAL	**(15,097)**	**(9,466)**

Provision allowances, net of reversals	2015	2016
Provision allowances net of reversals included in EBITDA amounted to	(37,167)	(35,661)

NOTE 27 Fees paid to the statutory auditors and members of their networks

	KPMG		Deloitte	
Amount (excl tax)	2015	2016	2015	2016
AUDIT				
Certification of parent company and consolidated financial statements				
Issuer	212	412	212	412
%	19%	27%	12%	19%
Fully consolidated subsidiaries	790	775	1,510	1,497
%	70%	50%	87%	68%
Other services directly associated with the statutory audit				
Issuer	70	288	0	219
%	6%	19%	0%	10%
Fully consolidated subsidiaries	62	68	14	70
%	5%	4%	1%	3%
TOTAL	**1,134**	**1,543**	**1,736**	**2,198**

NOTE 28 Accumulated depreciation and amortization

	2015	2016
By function		
Depreciation of industrial assets	(302,632)	(283,274)
Depreciation and amortization—Research and Development	(9,797)	(11,006)
Depreciation and amortization—Sales and Marketing Department contracts	(11,558)	(11,510)
Depreciation and amortization—general and administrative expenses	(22,924)	(26,006)
TOTAL	**(346,911)**	**(331,796)**
By type		
Net amortization of intangible assets (see Note 1)	(34,099)	(32,134)
Net depreciation of property, plant and equipment (see Note 2)	(299,897)	(292,425)
Net depreciation and amortization of biological assets	(12,915)	(7,237)
TOTAL	**(346,911)**	**(331,796)**

Depreciation of new industrial sites in the development stage is calculated according to the production-units method for assets used directly in the production process and the straight-line depreciation method for other assets.

NOTE 29 Impairment of assets and goodwill, asset disposals and restructuring costs

	2015	2016
Reorganization measures (net of expenses and provisions)	(101,431)	(111,186)
Gains and losses on disposals of non-current assets and other	(16,529)	(16,285)
TOTAL	**(117,960)**	**(127,471)**

	2015	2016
Impairment of intangible assets (see Note 1)	—	(82)
Impairment of property, plant and equipment (see Note 2)	(163,202)	(58,072)
Impairment of goodwill (see Note 1)	(36,316)	—
Other impairment of assets	(96,704)	(13,237)
TOTAL	**(296,222)**	**(71,391)**

Restructuring costs (€111 million) and impairment losses (€71 million) are primarily linked to the strategic initiatives announced on 1 February 2016 (closure of production units in Europe and reorganization of the Brazilian industrial plan, in particular).

Income from the sale of fixed assets primarily concerns transactions in connection with business combinations carried out in 2016.

NOTE 30 Financial income/(loss)

	2015	2016
Financial income		
Income from investment securities	35,908	27,713
Income from disposals of investment securities	856	2,051
TOTAL	**36,764**	**29,764**
Interest expenses	**(111,695)**	**(124,922)**
Net interest expenses	**(74,931)**	**(95,158)**
Other financial income and expenses		
Income from securities	1,687	1,050
Income from loans and receivables	1,479	1,484
Exchange (losses) and gains and changes in premiums/discounts	401	(27,419)
Provision allowances, net of reversals	(2,078)	(2,859)
Other financial income and expenses	5,934	1,431
TOTAL	**7,423**	**(26,313)**
Other discounting expenses		
Interest expense pension obligation	(7,998)	(8,080)
Financial income from discounted assets and liabilities	739	(784)
TOTAL	**(7,259)**	**(8,864)**
FINANCIAL INCOME/(LOSS)	**(74,767)**	**(130,335)**

NOTE 31 Reconciliation of theoretical and actual tax expense

Breakdown of the tax expense	2015	2016
Current tax expense	(29,861)	(39,334)
Deferred taxes (see Note 5)	45,039	119,500
NET EXPENSE (−) / INCOME (+)	**15,178**	**80,166**
Consolidated net income/(loss)	(897,927)	(799,542)
Tax expense	15,178	80,166
CONSOLIDATED NET INCOME/(LOSS) BEFORE TAX	**(913,105)**	**(879,708)**
Statutory tax rate of consolidating company (see Note 5)	34.43%	34.43%
Theoretical tax	314,382	302,883
Impact of main tax loss carryforwards	(196,725)	(144,660)
Impact of permanent differences	(75,901)	(47,015)
Other impacts	(11,793)	(6,576)
Impact of differences in tax rates	(14,785)	(24,466)
NET EXPENSE (−) / INCOME (+)	**15,178**	**80,166**
ACTUAL TAX RATE	**2%**	**9%**

The 9% rate mainly reflects the items detailed below:

- The impact of tax loss carryforwards and timing differences mainly concerns the non-recognition of deferred tax assets (DTAs) for the year in France, Germany and China.
- Permanent differences consist of the impact of financial expenses, net income attributable to minority interests, withholding taxes, the impact of the combination of our two Brazilian subsidiaries and the impact of free share allocations.
- Differences in taxation mainly reflect the range of tax rates applied in each country (France 34.4%, Germany 31.6%, United States 35%, Brazil 34.0%, China 25.0% and Saudi Arabia 20%).

NOTE 32 Segment information

Operating segments

The following tables provide information on the income and results for each operating segment, as well as certain information on the assets, liabilities and investments for the 2016 and 2015 fiscal years.

NOTE 32 Segment information (Continued)

Information on results, assets and liabilities by operating segment

2016	Seamless tubes	Specialty Products	Holdings & miscellaneous[(a)]	Inter-segment transactions	Total
Income statement					
Sales to external customers	2,857,621	106,666	774	—	2,965,061
EBITDA	(197,037)	(1,246)	(19,681)	(752)	(218,716)
Depreciation and amortization	(312,769)	(17,827)	(1,535)	335	(331,796)
Impairment of assets and goodwill	(71,391)	—	—	—	(71,391)
Asset disposals and restructuring costs	(128,977)	6,168	12,338	(17,000)	(127,471)
OPERATING INCOME/(LOSS)	**(710,174)**	**(12,905)**	**(8,878)**	**(17,417)**	**(749,374)**
Unallocated income					3,451
Unallocated expenses					(133,786)
Pre-tax income					(879,709)
Income tax					80,166
Net income of associates					(8,003)
Consolidated net income/(loss)					(807,546)
Statement of financial position					
Non-current assets	4,994,760	135,672	3,799,975	(4,053,076)	4,877,331
Current assets	1,850,276	48,149	92,267	(68,721)	1,921,971
Cash	523,980	670	1,341,008	(578,936)	1,286,722
Assets held for sale and discontinued operations	46,327	—	—	—	46,327
TOTAL ASSETS	**7,415,343**	**184,491**	**5,233,250**	**(4,700,733)**	**8,132,351**
Cash flows					
Property, plant and equipment, intangible assets and biological assets	(172,832)	(3,590)	(54)	—	(176,476)

(a) Vallourec and Vallourec Tubes.

NOTE 32 Segment information (Continued)

2015	Seamless tubes	Specialty Products	Holdings & miscellaneous[a]	Inter-segment transactions	Total
Income statement					
Sales to external customers	3,700,576	208,272	(105,425)	—	3,803,423
EBITDA	(46,503)	12,962	(39,569)	(4,137)	(77,247)
Depreciation and amortization	(323,902)	(21,671)	(1,674)	336	(346,911)
Impairment of assets and goodwill	(242,921)	(53,301)	—	—	(296,222)
Asset disposals and restructuring costs	(104,848)	(3,089)	(10,023)	—	(117,960)
OPERATING INCOME/(LOSS)	**(718,174)**	**(65,099)**	**(51,266)**	**(3,801)**	**(838,340)**
Unallocated income					44,187
Unallocated expenses					(118,954)
Pre-tax income					(913,107)
Income tax					15,178
Net income of associates					(25)
Consolidated net income/(loss)					(897,954)
Statement of financial position					
Non-current assets	4,480,204	149,243	3,713,881	(3,990,432)	4,352,896
Current assets	1,891,569	55,830	94,872	(103,387)	1,938,884
Cash	446,851	12,305	984,339	(812,955)	630,540
Assets held for sale and discontinued operations	—	68,964	—	—	68,964
TOTAL ASSETS	**6,818,624**	**286,342**	**4,793,092**	**(4,906,774)**	**6,991,284**
Cash flows					
Property, plant and equipment, intangible assets and biological assets	245,759	4,430	619	—	250,808

(a) Valloure c and Vallourec Tubes.

Geographical regions

The following tables provide information by geographical region on sales (by location of the Group's customers) and capital expenditure as well as certain information on assets (by regions where the companies operate).

2016	Europe	America of the North	America of the South	Asia	Rest of the World	Total
Revenue						
Sales to external customers	646,620	559,314	466,819	847,677	444,631	2,965,061
Statement of financial position						
Property, plant & equipment, intangible assets, biological assets and goodwill (net)	638,356	1,744,411	1,363,030	466,358	1,536	4,213,691
Cash flows						
Property, plant and equipment, intangible assets and biological assets	95,600	18,001	53,735	9,020	120	176,476

NOTE 32 Segment information (Continued)

2015	Europe	America of the North	America of the South	Asia	Rest of the World	Total
Revenue						
Sales to external customers	849,351	1,095,599	596,171	852,413	409,889	3,803,423
Statement of financial position						
Property, plant & equipment, intangible assets, biological assets and goodwill (net)	690,947	1,816,203	941,838	342,255	2,902	3,794,145
Cash flows						
Property, plant and equipment, intangible assets and biological assets	108,711	66,370	59,589	15,501	637	250,808

NOTE 33 Share in net income/(loss) of associates

The contribution to the consolidated net income of associates is as follows:

	2015	2016
HKM	—	5
Poongsan Valinox	(428)	117
Subsidiaries of P. T. Citra Tubindo	1,758	(327)
Tianda Oil Pipe	(436)	(7,600)
Xi'an Baotimet Valinox Tubes	(919)	(198)
TOTAL	**(25)**	**(8,003)**

NOTE 34 Business combinations

Acquisition of Vallourec Soluções Tubulares do Brasil

On 1 October 2016, upon the fulfillment of the conditions precedent, Vallourec completed the acquisition of Vallourec & Sumitomo Tubos do Brasil (VSB), a joint operation owned at 56% by Vallourec and 40.4% by NSSMC, with Sumitomo Corp. holding the remaining 3.6%.

The transaction consisted in the contribution by Vallourec of the assets of Vallourec Tubos do Brasil (VBR) to Vallourec & Sumitomo Tubos do Brasil (VSB) and the incorporation into the capital of a shareholder loan by NSSMC. Upon the completion of the transaction, Vallourec holds an 84.6% majority interest in the new entity, named Vallourec Soluções Tubulares do Brasil, with Nippon Steel & Sumitomo Metal Corporation (NSSMC) holding 15% and Sumitomo Corp. 0.4%.

The acquisition of VSB forms part of Vallourec's Transformation plan announced at the beginning of February 2016, which will provide the Group with a highly competitive production division in Brazil and enable it to supply its Brazilian and overseas customers with premium products and solutions. Vallourec Soluções Tubulares do Brasil, which will benefit in full from the optimal performance offered by VSB's state-of-the-art PQF® rolling mill and premium finishing facilities, will generate significant industrial and administrative synergies.

NSSMC has signed a new supply agreement for 300,000 tons of pipes per year produced at the Jeceaba site.

The new entity is consolidated in the Group's financial statements as of 1 October 2016, and the interests of NSSMC and Sumitomo Corp. are recorded as non-controlling interests.

As an exchange transaction involving no cash consideration, the fair value of the transferred assets was determined as the fair value of the interest previously held in VSB plus the fair value of the transferred minority interests in VBR.

NOTE 34 Business combinations (Continued)

This acquisition of control of VSB by Vallourec, whose holding is increased from 56% to 84.6%, is accompanied by a transfer of minority interests to the Japanese partners in the order of 15.4%.

Upon the completion of these transactions, the overall impact on Group equity and non-controlling interests totals €212 million as at 31 December 2016.

Pursuant to IFRS 3:

- the pre-existing supply agreements between Vallourec and VSB have been valued on the basis of their discounted cash flows and this remeasurement has been taken into account in the determination of the income from the disposal of the previously-held interest;
- the previously-held interest in VSB has been remeasured at fair value, giving rise to gains and losses on disposals recorded under "Assets disposals, restructuring costs and non-recurring items";
- the VSB assets and liabilities acquired are recorded at fair value as at the acquisition date. The non-controlling interests in the new VSB have been remeasured as a proportion of the fair value of the assets and liabilities acquired, using the "partial goodwill" method.
- the disposal of non-controlling interests in VBR has, pursuant to IFRS 10, been recorded as a transaction between shareholders, and the difference between the fair value and the share of net assets is recorded in equity.

Acquisition of Tianda Oil Pipe Co. Ltd

As at 31 December 2016, Vallourec acquired Tianda, which is now fully consolidated with a holding rate of 99.0%, after the acquisition in November of a majority share of 50.6% and the successful unconditional mandatory takeover bid. Tianda Oil Pipe was consolidated using the equity method (19.5%) for 2016 and the acquisition was recorded in the Group's balance sheet as at 31 December 2016.

The key figures concerning these transactions are as follows (at 100% before intra-Group eliminations):

Calculation of goodwill (in € thousand)			VSB	TIANDA OP
Consideration transferred[(a)]		**(1)**	**124,123**	**158,005**
Non-current assets	Fair value		914,009	139,528
• including net property, plant and equipment			622,582	139,528
Current assets	Fair value		445,732	173,269
• including cash			46,314	7,180
TOTAL ASSETS		**(2)**	**1,359,741**	**312,797**
Shareholder loan[(b)]	Fair value		77,879	
Non-current liabilities	Fair value		314,546	
• including non-current financial liabilities			300,419	
Current liabilities	Fair value		506,612	118,310
• including current financial liabilities			434,630	
TOTAL LIABILITIES		**(3)**	**899,037**	**118,310**
Net position after fair value adjustment		**(4) = (2) − (3)**	**460,704**	**194,487**
Fair value of the previously-held interest		**(5)**	**301,573**	**39,218**
Non-controlling interest in the acquired entity		**(6)**	**70,633**	**1,877**
REMAINING GOODWILL		**(1) + (5) + (6) − (4)**	**35,625**	**4,614**

(a) The acquisition of Tianda was completed in cash for €158 million and constitutes the main acquisition under the item «Impact of acquisitions (changes in consolidation scope)» in the statement of cash flows.

(b) The shareholders' loan comprises an advance granted to Vallourec Soluções Tubulares do Brasil (formerly VSB) by NSSMC as at 31 December 2016 for €83 million.

NOTE 34 Business combinations (Continued)

The acquisition of VSB is an exchange transaction without counterparty paid in cash.

NOTE 35 Subsequent events

On 26 January 2017, Vallourec and Asco Industries completed the acquisition by the latter of a majority interest in the Saint-Saulve steel mill. SAS Ascoval is owned 60% by Asco Industries and 40% by Vallourec Tubes France, and will be consolidated using the equity method.

Statutory auditors' report on the consolidated financial statements

Year ended December 31, 2016

This is a free translation into English of the statutory auditors' report on the consolidated financial statements issued in the French language and is provided solely for the convenience of English speaking users.

The statutory auditors' report includes information specifically required by French law in such reports, whether modified or not. This information is presented below the opinion on the consolidated financial statements and includes explanatory paragraphs discussing the auditors' assessments of certain significant accounting and auditing matters. These assessments were made for the purpose of issuing an audit opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account captions or on information taken outside of the consolidated financial statements.

This report also includes information relating to the specific verification of information given in the management report.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

To the Shareholders,

In accordance with our appointment as statutory auditors by your Shareholders' Meeting, we hereby report to you for the year ended December 31, 2016, on:

- the audit of the accompanying consolidated financial statements of VALLOUREC;
- the justification of our assessments;
- the specific verification required by law.

These consolidated financial statements have been approved by the Management Board. Our role is to express an opinion on these consolidated financial statements based on our audit.

I. Opinion on the consolidated financial statements

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit involves performing procedures, using sampling techniques or other methods of selection, to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at December 31, 2016 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

II. Justification of our assessments

In accordance with the requirements of Article L.823-9 of the French Commercial Code *("Code de commerce")* relating to the justification of our assessments, we draw to your attention the following matters:

Note A-2.2 to the consolidated financial statements mentions the significant estimates and assumptions made by Management that affect certain amounts in the consolidated financial statements and accompanying notes. This note specifies that these assumptions are, by nature, subject to uncertainties and that actual results could differ from these estimates, especially in the current economic situation. In the context of our audit of the consolidated financial statements for the year ended December 31, 2016, we considered that these significant assumptions and estimates concern goodwill, intangible assets and

tangible assets (notes A-2.7 to A-2.9), provisions (note A-2.12) and retirement benefits and similar obligations (note A-2.13):

- concerning goodwill, intangible assets and tangible assets, we have examined the data and key assumptions used for the determination of recoverable amounts, assessed the sensitivity of the measurements to these assumptions as well as the procedure for approving these estimates by management. We also reviewed the calculation performed by the group and verified that the note C-2.3 to the consolidated financial statements provide appropriate disclosure;
- concerning the provisions, we have assessed the bases and assumptions on which such estimates were made, reviewed the calculations made by the Company, examined Management's procedures for approving these estimates, and reviewed the appropriateness of the information disclosed in note C-17 to the consolidated financial statements;
- concerning retirement benefits and similar obligations, which have been measured by independent actuaries, our procedures consisted in examining the information used, assessing the assumptions adopted and reviewing the appropriateness of the information disclosed in note C-19 to the consolidated financial statements.

These assessments were performed as part of our audit approach for the consolidated financial statements taken as a whole, and therefore contributed to the expression of our unqualified opinion in the first part of this report.

III. Specific verification

As required by law, we have also verified in accordance with professional standards applicable in France the information presented in the Group's management report.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

Paris La Défense and Neuilly-sur-Seine, March 10, 2017

The Statutory Auditors,

Deloitte & Associés
Chritophe Patrier

KPMG Audit
Department of KPMG SA
Catherine Porta

Consolidated financial statements

Vallourec Group's statement of financial position

In € thousand	Notes	31/12/2014	31/12/2015
NON-CURRENT ASSETS			
Net intangible assets	1	165,910	148,821
Goodwill	1	332,218	329,569
Gross property, plant and equipment	2.1	6,406,246	6,205,411
Less: accumulated amortization, depreciation and provisions	2.1	(2,882,997)	(3,044,350)
Net property, plant and equipment	2.1	3,523,249	3,161,061
Biological assets	2.2	213,923	154,694
Associates	3	184,125	176,835
Other non-current assets	4	435,064	233,133
Deferred tax assets	5	223,102	148,783
TOTAL		**5,077,591**	**4,352,896**
CURRENT ASSETS			
Inventories and work in progress	6	1,490,031	1,066,165
Trade and other receivables	7	1,145,654	544,904
Derivatives—assets	8	28,211	20,341
Other current assets	9	343,155	307,474
Cash and cash equivalents	10	1,146,913	630,540
TOTAL		**4,153,964**	**2,569,424**
Assets held for sale and discontinued operations	11	—	68,964
TOTAL ASSETS		**9,231,555**	**6,991,284**

Consolidated financial statements (Continued)

Vallourec Group's statement of financial position

In € thousand	Notes	31/12/2014	31/12/2015
EQUITY	13		
Capital		261,196	271,377
Additional paid-in capital		991,846	1,058,872
Consolidated reserves		3,823,895	2,794,668
Reserves, financial instruments		(64,507)	(54,279)
Foreign currency translation reserve		(287,704)	(500,575)
Net income for the period		(923,594)	(864,753)
Treasury shares		(57,773)	(59,642)
Equity, Group share		**3,743,359**	**2,645,668**
Non-controlling interests	**15**	**426,253**	**391,941**
TOTAL EQUITY		**4,169,612**	**3,037,609**
NON-CURRENT LIABILITIES			
Bank loans and other borrowings	16	1,781,873	1,762,955
Employee benefits	19	244,282	224,477
Provisions	17	13,437	10,515
Deferred tax liabilities	5	256,246	216,172
Other long-term liabilities	18	215,426	31,731
TOTAL		**2,511,264**	**2,245,850**
CURRENT LIABILITIES			
Provisions	17	162,996	238,107
Overdrafts and other short-term borrowings	16	911,644	386,842
Trade payables		806,856	523,476
Derivatives—liabilities	8	173,300	152,430
Tax liabilities		57,626	13,981
Other current liabilities	20	438,257	332,854
TOTAL		**2,550,679**	**1,647,690**
Liabilities held for sale and discontinued operations	11	—	60,135
TOTAL EQUITY AND LIABILITIES		**9,231,555**	**6,991,284**

Consolidated income statement

In € thousand	Notes	2014	2015
Revenue	23	5,700,536	3,803,423
Cost of sales[a]	24	(4,248,149)	(3,352,744)
Sales, general and administrative costs[a]	25	(567,154)	(512,829)
Other	26	(29,982)	(15,097)
EBITDA		**855,251**	**(77,247)**
Depreciation of industrial assets	28	(310,713)	(302,632)
Other depreciation and amortization	28	(50,596)	(44,279)
Impairment of assets and goodwill	29	(1,103,700)	(296,222)
Asset disposals, restructuring costs and non-recurring items	29	(50,830)	(117,960)
OPERATING INCOME/(LOSS)		**(660,588)**	**(838,340)**
Financial income		43,141	36,764
Interest expenses		(132,226)	(111,695)
Net interest expenses		(89,085)	(74,931)
Other financial income and expenses		36,480	7,423
Other discounting expenses		(9,587)	(7,259)
NET FINANCIAL INCOME/(LOSS)	**30**	**(62,192)**	**(74,767)**
PRE-TAX INCOME/(LOSS)		**(722,780)**	**(913,107)**
Income tax	31	(157,654)	15,178
Share in net income/(loss) of associates	33	2,487	(25)
NET INCOME/(LOSS) FROM CONTINUING OPERATIONS		**(877,947)**	**(897,954)**
CONSOLIDATED NET INCOME/(LOSS)		**(877,947)**	**(897,954)**
Attributable to non-controlling interests		45,647	(33,201)
Group share		**(923,594)**	**(864,753)**
Group share:			
Net earnings per share	14	(7.3)	(6.6)
Net diluted earnings per share	14	(7.3)	(6.6)

(a) Before depreciation and amortization.

Statement of comprehensive income

In € thousand	Notes	2014	2015
CONSOLIDATED NET INCOME/(LOSS)		**(877,947)**	**(897,954)**
Other comprehensive income:			
Actuarial gains and losses on post-employment benefits		(59,117)	20,607
Tax attributable to actuarial gains and losses on post-employment benefits		13,882	(32,257)
Items that will not be reclassified to profit or loss		**(45,235)**	**(11,650)**
Exchange differences on translating net assets of foreign entities	13 and 15	289,099	(172,450)
Change in fair value of hedging financial instruments		(104,834)	27,477
Change in fair value of available-for-sale securities		(12,382)	(8,049)
Tax relating to the change in fair value of hedging financial instruments		24,975	(9,211)
Tax attributable to the change in fair value of available-for-sale securities		100	—
Items that may be reclassified subsequently to profit or loss		**196,958**	**(162,233)**
OTHER COMPREHENSIVE INCOME/(LOSS) (NET OF TAX)		**151,723**	**(173,883)**
TOTAL COMPREHENSIVE INCOME/(LOSS)		**(726,224)**	**(1,071,837)**
Attributable to non-controlling interests		95,533	7,698
Group share		**(821,757)**	**(1,079,535)**

Statement of changes in equity, Group share

In € thousand	Capital	Additional paid-in capital	Consolidated reserves	Foreign currency translation reserve	Reserves—changes in fair value of financial instruments—net of tax	Treas... shar...
POSITION AS AT 31 DECEMBER 2013	**256,319**	**929,055**	**3,706,223**	**(525,400)**	**27,584**	**(55,**
Change in foreign currency translation reserve	—	—	—	237,696		
Financial instruments	—	—	—	—	(79,809)	
Actuarial gains and losses on retirement commitments	—	—	(43,768)			
Available-for-sale financial assets	—	—		—	(12,282)	
Other comprehensive income (loss)	*—*	*—*	*(43,768)*	*237,696*	*(92,091)*	
2014 NET INCOME/(LOSS)	**—**	**—**	**—**	**—**	**—**	
Comprehensive Income	*—*	*—*	*(43,768)*	*237,696*	*(92,091)*	
Appropriation of 2013 net income/(loss)	—	—	261,860	—	—	
Change in share capital and additional paid-in capital	3,840	45,326	—	—	—	
Change in treasury shares	—	—	(8,365)	—	—	(2,
Dividends paid	1,037	17,465	(103,280)	—	—	
Share-based payments	—	—	16,034	—	—	
Changes in consolidation scope and other	—	—	(4,809)	—	—	
POSITION AS AT 31 DECEMBER 2014	**261,196**	**991,846**	**3,823,895**	**(287,704)**	**(64,507)**	**(57,**
Change in foreign currency translation reserve	—	—	—	(212,871)	—	
Financial instruments	—	—	—	—	18,277	
Actuarial gains and losses on retirement commitments	—	—	(12,139)		—	
Available-for-sale financial assets	—	—	—	—	(8,049)	
Other comprehensive income (loss)	*—*	*—*	*(12,139)*	*(212,871)*	*10,228*	
2015 NET INCOME/ (LOSS)						
Comprehensive Income	*—*	*—*	*(12,139)*	*(212,871)*	*10,228*	
Appropriation of 2014 net income/(loss)	—	—	(923,594)	—	—	
Change in share capital and additional paid-in capital	4,000	13,252	—	—	—	
Change in treasury shares	—	—	(6,604)	—	—	(1,
Dividends paid	6,181	53,774	(104,120)	—	—	
Share-based payments	—	—	1,467	—	—	
Changes in consolidation scope and other	—	—	15,763	—	—	
POSITION AS AT 31 DECEMBER 2015	**271,377**	**1,058,872**	**2,794,668**	**(500,575)**	**(54,279)**	**(59,**

Statement of changes in non-controlling interests

In € thousand	Consolidated reserves	Foreign currency translation reserve	Reserves—changes in fair value of financial instruments—net of tax	Net income or loss for the period	Non-controlling interests
POSITION AS AT 31 DECEMBER 2013	**361,407**	**(13,855)**	**889**	**36,990**	**385,431**
Change in foreign currency translation reserve	—	51,403	—	—	51,403
Financial instruments	—	—	(50)	—	(50)
Actuarial gains and losses on retirement commitments	(1,467)	—	—	—	(1,467)
Available-for-sale financial assets	—	—	—	—	—
Other comprehensive income (loss)	*(1,467)*	*51,403*	*(50)*	—	*49,886*
2014 NET INCOME/(LOSS)	**—**		**—**	**45,647**	**45,647**
Comprehensive Income	*(1,467)*	*51,403*	*(50)*	*45,647*	*95,533*
Appropriation of 2013 net income/(loss)	36,990	—	—	(36,990)	—
Dividends paid	(54,890)	—	—	—	(54,890)
Changes in consolidation scope and other	179	—	—	—	179
POSITION AS AT 31 DECEMBER 2014	**342,219**	**37,548**	**839**	**45,647**	**426,253**
Change in foreign currency translation reserve	—	40,421	—	—	40,421
Financial instruments	—	—	(11)	—	(11)
Actuarial gains and losses on retirement commitments	489	—	—	—	489
Available-for-sale financial assets	—	—	—	—	—
Other comprehensive income (loss)	*489*	*40,421*	*(11)*	—	*40,899*
2015 NET INCOME/(LOSS)	**—**	**—**	**—**	**(33,201)**	**(33,201)**
Comprehensive Income	*489*	*40,421*	*(11)*	*(33,201)*	*7,698*
Appropriation of 2014 net income/(loss)	45,647	—	—	(45,647)	—
Dividends paid	(25,080)	—	—	—	(25,080)
Changes in consolidation scope and other	(13,710)	(3,220)	—	—	(16,930)
POSITION AS AT 31 DECEMBER 2014	**349,565**	**74,749**	**828**	**(33,201)**	**391,941**

Statement of cash flows

In € thousand	Notes	2014	2015
Consolidated net income (including non-controlling interests)		**(877,947)**	**(897,954)**
Net amortization, depreciation and provisions		1,534,951	764,051
Unrealized gains and losses linked to changes in fair value		(26,458)	(11,332)
Income and expenses linked to share options and equivalent		16,034	1,467
Capital gains and losses on disposals		8,151	14,207
Share of net income in associates	3	(2,487)	25
Dividends reclassified as other flows linked to investing activities		(2,774)	(1,687)
Cash flow from operating activities after net financial cost and taxes		**649,470**	**(131,223)**
Net financial cost	30	89,085	74,931
Tax expense (including deferred taxes)	31	157,654	(15,178)
Cash flow from operating activities before net financial cost and taxes		**896,209**	**(71,470)**
Interest paid		**(132,226)**	**(111,695)**
Tax paid		**(124,342)**	**(82,691)**
Interest received		**43,141**	**36,764**
Cash flow from operating activities		**682,782**	**(229,092)**
Change in operating working capital requirements	12	(20,449)	632,117
NET CASH FLOW FROM OPERATING ACTIVITIES (1)		**662,333**	**403,025**
Cash outflows for acquisitions of property, plant and equipment and intangible assets	2.1	(368,328)	(254,910)
Cash outflows for acquisitions of biological assets	2.1	(19,852)	(13,193)
Cash inflows from disposals of property, plant and equipment and intangible assets		4,276	4.575
Impact of acquisitions (changes in consolidation scope)		—	—
Cash of subsidiaries acquired (changes in consolidation scope)		—	—
Impact of disposals (changes in consolidation scope)		—	—
Cash of subsidiaries sold (changes in consolidation scope)		—	—
Other cash flows from investing activities		8,740	(11,322)
Impact of reclassification to assets held for sale and discontinued operations		—	(4,000)
NET CASH FLOW FROM (USED IN) INVESTING ACTIVITIES (2)		**(375,164)**	**(278,850)**
Increase and decrease in equity		49,166	17,252
Dividends paid during the year			
• Dividends paid in cash to shareholders in the parent company		(84,774)	(44,165)
• Dividends paid to non-controlling interests		(78,174)	(24,998)
Movements in treasury shares		(11,009)	(8,473)
Proceeds drawn from new borrowings		2,740,897	416,525
Repayments of borrowings		(2,331,722)	(857,736)
Change in percentage interest in controlled companies		—	—
Other cash flows from financing activities		(29,679)	(51,840)
CASH FLOW FROM FINANCING ACTIVITIES (3)		**254,705**	**(553,435)**
IMPACT OF CHANGES IN EXCHANGE RATES (4)		**22,489**	**(54,889)**
CHANGE IN CASH (1 + 2 + 3 + 4)		**564,363**	**(484,149)**
Opening net cash		**544,345**	**1,108,708**
Closing net cash		**1,108,708**	**624,559**
Change		564,363	(484,149)

Net cash represents cash and cash equivalents less bank overdrafts with an initial maturity of less than three months.

Statement of cash flows (Continued)

Statement of changes in net debt in 2015

In € thousand	Notes	31/12/2014	Change	31/12/2015
Gross cash (1)	10	1,146,913	(516,373)	630,540
Bank current accounts in debit and overdrafts (2)	16	38,205	(32,224)	5,981
CASH (3) = (1) − (2)		**1,108,708**	**(484,149)**	**624,559**
Gross financial debt (4)	16	2,655,312	(511,496)	2,143,816
NET FINANCIAL COST = (4) − (3)		1,546,604	(27,347)	1,519,257

Statement of changes in net debt in 2014

In € thousand	Notes	31/12/2013	Change	31/12/2014
Gross cash (1)	10	563,312	583,601	1,146,913
Bank current accounts in debit and overdrafts (2)	16	18,967	19,238	38,205
CASH (3) = (1) − (2)		**544,345**	**564,363**	**1,108,708**
Gross financial debt (4)	16	2,175,005	480,307	2,655,312
NET FINANCIAL COST = (4) − (3)		**1,630,660**	**(84,056)**	**1,546,604**

Notes to the consolidated financial statements for the year ended 31 December 2015

In € thousand (€m) unless stated otherwise

A—Consolidation principles

1. BASIS OF PREPARATION AND PRESENTATION OF THE FINANCIAL STATEMENTS

The consolidated financial statements for the year ended 31 December 2015, including the related notes to the consolidated financial statements, were approved by Vallourec's Management Board on 16 February 2016 and will be submitted for approval at the Shareholders' Meeting.

Pursuant to EC Regulation No. 1606/2002 adopted on 19 July 2002 for all listed companies in the European Union, Vallourec has prepared its consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union, using the standards and interpretations applicable as at 31 December 2015. These financial statements are available on the Company's website: www.vallourec.fr.

The IFRS framework covers the standards issued by the International Accounting Standards Board (IASB), as well as the International Accounting Standards (IAS) and their interpretations as issued by the Standing Interpretations Committee (SIC) and the International Financial Reporting Interpretations Committee (IFRIC).

The accounting principles and measurement methods have been applied consistently to the periods presented, with the exception of:

New mandatory standards

IFRIC 21—Levies relating to the recording of a liability for fees or taxes due, which was published in May 2013, clarifies a taxable event, recognizing a liability relating to a tax other than income tax when the obligation to pay occurs on a specific date or when a certain business threshold is reached. Application of IFRIC 21 had no material impact on the Group's consolidated financial statements as at 31 December 2015.

On 24 March 2015, the IFRIC provided an interpretation of IFRS 11—Joint Arrangements, clarifying the recording of the Group's operations within the framework of joint operations. The application of this interpretation as at 31 December 2015 primarily translates into a €107 million drop in revenue in consideration for purchases, a €165 million drop in non-current assets, in consideration for other provisions and long-term liabilities, and a drop in trade receivables of €33 million, in consideration for trade payables.

The Group's consolidated financial statements as at 31 December 2015 are not impacted by the other new standards which must be applied as of 1 January 2015.

New standards not applied early

- The IASB issued IFRS 15—Revenue from Contracts with Customers, which introduced a new model of accounting for these revenues for contracts with customers and will replace IAS 11, IAS 18 and the IFRIC and SIC interpretations related to revenue recognition.
- The IASB completed its project to replace IAS 39—Financial Instruments: Recognition and Measurement by publishing the final version of IFRS 9—Financial Instruments. IFRS 9 specifically introduces changes to the classification of financial assets, the impairment model, and hedge accounting.
- The Group is currently assessing the potential impact of first-time adoption of these texts which could become mandatory on 1 January 2018, and does not plan to opt for early application.

The Group has not opted for early application of any other standards or interpretations that will be mandatory for fiscal years beginning on or after 1 January 2016.

2. ACCOUNTING PRINCIPLES AND METHODS

2.1 General measurement principles

The consolidated financial statements are prepared using the historical cost convention, except for biological assets, derivative financial instruments that are measured at fair value, as well as financial assets measured at fair value through profit and loss or equity (see Section 2.16).

2.2 Use of estimates and judgment

The preparation of the financial statements under IFRS leads Vallourec's management to use estimates and formulate assumptions that affect the carrying amount of certain assets and liabilities, income and expenses, and some of the information in the notes to the financial statements.

Such assumptions are inherently uncertain, and actual results could differ from these estimates. The Group regularly reviews its estimates and assumptions in order to take into account past experience and any factors deemed relevant in prevailing economic conditions. In the current economic climate (uncertainty about business trends, a highly-competitive international environment and volatility in costs of raw materials and energy) the uncertain nature of some estimates may be more pronounced.

Accounts and information subject to significant estimates include the measurement of the following items:

- property, plant and equipment, intangible assets and goodwill (see Note 2.3);
- financial assets (see Note 2.16.1);
- derivative financial instruments (see Note 2.16.4);
- inventories and work in progress (see Note 2.10);
- provisions (see Note 17);
- biological assets (see Note 2.5.6);
- deferred taxes (see Note 5).

The Group must use assumptions and judgments to evaluate the level of control in certain associates, notably to define relevant activities and identify substantive rights, as well as the type of joint arrangement in question for a jointly controlled business. These judgments are revised if facts and circumstances change.

2.3 Consolidation of subsidiaries

The consolidated financial statements include the financial statements of Vallourec and its subsidiaries for the period from 1 January to 31 December 2015.

2.3.1 CONTROLLED ENTITIES

Subsidiaries are fully consolidated from the date of acquisition. They cease to be consolidated when control is transferred outside the Group.

Definition

There is control when the Group (i) holds power over an entity, (ii) is exposed to or is entitled to variable returns due to its connections with the entity and (iii) has the capacity to exercise its power over the entity so as to influence the amount of the returns it obtains.

Accounting method

The consolidated financial statements include all of the assets, liabilities, and comprehensive income of the subsidiary.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Non-controlling interests represent the share of interest which is not directly or indirectly attributable to the Group. The results and other items of comprehensive income are divided between the Group and non-controlling interests. The comprehensive income of the subsidiaries is divided between the Group and the non-controlling interests, including when this distribution results in allocating a loss to the non-controlling interests.

Changes in the percent interest in subsidiaries that do not result in a change of control are considered transactions impacting equity, as they are transactions that are performed with shareholders acting in this capacity.

The effects of these transactions are recorded in equity for the net tax amount and thus do not have an impact on the Group's consolidated income statement.

These transactions are moreover presented in the cash flow statement under financing or investment operations, as applicable.

The financial results of acquired companies are included in the consolidated income statement from their effective acquisition dates. The results of companies sold are included until the date control ceases.

Cash flows on the income statement and statement of financial position related to intra-Group commercial and financial transactions are eliminated.

2.3.2 CONSOLIDATION OF JOINT OPERATIONS

Definition

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement.

Joint operations

The Group, as a co-participant in a joint operation, records the following items as concerns its interests in the joint operation:

- its assets, including its share of the assets that are jointly held, where applicable;
- its liabilities, including its share of the liabilities that are jointly held, where applicable;
- the income it has drawn from the sale of its share of the production that is generated by the joint operation;
- the expenses it has incurred, including its share of the expenses jointly incurred, where applicable.

The consolidated financial statements include, line-by-line, the representative portion of the Group's interests in each item of the assets, liabilities and comprehensive income, established in compliance with IFRS.

The most significant joint operation is Vallourec & Sumitomo Tubos do Brasil (VSB). The qualification of this entity as a joint operation is underpinned by the legal form and the terms of the joint arrangement:

- Vallourec is affiliated by a contractual agreement with Sumitomo. The entities have joint control of VSB. To that end, the unanimous agreement of both joint operators is needed to make strategic decisions related to the activity, in order to appoint members of the Management Committee, approve the budget, or validate any decision relating to the operational activities of VSB;
- Vallourec has direct rights over VSB's production; the latter is only intended for Vallourec's and Sumitomo's use, in proportion to their respective interest, without direct access to the external market. The parties sharing control have agreed to use a predefined volume of supplies from VSB;
- Vallourec also has obligations ("take or pay" clauses and clauses to hedge fixed costs of VSB), jointly with its partner.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

2.3.3 INTERESTS IN JOINT VENTURES AND ASSOCIATES

Definition

Associates are companies in which the Group exercises significant influence over operating and financial policies without having control.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement.

The Group's investments in joint ventures and associates are accounted for using the equity method.

Equity Associates

The equity method provides for an investment in an associate being initially recorded at cost, and then subsequently adjusted for the change in the Group's share in the income and other comprehensive income of the associate.

An investment is recorded under the equity method as of the date when the entity becomes an associate or joint venture. When an associate or joint venture is acquired, the difference between the cost of the investment and the Group share in the net fair value of the identifiable assets and liabilities of the entity is recorded under goodwill. In the event that the net fair value of the identifiable assets and liabilities of the entity is higher than the cost of the investment, the difference is recorded under income.

Shares in the net income of associates are incorporated in the net income of the activities pursued, whether or not their activities are an extension of the Group's activities.

Impairment testing

The provisions of IAS 39—Financial Instruments: Recognition and Measurement, apply to determine whether or not it is necessary to perform an impairment test for its investment in an associate. If necessary, the total book value of the investment (including goodwill) undergoes impairment testing according to the provisions prescribed by IAS 36—Impairment of Assets.

Loss of significant influence or joint control

Whenever the investment no longer constitutes an associate, the equity method is no longer applied. Any retained interest in the former associate that constitutes a financial asset, is measured at fair value on the date the interest ceases to be an associate or joint venture.

2.4 Foreign currency translation

2.4.1 TRANSLATION OF SUBSIDIARIES' FOREIGN CURRENCY FINANCIAL STATEMENTS

The presentation currency of the consolidated financial statements is the euro.

Assets and liabilities of foreign subsidiaries, including goodwill, are translated at the official exchange rates on the reporting date. The income statements of foreign subsidiaries are translated at the average exchange rate for the period.

The ensuing translation differences are recorded in equity. The Group's share of such differences is recorded on the separate line, "Foreign currency translation reserve".

2.4.2 TRANSLATION OF FOREIGN CURRENCY TRANSACTIONS

Foreign currency transactions are translated into the Company's functional currency. When the transaction is subject to a hedge (see paragraph 2.16.4), it is translated at the spot rate on the day the hedging instrument is set up. In the absence of a hedge, foreign currency transactions are translated at the prevailing exchange rates on the transaction date.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Monetary assets and liabilities denominated in foreign currencies are translated at the closing exchange rates prevailing on that date. Translation differences resulting from difference between these rates and the rates at which the transactions were initially recorded are included in financial income or loss.

2.5 Property, plant and equipment and biological assets

2.5.1 MEASUREMENT AT COST NET OF DEPRECIATION AND IMPAIRMENT

Except when acquired as part of a business combination, property, plant and equipment are recorded at their acquisition or production cost. They are not subject to remeasurement. At each reporting date, the acquisition cost is reduced by accumulated depreciation and any provisions for impairment determined in accordance with IAS 36—Impairment of Assets (see paragraph 2.9).

2.5.2 COMPONENT APPROACH

The main components of an asset having a useful life different from that of the main asset (furnaces, heavy industrial equipment, etc.) are identified by the technical departments and depreciated over their own useful lives.

Subsequent expenditure on replacement of the component (i.e. the cost of the new component) is capitalized, provided that future economic benefits are still expected to be derived from the main asset.

The component approach is also applied to expenditure on major overhauls that are planned and carried out at intervals of over one year. Such expenditure is identified as a component of the asset's acquisition price, and is depreciated over the period between two overhauls.

2.5.3 MAINTENANCE AND REPAIR COSTS

Recurring maintenance and repair costs that do not meet the criteria for the component approach are expensed when they are incurred.

2.5.4 AMORTIZATION AND DEPRECIATION

Depreciation of property, plant and equipment is calculated on a straight-line basis over the useful lives summarized below. Land is not depreciated.

Main categories of property, plant and equipment	Straight-line depreciation Useful life
Buildings	
Administrative and commercial buildings	40
Industrial buildings/Infrastructure	30
Fixtures and fittings	**10**
Technical plant, equipment and tools	
Industrial plant	25
Specific production equipment	20
Standard production equipment	10
Other (automated equipment, etc.)	5
Other tangible assets	
Motor vehicles	5
Office equipment and furniture	10
Computer equipment	3

Depreciation of new industrial sites in the development stage is calculated according to the production-units method for assets used directly in the production process and the straight-line depreciation method for other assets.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

2.5.5 PROPERTY, PLANT AND EQUIPMENT ACQUIRED AS PART OF A BUSINESS COMBINATION

Property, plant and equipment acquired as part of a business combination are measured at fair value on the acquisition date. They are depreciated using the straight-line method over the remaining useful life at the acquisition date.

2.5.6 BIOLOGICAL ASSETS

The Group owns biological assets in Brazil, which mainly consist of eucalyptus plantations cultivated for the Group's coke requirements.

They are valued according to the principles defined by IAS 41—Agriculture. The existence of an active market in Brazil requires the Group to measure these assets at fair value less selling costs upon initial recognition and at each reporting date.

2.6 Leases

Assets financed by finance leases, which transfer almost all of the risks and rewards of ownership to the Group, are capitalized on the statement of financial position at the lesser of the fair value of the leased property or the present value of the minimum lease payments. The corresponding liability is recorded under financial liabilities.

Lease payments are split between interest expense and amortization of the obligation so as to obtain a constant interest rate on the balance of the loan liability.

Assets leased under finance leases are depreciated over their useful life in accordance with Group rules (see paragraph 2.5) or the lease term, whichever is shorter.

Leases under which the lessor retains almost all of the risks and rewards of ownership are operating leases. Payments on operating leases are expensed on a straight-line basis over the term of the contract.

2.7 Goodwill

The Group measures goodwill as the surplus of:

- the total of:
    - the fair value of the consideration transferred,
    - the amount of any non-controlling interest in the acquiree (such interests are measured either at fair value—total goodwill—or book value—partial goodwill), and
    - in the case of a step acquisition, the fair value at the acquisition date of the acquirer's previously held interest in the acquiree;
- and the net fair value at the acquisition date of the identifiable assets acquired and liabilities assumed.

For major acquisitions, fair value measurements are done with the help of independent experts.

The decision to apply the partial or total goodwill method is made separately for each business combination.

Goodwill is not amortized: pursuant to IAS 36—Impairment of Assets it is tested for impairment at least once a year, or more frequently if there is an indication of impairment. The testing procedures are designed to ensure that the recoverable amount of the cash-generating unit to which the goodwill is assigned or allocated is at least equal to its net carrying amount (see paragraph 2.9—Impairment of property, plant and equipment and intangible assets). If an impairment loss is recognized, an irreversible provision is recorded in operating profit under "Impairment of assets and goodwill".

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Pursuant to revised IFRS 3 and IAS 10.22, the Group recognizes in equity the difference between the price paid and the share of non-controlling shareholders acquired in previously-controlled companies.

Acquisition costs incurred by the Group in carrying out the business combination, such as referral agents' commissions, legal and due diligence fees and other professional or consultancy fees, are expensed when they are incurred.

2.8 Intangible assets

2.8.1 RESEARCH AND DEVELOPMENT COSTS

In accordance with IAS 38—Intangible Assets, research costs are expensed and development costs are capitalized as intangible assets if the company can show:

- its intention, and its financial and technical capability, to bring the development project to completion;
- that it is probable that the future economic benefits attributable to the development expenditure will flow to the company;
- its ability to reliably measure the cost of the intangible asset during its development phase;
- its ability to use or sell the intangible asset.

Significant R&D projects are reviewed based on information available from the corporate departments coordinating the research in order to identify and analyze any current projects that have entered the development phase, as defined under IAS 38.

The Group's development projects to design new or improved products and manufacturing processes, particularly in its oil and energy-related activities, are already at a very advanced stage before they qualify for capitalization as assets under IAS 38 criteria. It is very difficult to show the existence of long-term additional future economic benefits that can be clearly distinguished from the normal costs of maintaining and upgrading production plants and products to preserve the Group's technological and competitive edge. As a result, in 2015 as in 2014, no costs incurred on major projects were identified that met the standard's criteria.

2.8.2 OTHER INTANGIBLE ASSETS

Intangible assets acquired separately are recognized at cost. They are mainly patents and trademarks, which are amortized on a straight-line basis over their useful lives.

Intangible assets acquired as part of a business combination are recorded separately from goodwill if their fair value can be measured during the acquisition phase. Those with a finite life are amortized over their estimated useful lives for the Company.

Greenhouse gas emission allowances received free of charge are recognized at nil value (in accordance with IAS 20). A provision is recognized when allowances granted by the government are inadequate to cover actual emissions. Notes 17 and 22 to the financial statements contain information about the methods used to value unused allowances at the end of the reporting period.

2.8.3 IMPAIRMENT

Intangible assets are tested for impairment in accordance with the provisions of IAS 36—Impairment of Assets (see paragraph 2.9).

2.9 Impairment of property, plant and equipment and intangible assets

Under IAS 36—Impairment of Assets, the value in use of property, plant and equipment and intangible assets is tested whenever there is an indication of impairment; such indications are reviewed at each balance sheet date.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

A Group stock market value that is less than its consolidated net assets during a business cycle, a negative outlook associated with the economic, legislative or technological environment or a business sector would constitute an indication of impairment.

Impairment tests are carried out at least once a year for assets with indefinite useful lives, a category that, for the Group, is limited to goodwill.

To perform impairment tests, the assets are grouped into Cash-Generating Units (CGUs). CGUs are standard groups of assets whose on-going use generates cash inflows which are largely independent of the cash inflows generated by other groups of assets. The value in use of the CGUs is determined in relation to the present value of future net cash flows generated by the assets tested. The discount rate corresponds to the Group's weighted average cost of capital, incorporating a market risk premium and a sector-specific risk premium. This rate is adjusted, where appropriate, by a risk premium related to the geographical area.

When the CGU's recoverable amount (the higher of fair value less costs to sell and value in use) is less than its carrying amount, an impairment loss is recognized on a separate line in the income statement. When a CGU includes goodwill, the impairment loss is first deducted from goodwill and then, where applicable, the CGU's other assets.

In addition, the appearance of loss factors relating to specific assets (linked to internal factors or events or decisions that cast doubt on the continuing operation of a site, for example) may be such that they justify impairment of these assets.

The main CGUs used in the Group's current configuration and organization are Vallourec Europe, Vallourec do Brasil, Vallourec North America, Vallourec Heat Exchanger Tubes, Valinox Nucléaire, Serimax, and Vallourec & Sumitomo Tubos do Brasil.

2.10 Inventories and work in progress

Inventories are valued at the lesser of cost or net realizable value, and provisions for impairment are recognized if necessary.

Net realizable value is the estimated selling price in the ordinary course of business less estimated costs of completion and the estimated costs necessary to make the sale.

Inventory costs of raw materials, goods for resale and other supplies comprises the purchase price excluding taxes, less discounts, rebates and other payment deductions obtained, plus incidental costs of purchase (transportation, unloading expenses, customs duties, buying commissions, etc.). These inventories are measured at weighted average cost.

The cost of work in progress and intermediate and finished goods consists of the production cost excluding financial expenses. Production costs comprise raw materials, factory supplies and labor, and direct and indirect industrial overheads attributable to processing and production, based on normal capacity. General and administrative expenses are excluded from this measurement.

2.11 Assets held for sale and discontinued operations

A non-current asset or group of related assets and liabilities is considered to be held for sale, in accordance with IFRS 5—Non-current Assets Held for Sale and Discontinued Operations, when:

- it is available for immediate sale in its current condition; and
- its sale is highly probable. This is the case when management is committed to a plan to sell the asset and an active program to locate a buyer at a reasonable price, and the sale is expected to take place in less than one year.

Non-current assets, groups of assets or activities held for sale are measured at the lower of their carrying amount and their fair value (estimated selling price), net of selling costs. They are presented on a separate line in assets and liabilities and are no longer amortized or depreciated.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Only entire business lines of discontinued operations are disclosed separately in the income statement.

2.12 Provisions

A provision is recognized when, at the reporting date, the Group has a present obligation (legal or constructive) as a result of a past event and it is probable that an outflow of resources embodying future economic benefits will be required to settle the obligation.

Provisions are discounted to present values if the time value of money is material (for example, in the event of provisions for environmental risks or site clean-up costs). The increase in the provisions associated with the passage of time is recognized as a financial expense.

In the case of restructuring, a provision may be recognized only if, at the reporting date, the Company has announced the restructuring and drawn up a detailed plan or started to implement the plan.

Provisions are booked with regard to disputes (technical, guarantees, tax audits, etc.) if the Group has an obligation to a third party at the reporting date. They are determined based on the best estimate of the expense likely to be required to settle the obligation.

2.13 Retirement benefits and similar obligations

The Group participates in the funding of supplementary retirement plans and other long-term employee benefits, in accordance with constructive or legal requirements. The Group offers these benefits by means of either defined-contribution or defined-benefit plans.

In the case of defined-contribution plans, the Group's only obligation is the payment of premiums. Contributions paid to the plans are recognized as expenses for the period. If applicable, provisions are recognized for outstanding contributions at the reporting date.

Provisions are recognized for retirement commitments and similar obligation arising from defined benefit plans and are measured based on an actuarial calculation performed at least once a year by independent actuaries. The projected unit credit method is applied as follows: each period of service creates an additional unit of benefit entitlement, and each of these units is measured separately to determine the Group's employee benefit obligations.

The calculations take into account the specific features of the various plans and assumptions for the retirement date, career advancement, salary increases, as well as the probability of the employee still being employed by the Group at retirement age (turnover rates, mortality tables, etc.). The obligation is discounted based on the interest rates of long-term bonds of prime issuers.

Retirement commitments and similar obligations mainly relate to the Group's French subsidiaries and its subsidiaries in Germany, the United Kingdom, the United States and Brazil.

Other employee benefits for which the Group recognizes provisions are:

- in the case of French and foreign subsidiaries, benefits in connection with long-service awards;
- in the case of certain subsidiaries in the United States and Brazil, coverage of medical expenses.

The obligation is presented on the statement of financial position, net of plan assets measured at fair value (if applicable).

2.14 Share-based payments

IFRS 2 "Share-based Payment" requires the measurement and recognition of the benefits arising from share option and performance share allocation plans that are equivalent to compensation of the beneficiaries: these are recognized as payroll costs spread over the vesting period, with a corresponding increase in equity.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Changes in value after the award date have no impact on the option's initial measurement. The number of options taken into account in measuring the plan is adjusted at each reporting date to reflect the probability of the beneficiaries' continued service at the end of the vesting period.

- Some members of executive management and employees benefit from the share subscription or share purchase options that entitle them to purchase an existing share or to subscribe to a capital increase at an agreed price.

  Options must be measured using the Black & Scholes model on the date they are awarded.

- Some members of executive management and employees benefit from share allocation plans where vesting conditions are related to performance criteria (percentage of consolidated EBITDA). These plans are measured using a binomial model to project share prices.
- Vallourec offers employee shareholding plans reserved for its employees. These plans are measured using a binomial model to project share prices.

2.15 Treasury shares

Treasury shares held by the Group are recognized at their acquisition cost as a deduction from equity. Proceeds from the sale of these shares are booked directly as an increase in equity so that gains or losses on disposal do not affect consolidated profit.

2.16 Financial instruments

Financial instruments include financial assets and liabilities as well as derivatives.

The presentation of financial instruments is defined by IFRS 7 and IAS 32. The measurement and recognition of financial instruments are governed by IAS 39 and IFRS 13.

Changes in the fair value of derivatives are recognized in the financial statements. Changes in the fair value of hedged items are also recognized at each reporting date (see paragraph 2.16.4—Derivative instruments and hedge accounting).

In addition, in accordance with IAS 32, the sale of puts to non-controlling interest shareholders of a company under exclusive control results in the recognition of a financial liability equal to the discounted fair value of the estimated repurchase amount. The Group recognizes this financial liability by deducting it from the amount attributable to non-controlling interests and, for the remaining portion of the liability, by deducting it from equity, Group share.

2.16.1 FINANCIAL ASSETS (EXCLUDING HEDGE DERIVATIVES)

Financial assets include:

- non-current financial assets: other equity interests and associated receivables, construction participation loans and guarantees;
- current financial assets, including accounts receivable and other trade receivables, short-term derivative instruments and cash and cash equivalents (investment securities).

Initial measurement

Non-derivative financial assets are initially measured at fair value on the transaction date, including transaction costs, except for assets measured at fair value through profit or loss.

In most cases, the fair value on the transaction date is the historical cost, (i.e. the acquisition cost of the asset).

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Classification and measurement at the end of the reporting period

Financial assets (excluding hedging derivatives) are classified according to IAS 39 in one of the following four categories for their measurement on the balance sheet

Category	Measurement	Recognition of changes in value
Financial assets measured at fair value through profit or loss	Fair value	Changes in fair value recognized in profit or loss
Held-to-maturity assets	Amortized cost	Not applicable
Loans and receivables	Amortized cost	Not applicable
Available-for-sale financial assets	General convention: fair value But amortized cost for equity instruments whose fair value cannot be reliably estimated (e.g. shares not listed on an active market)	Changes in fair value recognized in other comprehensive income Not applicable

Financial assets for which changes in fair value are recognized in profit or loss

This category of assets includes:

- assets held for transactional purposes, i.e. that have been acquired by the business with the aim of generating short-term income; in the Group, the assets concerned are all cash assets (investment securities, cash and cash equivalents, etc.).

  Investment securities (French SICAV and FCP mutual funds, etc.) are measured at fair value at the reporting date, and changes in fair value are recognized in financial income/(loss). They are therefore not tested for impairment. Fair value is determined mainly by reference to market quotations;
- asset derivative instruments that are not expressly designated as hedging instruments.

Held-to-maturity assets

These are non-derivative financial assets with fixed or determinable payments and fixed maturities that the Company has the intention and ability to hold to maturity, other than loans and receivables and financial assets classified by the Company in the other two categories (measured at fair value through profit or loss; available-for-sale).

In the Group, the only assets in this category are security deposits and guarantees.

Loans and receivables

These are mainly non-derivative financial assets with fixed or determinable payments that are not listed on an active market.

In the Group, this category includes:

- receivables associated with participating interests, long-term loans and construction participation loans;
- accounts receivable and other trade receivables.

The amortized cost of short-term receivables such as trade receivable is usually equal to their historical cost.

Loans to employees are measured using the effective interest rate method applied to estimated future cash flows until the maturity dates of the loans.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Available-for-sale financial assets

Available-for-sale financial assets are mainly those that have not been classified in any of the other three categories.

In the Group, the main assets in this category are investments in equity instruments. In general, these are:

- unlisted shares whose fair value cannot be reliably estimated. They are recorded at their cost and undergo impairment testing when the consolidated financial statements are prepared;
- listed shares measured at their fair value at the reporting date. This fair value is determined based on the stock market price at the reporting date.

Changes in fair value are recognized directly in equity, unless a significant or long-term fall in fair value below the acquisition cost is recorded. In this case, the corresponding loss is definitively recorded in the income statement.

The "significant or long-term" nature is defined in Note 4—Other non-current assets, on a case-by-case basis.

Impairment testing of financial assets

Financial assets measured at amortized cost and available-for-sale financial assets measured at cost must be tested for impairment at each reporting date if there is any indication of impairment, such as:

- significant financial difficulties or a high probability that the counterparty will suffer bankruptcy or restructuring;
- a high risk of non-recovery of receivables;
- the lender, for economic or legal reasons relating to the borrower's financial difficulties, granting the borrower payment facilities not initially provided for;
- an effective breach of contract, such as the failure to make a payment (of interest, principal or both);
- the disappearance of an active market for the financial asset concerned.

In the case of assets measured at amortized cost, the amount of impairment is equal to the difference between the carrying amount of the asset and the present value of the estimated future cash flows, taking into account the counterparty's situation, and determined on the basis of the financial instrument's original effective interest rate.

The impairment thus determined is recognized in financial income or loss for the period.

As regards held-to-maturity investment and loans and receivables, if, during subsequent financial years, the conditions that led to the impairment cease to exist, the impairment must be reversed, although the reversal must not result in a carrying amount that, on the date the impairment is reversed, exceeds what the amortized cost would have been had the impairment not been recognized.

As regards unlisted equity interests classified as available-for-sale whose fair value cannot be reliably determined, no impairment previously recognized in the income statement may be reversed in subsequent periods, even in the event of an increase in the value of the securities concerned.

2.16.2 CASH AND CASH EQUIVALENTS

This item consists of bank current account balances and investment securities (units in short-term cash UCITS and mutual and investment funds) that are immediately available (not pledged), risk-free and have a low volatility level.

The cash flow statement is drawn up on the basis of the cash as defined above, net of overdrafts and other short-term bank borrowings that mature in less than three months.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

The net debt referred to in the cash flow statement corresponds to total financial debt less cash and cash equivalents.

2.16.3 FINANCIAL LIABILITIES

The Group's financial liabilities include bank loans which bear interest, bond issues and finance leases, as well as liability derivatives.

Borrowings are classified as current liabilities for the portion to be repaid within 12 months after the reporting date and as non-current liabilities for payments due in more than 12 months.

Interest-bearing borrowings are initially recorded at fair value less associated transaction costs. These costs (loan issue expenses and premiums) are taken into account in the calculation of the amortized cost using the effective interest rate method. They are recognized in financial profit or loss on an actuarial basis over the life of the liability.

At each reporting date, financial liabilities are then measured at amortized cost using the effective interest rate method, in addition to the specific procedures associated with hedge accounting (see below).

Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of swaps, linked to movements in interest rates, are recognized in equity for the effective portion, with the balance being recognized in financial profit or loss.

2.16.4 DERIVATIVE INSTRUMENTS AND HEDGE ACCOUNTING

Group exposure to foreign exchange risk on commercial transactions

In addition to the hedging of certain financial liabilities (see paragraph 2.16.3), the Group enters into hedging contracts mainly to manage its exposure to foreign exchange risks arising from the orders and sales of certain subsidiaries in currencies other than their functional currency. In particular, a significant share of Vallourec's revenue is invoiced by European companies in US dollars. Exchange rate fluctuations between the euro and the dollar may therefore affect the Group's operating margin.

The Group manages its exposure to foreign exchange risk by setting up hedges based on regularly updated forecasts of customer orders. Operating receivables and incomes that will be generated by the orders are thus hedged by financial instruments, mainly forward currency sales.

To a lesser extent, the Group also enters into forward currency purchases to hedge its foreign currency purchase commitments.

Measurement and presentation of derivatives

Changes in the value of derivatives with respect to their date of implementation are measured at each reporting date.

The fair value of forward currency contracts is calculated on the basis of market data and conditions. Since they hedge commercial transactions, these derivatives are presented on the statement of financial position under current assets and current liabilities.

Hedge accounting

Hedging of commercial transactions falls within the category of cash flow hedges.

The Group applies hedge accounting in strict compliance with the criteria of IAS 39:

- documentation of the hedging relationship: nature of the underlying hedged item, term of the hedge, hedging instrument used, spot rate of the hedge, forward points etc.;
- in the case of cash flow hedges, carrying out an effectiveness test on implementation of the derivative and updating the test at least once per quarter.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Hedge accounting within the Group is as follows:

At the reporting date, changes in the hedging instrument with respect to its date of implementation are measured at fair value and recognized on the statement of financial position as derivative assets or liabilities. The following are shown separately:

- the change in the intrinsic value of the hedging instrument (difference between the spot rate on the date of implementation of the hedge and the spot rate on the measurement date, i.e. the reporting date).

  If the hedge is effective, and as long as the sale (or purchase) hedged is not recognized, changes in the intrinsic value are recognized in equity, in accordance with the principles of cash-flow hedge accounting,

  If the hedging instrument is not effective (a rare occurrence, given the procedures introduced by the Group), the change in the intrinsic value of the derivative is recognized in financial income or loss;

- the change in the time value (premium/discount). This change is systematically recognized in financial profit or loss, since this component is not included in the hedging relationship.

The revenue (purchase) corresponding to the sales forecasts (purchase orders) hedged is recognized at the spot rate on the date of implementation of the hedging contract. The account receivable (account payable) is initially recognized at the same spot rate.

At the end of each reporting period, hedged foreign currency accounts receivable and accounts payable are measured and recognized at the exchange rate applicable on the reporting date. The difference between that rate and the rate used on initial recognition (spot rate on the date of implementation of the hedge) or the rate applicable on the last reporting date constitutes an exchange gain or loss recognized in financial profit or loss for the period.

Once the hedged item (foreign currency receivable or payable) is recorded on the statement of financial position, the change in the intrinsic value of the hedging instrument previously recognized in equity is recorded in financial income or loss. Changes in the value of the hedging instrument and the receivable or debt covered then have a symmetrical impact on financial income or loss.

2.17 Income tax

Income tax expense comprises current tax and deferred tax.

In accordance with IAS 12, deferred taxes are recognized, using the liability method, for temporary differences existing at the reporting date between the tax bases of assets and liabilities and their carrying amounts and unused tax losses, under the conditions set out below.

The main types of deferred tax recognized are:

- long-term deferred tax assets (provisions for retirement commitment of French companies), which are likely to be recovered in the foreseeable future;
- deferred tax assets for short-term recurring items (provision for paid time off, etc.) or non-recurring items (employee profit-sharing, provisions for liabilities that are not deductible for tax purposes, etc.) when they are likely to be recovered in the foreseeable future;
- deferred tax associated with the cancellation of entries made solely for tax purposes in local financial statements (regulated provisions, etc.) and any restatements to ensure the consistency and comparability of the parent company or consolidated financial statements;
- tax loss carryforwards.

The rates used to calculate deferred taxes are the tax rates expected to apply during the period in which the asset will be realized or the liability settled, based on tax regulations that have been adopted or substantially adopted at the reporting date.

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

Deferred taxes are not discounted to present value.

Current and deferred tax expenses are recognized as income or expenditure in the income statement unless they relate to a transaction or event that is recognized under other comprehensive income or directly in equity (see hedge accounting in paragraph 2.16.4 and actuarial gains and losses on post-employment obligations in 2.13—Retirement benefits and similar obligations).

Deferred taxes are presented on separate lines in the statement of financial position under non-current assets and non-current liabilities.

Net deferred tax assets are recognized only for those companies and tax groups that, based on a review at each reporting date, appear reasonably likely to recover these assets in the foreseeable future.

2.18 Revenue

Revenues from the sale of finished goods are recognized in the income statement when the following conditions are satisfied:

- the main risks and rewards of ownership have been transferred to the buyer;
- the seller retains neither managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- it is likely that the financial benefits associated with the sale will flow to the entity;
- the amount of the revenues and costs incurred (or to be incurred) as a result of the sale can be reliably determined.

Revenues from services are recognized in the income statement in proportion to the stage of completion at the reporting date.

No revenue is recognized if there are significant uncertainties as to the recovery of the amount due or the associated costs.

In the event of a sale with reservation of title, the sale is recognized on delivery of the goods if the risks and rewards have been transferred to the buyer.

Revenues are measured at the fair value of the consideration received or receivable, as determined by the agreement entered into between the Company and the customer, net of any trade discounts or volume rebates agreed.

See paragraphs 2.4.2 and 2.16.4 for the procedures for recognizing sales denominated in foreign currencies.

2.19 Determination of operating income

The income statement format used by the Group employs a classification by function.

Operating income or loss is calculated as the difference between pre-tax revenues and expenses other than those of a financial nature or relating to the income or losses of associates, and excluding any income or losses from discontinued operations or assets held for sale.

EBITDA is an important indicator for the Group, enabling it to measure its performance from continuing operations. It is calculated by taking operating profit before amortization and depreciation and excluding certain operating revenues and expenses that are unusual in nature or occur rarely, such as:

- impairment of goodwill and fixed assets determined in the context of impairment tests in accordance with IAS 36 (see paragraph 2.9);
- significant restructuring expenses, or those related to adjustments to headcount in respect of major events or decisions;

2. ACCOUNTING PRINCIPLES AND METHODS (Continued)

- capital gains or losses on disposals;
- revenue and expenses resulting from major litigation, significant roll-out operations or capital transactions (e.g. costs of integrating a new activity).

2.20 Earnings per share

Earnings per share is calculated by dividing consolidated net profit or loss by the weighted average number of shares outstanding during the fiscal year.

Diluted earnings per share is calculated taking into account the maximum impact of the conversion of dilutive common shares (options, performance shares) and using the "share repurchase" method as defined in IAS 33—Earnings per Share.

3. SEGMENT INFORMATION

The segments presented according to the Group's internal organization comply with the definition of operating segments identified and grouped according to IFRS 8. This information corresponds to that reviewed by the Executive Committee.

The Group presents its segment information based on the following operating segments, reconciled with consolidated data:

- Seamless tubes: This segment covers all the entities with production and marketing plants dedicated to the Group's main activity, i.e. the production of hot-rolled seamless carbon and alloy steel tubes, both smooth and threaded, for the oil and gas industry. This activity is characterized by a highly integrated manufacturing process, from production of the steel and hot-rolling to the final stages, facilitating the manufacture of products that are suitable for a variety of markets (including oil & gas, power generation, chemicals and petrochemicals, automotive and mechanical engineering);
- Specialty Products: This segment incorporates a number of activities whose characteristics are very different from those described above, but which are not presented separately due to their relative immateriality. This treatment is authorized by IFRS 8. This activity includes the production of stainless steel and titanium tubes as well as specific forming and machining activities.

In addition, geographical information is presented, distinguishing between five areas determined based on an analysis of the specific risks and returns associated with them:

- the European Union;
- North America (United States, Mexico and Canada);
- South America (mainly Brazil);
- Asia;
- rest of the world (mainly the Middle East).

Operating segments

Note 32 shows, for each operating segment, information on the income and results as well as selected information on the assets, liabilities and capital expenditure for fiscal years 2015 and 2014.

Geographical information

In addition to segment information, Note 32 shows, by geographical area, information on sales (by geographical location of customers), capital expenditure and selected information on assets (by operating areas) for fiscal years 2015 and 2014.

3. SEGMENT INFORMATION (Continued)

B—Consolidation scope

	% interest 31/12/2014	% control 31/12/2014	% interest 31/12/2015	% control 31/12/2015
Fully consolidated companies				
Kestrel Wave Investment Ltd—Hong Kong	100.0	100.0	100.0	100.0
P.T. Citra TubindoTbk—Indonesia	78.2	78.2	81.72	81.72
Premium Holding Limited—Hong Kong	100.0	100.0	—	—
Serimax Angola Ltd—United Kingdom	100.0	100.0	100.0	100.0
Serimax Australia Pty Ltd—Australia	100.0	100.0	100.0	100.0
Serimax Do Brasil Serviços de Soldagem e Fabricaçao Ltda—Brazil	100.0	100.0	100.0	100.0
Serimax Field Joint Coating Ltd—United Kingdom	60.0	100.0	60.0	100.0
Serimax Holdings S.A.S.—France	100.0	100.0	100.0	100.0
Serimax Ltd—United Kingdom	100.0	100.0	100.0	100.0
Serimax North America Llc—United States	100.0	100.0	100.0	100.0
Serimax OOO—Russia	100.0	100.0	100.0	100.0
Serimax Russia S.A.S.—France	100.0	100.0	100.0	100.0
Serimax S.A.S.—France	100.0	100.0	100.0	100.0
Serimax South East Asia Pte Ltd—Singapore	100.0	100.0	100.0	100.0
Serimax Welding Services Malaysia sdn bhd—Malaysia	100.0	100.0	100.0	100.0
Tubos Soldados Atlântico—Brazil	100.0	100.0	100.0	100.0
Umax Services Ltd—Great Britain	100.0	100.0	100.0	100.0
Vallourec Al Qahtani Tubes LLC—Saudi Arabia	65.0	65.0	75.0	75.0
Valinox Nucléaire S.A.S.—France	100.0	100.0	100.0	100.0
Valinox Nucléaire Tubes Guangzhou Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Changzhou Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Asia Pacific Corp. Pte Ltd—Singapore	100.0	100.0	100.0	100.0
Vallourec Automotive Components (Changzhou) Co., Ltd—China	95.0	100.0	95.0	100.0
Vallourec Bearing Tubes—France	100.0	100.0	100.0	100.0
Vallourec Beijing Co. Ltd—China	100.0	100.0	100.0	100.0
Vallourec Canada Inc.—Canada	100.0	100.0	100.0	100.0
Vallourec Deutschland GmbH—Germany	100.0	100.0	100.0	100.0
Vallourec Drilling Oil Equipment Manufacturing LLC—United Arab Emirates	100.0	100.0	100.0	100.0
Vallourec Drilling Products France—France	100.0	100.0	100.0	100.0
Vallourec Drilling Products Middle East FZE—Dubai	100.0	100.0	100.0	100.0
Vallourec Drilling Products USA Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Fittings—France	100.0	100.0	100.0	100.0
Vallourec Florestal Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Heat Exchanger Tubes—France	95.0	95.0	95.0	95.0
Vallourec Heat Exchanger Tubes (Changzhou) Co., Ltd—China	62.5	100.0	62.5	100.0
Vallourec Heat Exchanger Tubes Asia—France	62.5	65.8	62.5	65.8
Vallourec Heat Exchanger Tubes Inc.—United States	95.0	100.0	95.0	100.0
Vallourec Heat Exchanger Tubes Ltd—India	95.0	100.0	95.0	100.0
Vallourec Holdings Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Industries Inc.—United States	100.0	100.0	100.0	100.0
Vallourec Middle East FZE—United Arab Emirates	100.0	100.0	100.0	100.0
Vallourec Mineração Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Nigeria Ltd—Nigeria	100.0	100.0	100.0	100.0
Vallourec O and G Nigeria Ltd—Nigeria	100.0	100.0	100.0	100.0

3. SEGMENT INFORMATION (Continued)

	% interest 31/12/2014	% control 31/12/2014	% interest 31/12/2015	% control 31/12/2015
Vallourec Oil & Gas (China) Co., Ltd—China	100.0	100.0	100.0	100.0
Vallourec Oil & Gas France S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Oil & Gas Nederland B.V.—Netherlands	100.0	100.0	100.0	100.0
Vallourec Oil & Gas UK Ltd—United Kingdom	100.0	100.0	100.0	100.0
Vallourec Oil & Gas Mexico SA de CV—Mexico	100.0	100.0	100.0	100.0
Vallourec One S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Russia—Russia	100.0	100.0	100.0	100.0
Vallourec S.A.—France	100.0	100.0	100.0	100.0
Vallourec Saudi Arabia Ltd—Saudi Arabia	100.0	100.0	80.0	80.0
Vallourec Services S.A.—France	100.0	100.0	100.0	100.0
Vallourec Star, LP—United States	80.5	80.5	80.5	80.5
Vallourec Transportes e Serviços do Brasil Ltda—Brazil	100.0	100.0	100.0	100.0
Vallourec Tube-Alloy LP—United States	100.0	100.0	100.0	100.0
Vallourec Tubes France S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Tubes S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Tubos do Brasil S.A.—Brazil	100.0	100.0	100.0	100.0
Vallourec Umbilicals S.A.S.—France	100.0	100.0	100.0	100.0
Vallourec Uruguay—Uruguay	100.0	100.0	100.0	100.0
Vallourec USA Corporation—United States	100.0	100.0	100.0	100.0
VAM Far East—Singapore	51.0	51.0	51.0	51.0
VAM Field Services Angola—Angola	100.0	100.0	100.0	100.0
VAM Field Services Beijing—China	51.0	51.0	51.0	51.0
VAM USA—United States	51.0	51.0	51.0	51.0
Joint operations				
Vallourec & Sumitomo Tubos do Brasil Ltda—Brazil	56.0	50.0	56.0	50.0
VAM Changzhou Oil & Gas Premium Equipments—China	51.0	50.0	51.0	50.0
VAM Holding Hong Kong Limited—Hong Kong	51.0	50.0	51.0	50.0
Associates				
Hüttenwerke Krupp Mannesmann (HKM)—Germany	20.0	20.0	20.0	20.0
Poongsan Valinox—Korea	47.5	50.0	47.5	50.0
Xi'an Baotimet Valinox Tubes—China	37.1	49.0	37.1	49.0
Tianda Oil Pipe Co. Ltd—China	19.5	19.5	19.5	19.5

There was no significant change in scope during fiscal years 2015 and 2014.

C—Notes to the financial statements (in € thousand)

Note 1	Intangible assets and goodwill	F-222
Note 2.1	Property, plant and equipment	F-224
Note 2.2	Biological assets	F-225
Note 2.3	Impairment of property, plant and equipment, and intangible assets	F-226
Note 3	Associates	F-228
Note 4	Other non-current assets	F-230
Note 5	Deferred taxes	F-231
Note 6	Inventories and work in progress	F-234
Note 7	Trade and other receivables	F-235
Note 8	Financial instruments	F-235
Note 9	Other current assets	F-246
Note 10	Cash and cash equivalents	F-247
Note 11	Assets held for sale and discontinued operations	F-247
Note 12	Change in operating working capital requirements	F-248
Note 13	Equity	F-248
Note 14	Earnings per share	F-249
Note 15	Non-controlling interests	F-250
Note 16	Bank loans and other borrowings	F-251
Note 17	Provisions	F-254
Note 18	Other long-term liabilities	F-256
Note 19	Employee benefits	F-256
Note 20	Other current liabilities	F-268
Note 21	Information on related parties	F-269
Note 22	Contingent liabilities and commitments	F-272
Note 23	Revenue	F-273
Note 24	Cost of sales	F-273
Note 25	Sales, general and administrative costs	F-274
Note 26	Other	F-277
Note 27	Fees paid to the Statutory Auditors and members of their networks	F-278
Note 28	Accumulated depreciation and amortization	F-278
Note 29	Impairment of assets and goodwill, asset disposals and restructuring costs	F-279
Note 30	Financial income/(loss)	F-279
Note 31	Reconciliation of theoretical and actual tax expense	F-280
Note 32	Segment information	F-280
Note 33	Share in net income/(loss) of associates	F-283
Note 34	Business combinations	F-283
Note 35	Subsequent events	F-284

NOTE 1 Intangible assets and goodwill

	Concessions, patents, licenses and other rights	Other intangible assets	Total intangible assets	Goodwill
GROSS VALUES				
As at 31/12/2013	**92,171**	**442,991**	**535,162**	**494,943**
Acquisitions	435	4,423	4,858	—
Disposals	(50)	(193)	(243)	—
Impact of changes in exchange rates	1,719	48,469	50,188	55,359
Other changes	5,530	(1,201)	4,329	692
As at 31/12/2014	**99,805**	**494,489**	**594,294**	**550,994**
Acquisitions	711	1,896	2,607	—
Disposals	(272)	(556)	(828)	—
Reclassification to assets held for sale and discontinued operations	(3,556)	(12,620)	(16,176)	(6,415)
Impact of changes in exchange rates	(3,255)	36,585	33,330	53,124
Other changes	6,096	2,476	8,572	—
AS AT 31/12/2015	**99,529**	**522,270**	**621,799**	**597,703**
DEPRECIATION AND IMPAIRMENT				
As at 31/12/2013	**(57,381)**	**(271,628)**	**(329,009)**	**(20)**
Net amortization expenses for the fiscal year	(7,866)	(32,252)	(40,118)	—
Impairment (see Notes 2.3, 28 and 29)	(4,410)	(18,724)	(23,134)	(204,148)
Disposals	50	192	242	—
Impact of changes in exchange rates	(934)	(35,431)	(36,365)	(14,608)
Other changes	(879)	879	—	—
As at 31/12/2014	**(71,420)**	**(356,964)**	**(428,384)**	**(218,776)**
Net amortization expenses for the fiscal year	(7,100)	(26,999)	(34,099)	—
Impairment (see Notes 2.3, 28 and 29)	—	—	—	(36,316)
Disposals	268	495	763	—
Reclassification to assets held for sale and discontinued operations	3,306	11,657	14,963	6,415
Impact of changes in exchange rates	3,266	(30,353)	(27,087)	(19,457)
Other changes	989	(123)	866	—
AS AT 31/12/2015	**(70,691)**	**(402,287)**	**(472,978)**	**(268,134)**
NET VALUES				
As at 31/12/2014	**28,385**	**137,525**	**165,910**	**332,218**
AS AT 31/12/2015	**28,838**	**119,983**	**148,821**	**329,569**

INTANGIBLE ASSETS

Vallourec devotes significant efforts on an on-going basis to Research and Development, particularly in the field of energy. These efforts cover three main areas:

- manufacturing processes (charcoal, steel-making, tube-rolling, non-destructive testing, forming, welding and machining);
- new products and product improvements;
- new services (customer support for tube design, use and processing).

NOTE 1 Intangible assets and goodwill (Continued)

No costs were identified in connection with major projects that meet the criteria for capitalization as assets.

Other intangible assets relate to technology and know-how, trademarks, order books and customer relationships acquired mainly in connection with business combinations. They are amortized on a straight-line basis over their useful life (amortization period of 5.5 to 15 years).

Other than goodwill, there are no intangible assets with indefinite useful lives.

Goodwill

Cash-generating unit (CGU) (see paragraph 2.9—Impairment of property, plant and equipment and intangible assets)	Vallourec do Brasil	Vallourec North America	Vallourec Europe	Serimax	Other	Total
As at 31/12/2013	**3,133**	**289,994**	**160,246**	**36,316**	**5,234**	**494,923**
Impact of changes in exchange rates	3	36,296	4,778	—	366	41,443
Impairment (see Notes 2.3, 28 and 29)	—	(33,707)	(165,024)	—	(5,417)	(204,148)
Acquisitions	—	—	—	—	—	—
As at 31/12/2014	**3,136**	**292,583**		**36,316**	**183**	**332,218**
Impact of changes in exchange rates and other	(55)	33,905	—	—	(183)	33,667
Impairment (see Notes 2.3, 28 and 29)	—	—	—	(36,316)	—	(36,316)
Acquisitions	—	—	—	—	—	—
AS AT 31/12/2015	**3,081**	**326,488**	**—**	**—**	**—**	**329,569**

The impairment tests as at 31 December 2015 are presented in Note 2.3.

NOTE 2.1 Property, plant and equipment

	Land	Buildings	Technical installations, industrial equipment and tools	Current property, plant and equipment	Other tangible assets	Total
GROSS VALUES						
As at 31/12/2013	**108,992**	**865,717**	**4,147,396**	**424,936**	**290,616**	**5,837,658**
Acquisitions	12	8,110	57,218	226,268	53,519	345,127
Disposals	(48)	(1,898)	(32,159)	(3,740)	(28,413)	(66,258)
Impact of changes in exchange rates	3,553	49,076	207,150	21,197	11,823	292,799
Other changes	5,817	51,716	315,379	(340,255)	(35,737)	(3,080)
As at 31/12/2014	**118,326**	**972,721**	**4,694,984**	**328,406**	**291,808**	**6,406,246**
Acquisitions	974	6,209	23,175	187,181	17,469	235,008
Disposals	(14)	(6,442)	(51,313)	(142)	(11,746)	(69,657)
Reclassification to assets held for sale and discontinued operations	(1,410)	(13,217)	(62,589)	(1,717)	(3,353)	(82,286)
Impact of changes in exchange rates	(15,950)	(36,652)	(162,885)	(19,638)	(20,201)	(255,326)
Other changes	2,524	35,985	189,714	(253,054)	(3,743)	(28,574)
AS AT 31/12/2015	**104,450**	**958,604**	**4,631,086**	**241,036**	**270,234**	**6,205,411**
DEPRECIATION AND IMPAIRMENT						
As at 31/12/2013	**(24,296)**	**(204,598)**	**(1,327,810)**	**(1,227)**	**(129,014)**	**(1,686,945)**
Net depreciation expenses for the fiscal year	(1,241)	(36,799)	(242,702)	—	(31,116)	(311,858)
Impairment losses (Note 2.3)	(1,468)	(159,257)	(704,309)	(3,210)	(7,615)	(875,859)
Disposals	—	1,453	24,749	—	28,396	54,598
Impact of changes in exchange rates	(605)	(8,810)	(48,269)	(248)	(5,061)	(62,993)
Other changes	—	(153)	(149)	—	362	60
As at 31 /12/2014	**(27,610)**	**(408,164)**	**(2,298,490)**	**(4,685)**	**(144,048)**	**(2,882,997)**
Net amortization expenses for the fiscal year	(1,263)	(34,329)	(209,611)	(94)	(54,600)	(299,897)
Impairment losses (Note 2.3)	—	(26,059)	(135,796)	(800)	(547)	(163,202)
Disposals	—	3,015	44,678	—	11,270	58,963
Reclassification to assets held for sale and discontinued operations	—	7,823	48,811	—	2,164	58,798
Impact of changes in exchange rates	4,622	26,287	127,788	(210)	10,504	168,991
Other changes	(74)	960	(6,495)	964	19,639	14,994
AS AT 31/12/2015	**(24,325)**	**(430,467)**	**(2,429,115)**	**(4,825)**	**(155,618)**	**(3,044,350)**
NET VALUES						
As at 31/12/2014	**90,716**	**564,557**	**2,396,494**	**323,721**	**147,760**	**3,523,249**
AS AT 31/12/2015	**80,125**	**528,137**	**2,201,971**	**236,211**	**114,616**	**3,161,061**

NOTE 2.1 Property, plant and equipment (Continued)

The contribution of the Vallourec-Sumitomo Do Brasil joint operation (56% interest) to the property, plant and equipment line amounted to €362 million as at 31 December 2015.

Capital expenditure excluding changes in scope

	2014		2015	
	Intangible assets and property, plant and equipment	Biological	Intangible assets and property, plant and equipment	Biological (see Note 2.2)
Europe	143,511	—	108,711	—
North America	95,347	—	66,370	—
South America	87,272	19,852	46,396	13,193
Asia	21,503	—	15,501	—
Other	2,352	—	637	—
TOTAL	**349,985**	**19,852**	**237,615**	**13,193**
	—	369,837	—	250,808
Note 1: acquisition of intangible assets	4,858	—	2,607	—
Note 2.1: acquisition of property, plant and equipment	345,127	19,852	235,008	13,193
TOTAL CAPITAL EXPENDITURE	**349,985**	**—**	**237,615**	**—**
Changes in fixed asset liabilities and partner contributions	18,343		17,295	
TOTAL	**368,328**	**19,852**	**254,910**	**13,193**
Statement of cash flows: capital expenditure paid out during the period:		388,180		268,103

LEASES

The finance lease signed in 2010 by Vallourec & Sumitomo Tubos do Brasil for the construction of a water treatment facility had a net carrying amount of €62 million at 56% as at 31 December 2015.

NOTE 2.2 Biological assets

Change in biological assets	2014	2015
As at 1 January	**178,005**	**213,923**
Investments	19,852	13,193
Valuation at fair value	34,965	9,848
Net depreciation expenses for the period	(9,333)	(12,915)
Impairment losses	—	(7,290)
Reclassification to inventory	(10,525)	(8,744)
Foreign exchange differences	959	(53,321)
AS AT 31 DECEMBER	**213,923**	**154,694**

The Group's Brazilian subsidiary Vallourec Florestal cultivates eucalyptus plantations mainly to produce the coal used in the blast furnaces of Vallourec do Brasil and Vallourec & Sumitomo do Brasil.

As at 31 December 2015, the Company cultivated approximately 113,022 hectares of eucalyptus over a total area of 232,776 hectares.

In 2015, Vallourec Florestal posted revenue of €68.7 million, against €84.7 million in 2014.

NOTE 2.3 Impairment of property, plant and equipment, and intangible assets

IMPAIRMENT TESTING

Goodwill is tested for impairment at each year-end. The value in use of a CGU is defined as the sum of future cash flows as determined by the discounted cash flow method (see paragraph 2.9—Accounting principles and methods).

Discount rate

Future cash flows are discounted at a rate corresponding to the weighted average cost of capital applicable to companies in the sector. This rate is defined as the sum of the cost of equity and the post-tax cost of debt, weighted on the basis of their respective amounts.

The main components of weighted average cost of capital are:

- a market risk premium;
- a risk-free rate corresponding to the average rate on treasury bills in each region. This rate, which is between 2.2% and 2.4%, varies between the regions of Europe, the United States and Brazil;
- a beta calculated on the basis of a sample of companies in the sector, specific to each CGU (generally between 1.15 and 1.20);
- a country risk specific to activities outside of Europe and the United States.

Applying these parameters leads to a discount rate of 8.1% for Vallourec Europe, 8.7% for Vallourec North America, 12.7% for Vallourec do Brasil, 9.1% for Vallourec & Sumitomo do Brasil, and 8.1% for Serimax.

Future cash flows

Changes in the economic climate may affect certain estimates and make it more difficult to assess the Group's outlook for the purposes of asset impairment testing. A Group stock market value that is less than its consolidated net assets during a business cycle, a negative outlook associated with the economic, legislative or technological environment or a business sector would constitute an indication of impairment.

As at 31 December 2014, market trends (reduction in activity, strict selection of investments, and the arrival of new competitors) had been analyzed as indications of impairment requiring the implementation of impairment tests for all CGUs, including those that do not contain intangible assets with an unlimited useful life. The result of impairment tests led the Group to recognize an impairment loss of €1,061 million on property, plant and equipment and intangible assets of the Vallourec Europe CGU (€539 million) and the Vallourec & Sumitomo do Brasil CGU (€522 million).

The Group has faced a deteriorating economic environment since the final months of 2014 (a drop in exploration and production investments by oil companies, volatility of raw materials and energy, and a highly competitive international environment) which has continued throughout and beyond 2015. In response to the continued decline in oil prices since the end of 2014, oil and gas companies have further tightened their cost control, leading them to reduce capital expenditure and rationalize inventories in the areas of exploration, production and development of oil and natural gas reserves. This has had a significant impact on the demand for pipes and on their prices. This reduction in demand, combined with lower prices resulting from competitive pressures from incumbent gas operators and the arrival of new competitors, exacerbated by the deflationary pressures of our customers, has significantly altered competitiveness, profitability of activities and future cash flows. This is notably the case in the EAMEA region, for certain markets of products.

The Group's five-year strategic plan was presented to the Supervisory Board on 15 December 2015. In this plan, the Group used assumptions for 2016 and 2017 that were consistent with the data recorded in late 2015. Its assumptions also included a gradual recovery of the Oil & Gas business by 2017 and a return to normal volumes in this sector by 2020. The Group thus believes that by 2020 oil investment levels will have returned to levels equivalent to those of 2014, considered to be the Group's normal activity level. It expects

NOTE 2.3 Impairment of property, plant and equipment, and intangible assets (Continued)

a deflationary environment partially offset by (i) an improved product mix (ii) a favorable price trend in major currencies (USD and BRL) making the Brazil plants more competitive, and (iii) the positive results of a competitiveness plan launched by the Group in 2015. Exchange rate assumptions are consistent over the period with those used at the end of 2015. Restructuring plans not implemented are not included in cash flows. The normalized year of 2020 is projected to perpetuity by applying a growth rate of 1.5% to 2%, depending on the CGU. This perpetuity growth rate takes account of long-term inflation and growth forecasts for Vallourec's main markets, particularly Oil & Gas.

The value-in-use of the assets of Group CGUs (current and non-current operating assets) was calculated based on this strategic plan.

The impairment tests performed in this deteriorated economic climate led the Group to recognize impairment losses on the Serimax CGU (€36 million impairment of goodwill, see Note 1), in addition to impairments of individual assets that were recognized elsewhere.

The tests performed did not lead to the recognition of impairment losses on the North America CGU. The value-in-use of this CGU is sensitive to changes in certain factors—i.e. the number of drilling rigs in North America and prices. It can withstand a drop of about 10% of its EBITDA (decrease applied each year from 2016 to 2020 inclusive), beyond which the value-in-use becomes lower than the asset's net carrying amount.

The Group also carried out sensitivity analyses in the case of a one-year lag in the recovery of the Oil & Gas business. These scenarios have no impact on the balance point of the normalized year of 2020, insofar as the recovery would then take off at a faster pace. This sensitivity shows deterioration in the value-in-use of all CGUs doing business in the Oil & Gas sector, but it does not raise concerns about the net values of these CGUs' assets.

CGU sensitivity analysis		Vallourec Europe	VSB
Net value of assets as at 31 December 2014		1,819	903
Net value of assets to be tested for impairment as at 31 December 2015		1,524	701
Impairment of individual assets (see Note 6.1.2 (a))		(177)	(5)
NET VALUES AFTER IMPAIRMENT OF INDIVIDUAL ASSETS AS AT 31 DECEMBER 2015		**1,347**	**696**
VALUE IN USE OF THE CGU BASED ON THE STRATEGIC PLAN		**1,975**	**1,088**
Sensitivity to the discount rate	+0.5 pt	1,796	1,003
	−0.5 pt	2,183	1,187
EBITDA sensitivity	−10% per year	1,632	934
	+10% per year	2,318	1,242
EUR/USD foreign exchange rate sensitivity	+5 ct	1,350	991
	−5 ct	2,657	1,195
Sensitivity to a lag in the recovery over the life of the plan		1,567	1,030
Perpetuity growth rate sensitivity	+0.5 pt	2,103	1,159
	−0.5 pt	1,865	1,027
IMPAIRMENT LOSS		—	—

(a) Including a €160 million impairment loss on the non-current assets of Valourec Europe. This loss is related to decisions announced in 2015 to rationalize its European pipe and steel facilities, resulting in a one-third reduction of its European pipe mills' capacity between 2014 and 2017.

The Vallourec Europe CGU comprises the assets of several subsidiaries that are active in the production cycle of the products marketed by this CGU: a steel mill in France, rolling mills in France and Germany, and tube finishing lines.

NOTE 2.3 Impairment of property, plant and equipment, and intangible assets (Continued)

The VSB CGU, comprising 56% of the assets of the Brazilian joint operation, as well as upstream support assets in Brazil (Mining and Forestry) and downstream assets of entities that market its products after a finishing operation, where necessary.

The future cash flows of these CGUs are sensitive to changes in the value of their export transactions denominated in a currency other than that of the country where they are based (mainly USD). Unhedged cash flows were measured at the exchange rate of 31 December 2015, consistent with the balance sheet values to be tested.

Given the sensitivity of DCF calculations to the assumptions used, the Group decided to maintain the impairment losses recorded at the end of 2014 on the Vallourec Europe and VSB CGUs.

NOTE 3 Associates

The Group's main associates (individual carrying amount greater than €50 million) are listed below.

	HKM	Tianda Oil Pipe	Other	Total
Activity	**Steel mill**	**Tube manufacturing**		
Business location	**Germany**	**China**		
As at 31/12/2013	**72,688**	**54,334**	**45,690**	**172,712**
Capital increase	4,000	—	1,213	5,213
Impact of changes in exchange rates	—	4,892	5,401	10,293
Dividends paid	(6)	(3,219)	(3,323)	(6,548)
Other	—	—	(32)	(32)
Contribution to net income of the period	6	1,439	1,042	2,487
As at 31/12/2014	**76,688**	**57,446**	**49,991**	**184,125**
Capital increase	4,000		4,074	8,074
Impact of changes in exchange rates	—	2,370	4,136	6,506
Dividends paid	(6)	(6,272)	(4,474)	(10,752)
Reclassification to assets held for sale and discontinued operations	—		(11,044)	(11,044)
Other	—		(49)	(49)
Contribution to net income of the period	—	(436)	411	(25)
AS AT 31/12/2015	**80,682**	**53,108**	**43,045**	**176,835**

As at 31 December 2015, only HKM and Tianda Oil Pipe were identified as significant associates of the Group.

The condensed financial data (100%) for these companies is presented below.

HKM	31/12/2014	31/12/2015
Non-current assets	648,882	651,985
Current assets	659,829	565,029
Non-current liabilities	337,312	584,339
Current liabilities	587,961	229,267
Net assets	**383,438**	**403,408**
Sales	2,410,968	2,001,550
Operating income	1,771	4,474
Net income from continuing operations	28	—
Other comprehensive income (loss)	—	—
Total comprehensive income (loss)	—	—
Dividends paid to the Group	6	6

NOTE 3 Associates (Continued)

The reconciliation of the condensed financial data from the HKM associate with the book value of the Group's interests in this associate is as follows:

HKM	31/12/2014	31/12/2015
Net assets	383,438	403,408
Group's percentage interest in HKM	20%	20%
Goodwill	—	—
Other	—	—
Value of investments in equity affiliates	76,688	80,682
HKM net income/(loss)	28	—
Group's percentage interest in HKM	20%	20%
Share of net income	6	—

Tianda Oil Pipe is listed on the Hong Kong Stock Exchange. The price of the share totaled HKD 1.14 as at 31 December 2015, compared with HKD 1.30 as at 31 December 2014.

Tianda Oil Pipe	31/12/2014[(a)]
Non-current assets	157,559
Current assets	225,356
Non-current liabilities	—
Current liabilities	87,564
Net assets	**295,351**
Sales	352,072
Operating income	9,281
Net income from continuing operations	7,398
Other comprehensive income (loss)	136
Total comprehensive income (loss)	7,535
Dividends paid to the Group	3,219

(b) Most recently audited accounts available.

The reconciliation of the condensed financial data from the Tianda Oil Pipe associate with the book value of the Group's interests in this associate is as follows:

Tianda Oil Pipe	31/12/2014[(a)]
Net assets	295,351
Group's percentage interest in Tianda Oil Pipe	19.45%
Goodwill	—
Other	—
Value of investments in equity affiliates	57,446
Tianda Oil Pipe income	7,398
Group's percentage interest in Tianda Oil Pipe	19.45%
Share of net income	1,439

(a) Most recently audited accounts available.

The Group likewise holds interests in other associates (which, considered individually, are not significant) for an overall book value of €43 million as at 31 December 2015, compared with €50 million as at 31 December 2014.

NOTE 4 Other non-current assets

	Other investments in equity instruments	Loans	Other financial assets	Other	Total
As at 31/12/2013	**85,513**	**6,184**	**40,836**	**304,429**	**436,962**
Gross value	73,885	6,713	41,571	314,375	436,544
Provisions	(1,176)	—	(304)	—	(1,480)
As at 31/12/2014	**72,709**	**6,713**	**41,267**	**314,375**	**435,064**
Gross value	67,166	4,659	36,662	125,925	234,412
Provisions	(1,052)	—	(227)	—	(1,279)
AS AT 31/12/2015	**66,114**	**4,659**	**36,435**	**125,925**	**233,133**

At as 31 December 2015, available-for-sale equity securities related almost exclusively to Nippon Steel & Sumitomo Metal Corp., listed on the Tokyo Stock Exchange and acquired in 2009 for a total of €81.9 million.

A seven-year partnership agreement signed on 31 December 2009 between Vallourec and Nippon Steel & Sumitomo Metal Corp. includes a cross-shareholding in which each company holds a stake of about USD 120 million in the other. Nippon Steel & Sumitomo Metal Corp. and Vallourec are partners in Vallourec & Sumitomo Tubos do Brasil, working together to produce the VAM® line of premium joints.

In view of the strategic and long-term nature of the investment, Vallourec set thresholds above which a decline in net asset value of the Nippon Steel & Sumitomo Metal Corp. shares would be an event of a "significant or long-term nature" requiring the recognition of an impairment loss in the income statement:

- 3 years for the long-term nature of a decline;
- 40% for the significant nature of a decline.

As at 31 December 2015, the fair value of these shares, based on their NAV of €63.9 million, showed a loss of €18 million recognized in equity. For the record, the NAV of these shares as at 31 December 2014 was €71.9 million and generated a loss of €10 million recognized in equity.

Other financial assets consist mainly of interest-bearing security deposits, particularly paid in connection with tax disputes in Brazil (€21 million as at 31 December 2015; see also Note 16).

Other non-current assets consist mainly of €125.8 million in deferred tax receivables in Brazil and the United States.

The impact of the application of the Amendment to IFRS 11 translates to a €165 million drop in non-current assets, offset by other long-term liabilities.

Maturities of other non-current assets	1 to 5 years	5 years or more	Total
GROSS VALUES AS AT 31/12/2014			
Loans	4,143	2,570	6,713
Other investments in equity instruments	—	82,259	82,259
Other financial assets	212,707	134,865	347,572
TOTAL	**216,850**	**219,694**	**436,544**
GROSS VALUES AS AT 31/12/2015			
Loans	2,357	2,302	4,659
Other investments in equity instruments	—	76,080	76,080
Other financial assets	103,659	50,014	153,673
TOTAL	**106,016**	**128,396**	**234,412**

NOTE 5 Deferred taxes

The main bases used to calculate deferred taxes are:

- recurring: provisions for paid leave and the additional social security levy on businesses *(contribution sociale de solidarité des sociétés);*
- non-recurring: cancellation of regulated provisions, employee profit-sharing, non-tax deductible provisions and any restatements to ensure the consistency and comparability of the parent company or consolidated financial statements;
- long-term recurring: non-tax deductible provisions for retirement commitments, non-tax deductible provisions for assets and remeasurements of assets acquired in connection with a business combination.

Deferred taxes are recognized using the liability method.

The rates used are the recovery rates known at the reporting date.

The standard corporate income tax rate in France is 33.33%. The Social Security Funding Act No. 99-1140 of 28 December 1999 introduced an additional levy of 3.3% of the basic tax due for French companies. This raised the statutory tax rate by 1.1%, to 34.43%. The 2011 Finance Act No. 2011-1978 of 28 December 2011 introduced an exceptional contribution equal to 5% of the amount of income tax payable by companies with revenues above €250 million. This contribution is temporary, but Article 30 of the 2013 Finance Act extended its implementation by two years. This contribution therefore applies to fiscal years 2011 to 2015. The rate of this contribution is 10.7%.

The deferred tax rates used for French companies in 2015, unchanged from 2014, are 34.43% for current tax and 0% for long-term capital gains and losses.

The other deferred tax rates used in 2015, unchanged from 2014, are 31.6% for Germany, 34% in Brazil and 36.5% for the United States.

The French supplementary business taxes (*Cotisation Foncière des Entreprises* and *Cotisation sur la Valeur Ajoutée des Entreprises*) are recognized as operating expenses.

	2014	2015
Deferred tax assets	223,102	148,783
Deferred tax liabilities	256,246	216,172
NET DEFERRED TAX ASSETS/(DEFERRED TAX LIABILITIES)	**(33,144)**	**(67,389)**

NOTE 5 Deferred taxes (Continued)

Presentation of deferred taxes by type:

As at 31/12/2015	Assets	Liabilities	Net deferred tax liabilities
Non-current assets	—	210,260	
Other assets and liabilities	—	42,001	
Inventories	21,273	—	
Employee benefits	12,717	—	
Derivatives	165	—	
Distributable reserves and foreign currency translation reserves	—	1,851	
NET BALANCE	**34,155**	**254,112**	**(219,957)**
Recognition of tax losses	152,568	—	152,568
TOTAL	**186,723**	**254,112**	**(67,389)**

As at 31/12/2014	Assets	Liabilities	Net deferred tax liabilities
Property, plant and equipment and intangible assets	—	220,467	
Other assets and liabilities	—	19,797	
Inventories	34,225	—	
Employee benefits	55,732	—	
Derivatives	7,294	—	
Distributable reserves and foreign currency translation reserves	—	1,851	
NET BALANCE	**97,251**	**242,115**	**(144,864)**
Recognition of tax losses	111,720	—	111,720
TOTAL	**208,971**	**242,115**	**(33,144)**

The Group's deferred taxes (gross values) as at 31 December 2015 and 31 December 2014 are broken down as follows:

As at 31/12/2015	Gross value	Corresponding deferred tax	Recognized deferred tax	Unrecognized or impaired deferred tax
Tax loss carryforwards	1,565,529	487,253	152,568	334,686
Other tax assets	—	—	(3,785)	246,788
TOTAL TAX ASSETS	**—**	**487,253**	**148,783**	**581,474**
Tax liabilities	—	—	(216,172)	—
TOTAL TAX LIABILITIES	**—**	**—**	**(216,172)**	**—**
TOTAL	**—**	**—**	**(67,389)**	**581,474**

As at 31/12/2014	Gross value	Corresponding deferred tax	Recognized deferred tax	Unrecognized or impaired deferred tax
Tax loss carryforwards	916,497	287,833	111,720	176,113
Other tax assets	—	—	111,382	229,930
TOTAL TAX ASSETS	**—**	**287,833**	**223,102**	**406,043**
Tax liabilities	—	—	(256,246)	—
TOTAL TAX LIABILITIES	**—**	**—**	**(256,246)**	**—**
TOTAL	**—**	**—**	**(33,144)**	**406,043**

NOTE 5 Deferred taxes (Continued)

Tax loss carryforwards relate mainly to Vallourec & Sumitomo Tubos do Brasil, the French tax group, Vallourec Changzhou (China), Vallourec Star (United States) and Vallourec Deutschland (Germany) and Vallourec Saudi Arabia.

The deferred tax assets are recognized when there is reasonable assurance of being able to recover these deferred tax assets in the foreseeable future. When it is estimated that allocating these carryforwards to future taxable profits would be uncertain, no deferred tax asset is recognized and, where applicable, deferred tax assets at the opening date are impaired.

As at 31 December 2015, in the case of Vallourec & Sumitomo Tubos do Brasil, a structure dedicated to our partner Nippon Steel & Sumitomo Metal Corp. and to ourselves, the analyses conducted concluded with reasonable assurance that the net deferred tax assets could be recovered within a period of more than 10 years, but less than the average useful life of the industrial assets (in the amount of €63.2 million).

Changes in deferred taxes are broken down as follows:

Net deferred tax assets/(liabilities)	2014	2015
AS AT 1 JANUARY	**(22,117)**	**(33,144)**
Impact of changes in exchange rates	(17,113)	(34,755)
Recognized in profit or loss	(28,037)	45,037
Recognized in reserves	37,684	(12,753)
Reclassification to assets held for sale and discontinued operations	—	(3,936)
Other	(3,561)	(27,838)
AS AT 31 DECEMBER	**(33,144)**	**(67,389)**

The amount of the deferred tax recognized in reserves corresponds mainly to the change in deferred taxes calculated on derivatives and actuarial gains and losses on retirement commitments and similar obligations.

NOTE 6 Inventories and work in progress

	Raw materials and merchandise	Goods in production	Intermediate and finished goods	Total
GROSS VALUES				
As at 31/12/2013	**555,431**	**510,681**	**472,523**	**1,538,635**
Changes in inventories recognized in the income statement	(8,953)	51,273	672	42,992
Impact of changes in exchange rates	19,022	44,000	11,709	74,731
Other changes	(10,192)	6,771	10,524	7,103
As at 31/12/2014	**555,308**	**612,725**	**495,428**	**1,663,461**
Changes in inventories recognized in the income statement	(66,443)	(292,395)	(48,881)	(407,719)
Impact of changes in exchange rates	(12,049)	37,953	(35,426)	(9,522)
Reclassification to assets held for sale and discontinued operations	(13,545)	(284)	(12,386)	(26,215)
Other changes	5,300	—	8,742	14,042
AS AT 31/12/2015	**468,571**	**357,999**	**407,477**	**1,234,047**
IMPAIRMENT				
As at 31/12/2013	**(46,106)**	**(20,688)**	**(48,402)**	**(115,196)**
Impact of changes in exchange rates	(1,718)	(1,447)	(1,105)	(4,270)
Allowances[(a)]	(61,601)	(9,048)	(18,566)	(89,215)
Reversals of provisions	20,878	5,384	9,601	35,863
Other changes	(659)	—	47	(612)
As at 31/12/2014	**(89,206)**	**(25,799)**	**(58,425)**	**(173,430)**
Impact of changes in exchange rates	980	(1,320)	4,419	4,079
Allowances[(a)]	(38,789)	(8,208)	(38,921)	(85,918)
Reversals of provisions	33,454	13,572	34,816	81,842
Reclassification to assets held for sale and discontinued operations	2,127	—	2,927	5,054
Other changes	(959)	1,425	25	491
AS AT 31/12/2015	**(92,393)**	**(20,330)**	**(55,159)**	**(167,882)**

(a) Provisions for inventories of raw materials and consumables include an €11 million impairment loss in 2015 for spare parts related to industrial assets (€21 million in 2014).

The cost of any underutilized capacity is excluded from the value of inventories. Made-to-order products are impaired, where applicable, for the unaffected portion and valued at scrap-metal prices (if applicable). Inventories are impaired based on their net realizable values.

Net values	Raw materials and merchandise	Goods in production	Intermediate and finished goods	Total
As at 31/12/2014	466,102	586,926	437,003	1,490,031
AS AT 31/12/2015	**376,178**	**337,669**	**352,318**	**1,066,165**

NOTE 7 Trade and other receivables

	Advances and partial payments on orders	Trade and other receivables (gross)[a]	Provisions for depreciation	Total
As at 31/12/2013	**10,835**	**1,101,860**	**(13,922)**	**1,098,773**
Changes in scope of consolidation	—	1,742	—	1,742
Impact of changes in exchange rates	(469)	59,427	(810)	58,148
Changes in gross values	25,105	(34,172)	—	(9,067)
Increase in provisions	—	—	(7,140)	(7,140)
Reversals of provisions	—	—	5,811	5,811
Other changes	—	(19)	(2,594)	(2,613)
As at 31/12/2014	**35,471**	**1,128,838**	**(18,655)**	**1,145,654**
Changes in scope of consolidation	—	—	—	—
Impact of changes in exchange rates	(4,992)	(98)	3,714	(1,376)
Changes in gross values	(17,311)	(480,791)	—	(498,102)
Increase in provisions[b]	—	—	(58,599)	(58,599)
Reversals of provisions	—	—	10,462	10,462
Reclassification to assets held for sale and discontinued operations	(531)	(24,148)	209	(24,470)
Other changes	—	(36,719)	8,054	(28,665)
AS AT 31/12/2015	**12,637**	**587,082**	**(54,815)**	**544,904**

(a) See paragraph 2.16.1—Accounting principles and methods—for details on recognition and measurement methods.

(b) Including €40.9 million in provisions for overdue receivables from Angola and Venezuela, to take account of the currency control risk in these countries.

The impact of the application of the Amendment to IFRS 11 led to a €33.1 million drop in trade receivables offset by trade payables.

NOTE 8 Financial instruments

Financial assets and liabilities

Financial assets and liabilities are measured and presented in the statement of financial position in accordance with the various categories specified by IAS 39.

8.1 IMPACT OF IAS 32 AND IAS 39 ON EQUITY AND NET INCOME

As explained in paragraph 2.16 Accounting principles and methods, the main impact of IAS 32 and IAS 39 relates to the accounting treatment of hedging contracts entered into by the Group in connection with commercial purchase and sale transactions in foreign currencies and the accounting treatment of available-for-sale financial assets. The other effects of the transition to IAS 32 and IAS 39 have had little impact on the financial statements (measurement of housing loans to employees using the effective interest rate method and measurement at fair value of investment securities).

Regarding foreign exchange hedges, the hedging relationship is based on the spot exchange rates. Premiums and discounts on derivatives are systematically considered ineffective and recognized in the income statement (financial income or loss). Currency receivables and payables have been revalued at the spot rate at 31 December.

From a net liability position of €145.1 million as at 31 December 2014, hedging instruments fell to a net liability position of €131.5 million at 31 December 2015.

NOTE 8 Financial instruments (Continued)

Fluctuations in the euro against the US dollar in fiscal 2015 accounted for most of the €30.9 million change in the intrinsic value of hedges of forecast sales and purchases in foreign currencies and the €13.5 million change in the intrinsic value of hedges of foreign currency receivables and payables.

Financial instruments of a speculative nature remain exceptional and arise when a hedging relationship is ineffective under the terms of IAS 39. Their changes in value do not have a material impact on foreign exchange gains or losses.

Statement of financial position items	As at 31/12/2014	As at 31/12/2015	Changes in 2015		
			Total	Reserves	Net Income
1—Derivatives recognized in the statement of financial position[(a)]					
Changes in the intrinsic value of forward sales of currencies and forward purchases[(b)] associated with order books and commercial tenders	(71,636)	(40,727)	30,909	30,188	721
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with trade receivables (and accounts payable[(b)])	(55,329)	(41,788)	13,541	—	13,541
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with finance receivables (and financial payables)	(29,459)	(54,701)	(25,242)	—	(25,242)
Recognition of premium/discount	9,077	4,062	(5,015)	(2,449)	(2,566)
Recognition of changes in fair value of interest rate swaps	—	—	—		—
Changes in values linked to hedging instruments set up under employee share ownership plans	2,259	1,625	(634)	(262)	(372)
SUBTOTAL: DERIVATIVES	**(145,088)**	**(131,529)**	**13,559**	**27,477**	**(13,918)**
• of which derivatives—assets	28,211	20,341			
• of which derivatives—liabilities	173,300	152,429			
• of which reclassification to assets held for sale	—	(559)			
2—Receivables (payables) hedged in currencies—translation gain/loss					
Measurement as at the reporting date exchange rate (trade payables[(b)] and accounts receivable)	52,584	36,877	(15,707)	—	(15,707)
Measurement as at the reporting date exchange rate (financial liabilities and accounts receivable)	30,529	55,299	24,770	—	24,770
IMPACT OF HEDGING TRANSACTIONS	**(61,975)**	**(39,353)**	**22,622**	**27,477**	**(4,855)**
3—Measurement of other investments in equity instruments at fair value	**(6,321)**	**(13,951)**	**(7,630)**	**(7,630)**	**—**
TOTAL	**(68,296)**	**(53,304)**	**14,992**	**19,847**	**(4,855)**

(a) Assets and liabilities offset in this table: + = asset, ( ) = liability.

(b) Non-significant amounts.

The change in the fair value of financial instruments hedging foreign exchange risk, which affected equity as at 31 December 2014, was—€71.6 million. In 2015, around 81% of the positive change in fair value attached to the order book and commercial tenders at the end of 2014 was transferred from equity to the statement of comprehensive income, under “translation gain/loss”. This amount represents the impact of the changes in value of foreign exchange hedges for the order book and commercial tenders as at 31 December 2014, which were fully or partially unwound or converted into receivables during 2015.

NOTE 8 Financial instruments (Continued)

This corresponds mainly to the hedges of receivables in US dollars, which represent nearly all the hedges with an impact on equity as at 31 December 2015.

Statement of financial position items	As at 31/12/2013	As at 31/12/2014	Changes in 2014		
			Total	Reserves	Net Income
1—Derivatives recognized in the statement of financial position[(a)]					
Changes in the intrinsic value of forward sales of currencies and forward purchases[(b)] associated with order books and commercial tenders	34,917	(71,636)	(106,553)	(104,586)	(1,967)
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with trade receivables (and accounts payable[(b)])	20,117	(55,329)	(75,446)	—	(75,446)
Changes in the intrinsic value of forward sales of currencies (and forward purchases) associated with finance receivables (and finance payables)	10,270	(29,459)	(39,729)	—	(39,729)
Recognition of premium/discount	(1,023)	9,077	10,100	(182)	10,282
Recognition of changes in fair value of interest rate swaps	—	—	—		—
Changes in values linked to hedging instruments set up under employee share ownership plans	3,441	2,259	(1,182)	(66)	(1,116)
SUBTOTAL: DERIVATIVES	**67,722**	**(145,088)**	**(212,810)**	**(104,834)**	**(107,976)**
• of which derivatives—assets	91,788	28,211	—	—	—
• of which derivatives—liabilities	24,066	173,300	—	—	—
2—Receivables (payables[(b)]) hedged in currencies—translation gain/loss					
Measurement as at the reporting date exchange rate (trade payables[(b)] and accounts receivable)	(32,030)	52,584	84,614	—	84,614
Measurement as at the reporting date exchange rate (financial liabilities and accounts receivable)	2,546	30,529	27,983	—	27,983
IMPACT OF HEDGING TRANSACTIONS	**38,238**	**(61,975)**	**(100,213)**	**(104,834)**	**4,621**
3—Measurement of other investments in equity instruments at fair value	**5,626**	**(6,321)**	**(11,947)**	**(11,947)**	**—**
TOTAL	**43,864**	**(68,296)**	**(112,160)**	**(116,781)**	**4,621**

(a) Assets and liabilities offset in this table: + = asset, ( ) = liability.

(b) Non-significant amounts.

The change in the fair value of financial instruments hedging foreign exchange risk, which affected equity as at 31 December 2013, was €34.9 million. In 2014, around 87% of the positive change in fair value attached to the order book and commercial tenders at the end of 2013 was transferred from equity to the statement of comprehensive income, under "translation gain/loss". This amount represents the impact of the changes in value of foreign exchange hedges for the order book and commercial tenders as at 31 December 2013, which were fully or partially unwound or converted into receivables during 2014.

NOTE 8 Financial instruments (Continued)

This corresponds mainly to the hedges of receivables in US dollars, which represent over 93% of the hedges with an impact on equity as at 31 December 2013.

8.2 INFORMATION ON THE NATURE AND EXTENT OF MARKET RISK AND HOW IT IS MANAGED BY THE GROUP

Market risk is comprised of interest rate, foreign exchange (conversion and transactions), credit and equity risk. Liquidity risk is addressed in Note 16.

Interest rate risk

Management of medium- and long-term financing within the euro zone is centralized at Vallourec and the sub-holding company Vallourec Tubes.

Total liabilities

As at 31/12/2015	Other borrowings	Cash
Fixed rate on date granted	1,990,269	—
Variable rate on date granted swapped to fixed rate	—	—
Fixed rate	**1,990,269**	**—**
Variable rate	**159,528**	**630,540**
TOTAL	**2,149,797**	**630,540**

As at 31/12/2014	Other borrowings	Cash
Fixed rate on date granted	2,186,145	—
Variable rate on date granted swapped to fixed rate	—	—
Fixed rate	**2,186,145**	**—**
Variable rate	**507,372**	**1,146,913**
TOTAL	**2,693,517**	**1,146,913**

The Group is exposed to interest rate risk on its variable rate debt.

The amount of loans with fixed rates on the dates granted primarily consists of bonds and commercial paper issued by Vallourec:

- on 7 December 2011, a €650 million bond issue, maturing in February 2017, with a fixed annual coupon of 4.25%;
- in August 2012, two long-term private bond issues for a total of €455 million. The amounts and terms of these two private bond issues are €400 million for seven years with an annual coupon of 3.25% for one, and €55 million for 15 years with an annual coupon of 4.125% for the other;
- on 30 September 2014, a €500 million bond issue, maturing in September 2024, with a fixed annual coupon of 2.25%;
- outstanding commercial paper in the amount of €77 million.

Furthermore, in December 2009, Vallourec & Sumitomo Tubos do Brasil, which is 56% owned by the Group, took out a loan with BNDES (Banco National de Desenvolvimento Econômico e Social). As at 31 December 2015, BRL 109.5 million of this loan, at a fixed rate of 4.5%, had been drawn. Vallourec & Sumitomo Tubos do Brasil also concluded a fixed-rate finance lease in 2010.

NOTE 8 Financial instruments (Continued)

As at 31 December 2015, financial debt exposed to changes in variable interest rates was €159.5 million (about 7% of total liabilities).

No significant line of fixed-rate financing will reach contractual maturity during the 12 months after 31 December 2015, except for:

- €77 million in outstanding commercial paper maturing in more than one year;
- €85 million for various lines of financing in the Group's subsidiaries.

Given the Group's interest rate risk hedging policy, the impact of a 1% rise in short-term rates in the euro zone applied to the Brazilian and Chinese rates and to the UK and US money market rates would result in a €1.6 million increase in the Group's annual financial expenses, based on an assumption of complete stability of the financial debt and constant exchange rates, and after taking into account the effects of any hedging instruments. This impact does not take into account the interest rate risk on commercial paper with a more than one year maturity or on short-term cash investments (of no more than three months).

Foreign currency translation risk

The assets, liabilities, revenues and expenses of the Group's subsidiaries are expressed in various currencies. The Group financial statements are presented in euros. The assets, liabilities, revenues and expenses denominated in currencies other than the euro have to be translated into euros at the applicable rate so that they can be consolidated.

If the euro rises (or falls) against another currency, the value in euros of the various assets, liabilities, revenues and expenses initially recognized in that other currency will fall (or rise). Therefore, changes in the value of the euro may have an impact on the value in euros of the assets, liabilities, revenues and costs not denominated in euros, even if the value of these items in their original currency has not changed.

In 2015, net income, Group share, was generated to a significant extent by subsidiaries that prepare their financial statements in currencies other than the euro (mainly in US dollars and the Brazilian real). A 10% change in exchange rates would have had an upward or downward impact on net income, Group share, of around €16 million.

In addition, the Group's sensitivity to long-term foreign exchange rate risk is reflected in the changes that have occurred in recent years in the foreign currency translation reserves booked to equity (−€500.5 million as at 31 December 2015) which, in recent years, have been linked mainly to movements in the US dollar and Brazilian real.

Foreign currency translation reserve—Group share	31/12/2014	31/12/2015
USD	158,184	320,968
GBP	(8,728)	(5,789)
Brazilian real (BRL)	(479,818)	(863,699)
Chinese yuan (CNY)	50,497	58,473
Other	(7,839)	(10,528)
TOTAL	**(287,704)**	**(500,575)**

Transaction risk

The Group is subject to exchange rate risks due to its business exposure linked to sales and purchase transactions entered into by some of its subsidiaries in currencies other than their functional currency.

The main foreign currency involved is the US dollar (USD): a significant portion of Vallourec's transactions (approximately 38.4% of Group sales in 2015) are invoiced in US dollars by companies whose functional currency is not the US dollar.

NOTE 8 Financial instruments (Continued)

Exchange rate fluctuations between the euro, the Brazilian real (BRL) and the US dollar may therefore affect the Group's operating margin. Their impact is, however, very difficult to quantify for two reasons:

1. there is an adjustment phenomenon on sales prices denominated in US dollars, which is related to market conditions in the various sectors of activity in which Vallourec operates;
2. certain sales and purchases, even though they are denominated in euros or in Brazilian real, are influenced by the level of the US dollar. They are therefore indirectly and at some time in the future affected by movements in the US currency.

The Group actively manages its exposure to foreign exchange risk to reduce the sensitivity of its net profits to currency fluctuations by setting up hedges once the order is placed and sometimes once a quotation is given.

Orders, and then receivables, payables and operating cash flows, are thus hedged with financial instruments, mainly forward purchases and sales. The Group sometimes uses options.

Order cancellations could therefore result in the cancellation of hedges in place, leading to the recognition in the consolidated income statement of gains and losses with regard to these canceled hedges.

We estimate that a 10% rise or fall in the currencies used in all hedges implemented by the Group would result in a €80.3 million decrease or increase in the intrinsic value recognized in consolidated equity at 31 December 2015. Most of these amounts would be due to changes in the US dollar against the euro, and to a lesser extent, the Brazilian real against the euro.

To be eligible for hedge accounting as defined under IAS 39, the Vallourec Group has developed its cash management and invoicing systems to facilitate the traceability of hedged transactions throughout the duration of the hedging instruments.

At 31 December 2015, the following amounts were outstanding under forward foreign exchange contracts to hedge purchases and sales denominated in foreign currencies:

Hedging contracts with regard to commercial transactions—Exchange rate risk	2014	2015
Forward exchange contract: forward sales	1,622,654	1,065,094
Forward exchange contract: forward purchases	143,360	55,879
Currency options: sales	—	—
Currency options: purchases	—	—
Raw materials and energy: call options	—	—
TOTAL	**1,766,014**	**1,120,973**

Contract maturities at 31 December 2015

Contracts on commercial transactions	Total	< 1 year	1 to 5 years	> 5 years
Exchange contracts: forward sales	1,065,094	1,046,815	18,279	—
Exchange contracts: forward purchases	55,879	55,879		—
Currency options: sales	—	—	—	—
Currency options: purchases	—	—	—	—
Raw materials and energy: call options	—	—	—	—
TOTAL	**1,120,973**	**1,102,694**	**18,279**	**—**

Forward sales correspond mainly to sales of US dollars (€1,065 million of the €1,121 million total). These contracts were transacted at an average forward EUR/USD rate of 1.18 and an average forward USD/BRL rate of 3.61.

In 2015, as in 2014, the hedges entered into generally covered an average period of about 10 months and mainly hedged highly probable future transactions and foreign currency receivables.

NOTE 8 Financial instruments (Continued)

In addition to hedges on commercial transactions, Vallourec has implemented hedging contracts for financial loans and receivables denominated in foreign currencies:

- since 2011, forward sales for USD 369.1 million (€281.6 million).

These instruments are intended to hedge either the debt denominated in USD, or the foreign currency loans established by the financial holding company Vallourec Tubes in the currency of the subsidiaries receiving them. The forward purchases and sales mature at various times between 2016 and 2017, as and when the hedged loans and borrowings mature.

Other than its foreign-currency-denominated borrowings, Vallourec does not hedge any of the other foreign currency assets and liabilities in its consolidated statement of financial position (foreign currency translation risks).

Credit risks

Vallourec is subject to credit risk in respect of its non-impaired financial assets. Failure to recover these assets could affect the Company's results and financial position.

The Group has identified four main types of receivables that have these characteristics:

- 1% building loans granted to the Group employee;
- security deposits paid in connection with tax disputes and the tax receivables due to the Group in Brazil;
- trade and other receivables;
- derivatives that have a positive fair value.

1. 1% building loans granted to the Group's employees: these loans do not expose the Group to any credit risk since the full amount of the loan is written off as soon as there is any delay in the collection of the amounts due. It should be noted that these loans are valued using the effective interest rate method applied to the expected cash flows until the maturity date of these loans (contractual interest rates may be lower);
2. Security deposits and tax receivables due to the Group in Brazil: there is no specific risk with respect to these receivables, even if the outcome of the disputes is unfavorable, since the risk has already been assessed and a provision recognized for these receivables, and the funds have already been paid in full or in part;
3. The Group's policy on the impairment of trade receivables is to recognize a provision when indications of impairment are identified. The impairment is equal to the difference between the carrying amount of the asset and the present value of expected future cash flows, taking into account the position of the counterparty.

The Group considers that as at 31 December 2015 there is no reason to assume that there is any risk in respect of receivables for which no provision has been made and which are less than 90 days overdue. Trade receivables more than 90 days past due and not impaired amounted to €46.4 million at 31 December 2015, or 8.7% of the Group's total net trade receivables.

Vallourec considers that the risk is limited given its existing customer risk management procedures, which include:

- the use of credit insurance and documentary credits;
- the long-standing nature of the Group's commercial relations with major customers;
- the commercial collection policy.

Vallourec remains subject to country risk which could impact the payment of some of its receivables.

NOTE 8 Financial instruments (Continued)

In addition, as at 31 December 2015, trade receivables not yet due amounted to €350.1 million, or 65.4% of total net trade receivables;

4. As concerns the derivatives that have a positive fair value, the Group only deals with highly-rated counterparties. The credit risk is considered to be insignificant.

The following table provides an analysis by maturity of these trade receivables:

As at 31/12/2015	0 to 30 days	30 to 60 days	60 to 90 days	90 to 180 days	> 180 days	Total
Trade receivables outstanding	183,943	106,800	21,546	33,286	4,561	350,136

Equity risk

Treasury shares held by Vallourec as at 31 December 2015 include:

Shares allocated to various share ownership plans for some of the Group's employees, executive management and corporate officers.

In this context, Vallourec holds:

- 3,094 treasury shares acquired in 2008 after the definitive allocation of 26,844 shares in 2011, 70,050 shares in 2013 and 12 shares in 2014, under the various performance share plans;
- 85,560 treasury shares acquired in 2011 under the share buyback plan of 7 June 2011, upon the definitive allocation of 27,534 shares in 2012, 86,377 shares in 2013 and 91,929 shares in 2014, and 108,600 shares in 2015 under the various performance share plans;
- 305,400 treasury shares acquired in 2012 under the share buyback plan of 31 May 2012, upon the definitive allocation of 94,600 shares in 2014, under the various performance share plans;
- 300,000 treasury shares acquired in 2014.

All treasury shares acquired before 2008 and available for allocation to employees had been granted as at 31 December 2015. The Management Board, in consultation with the Supervisory Board, has decided to allocate these treasury shares to cover the Group's performance share and employee share ownership plans.

Additionally, Vallourec signed a liquidity contract with Rothschild & Cie Banque in 2012. It was implemented under the annual general authorization for the share buyback program approved by the Ordinary and Extraordinary Shareholders' Meeting of 28 May 2015 (eleventh resolution).

On 8 April 2014, Vallourec committed to a supplementary contribution of €12.5 million, €5 million of which were paid at the end of 2014 in order to allow Rothschild & Cie Banque to ensure its continued participation under the contract.

As at 31 December 2015, the liquidity account at Rothschild & Cie Banque comprised the following:

- 1,375,000 shares with a value of €11.8 million as at 31 December 2015;
- €1,428,580.

NOTE 8 Financial instruments (Continued)

Classification and measurement of financial assets and liabilities

The amounts recognized in the statement of financial position are based on the measurement methods used for each financial instrument.

2015	Notes	Category[(a)]	Gross value at 31/12/2015	Amortized cost	Fair value through equity	Fair value through profit or loss
ASSETS						
Other non-current assets	**4**					
Listed equity interests		AFS	63,939	—	63,939	—
Other equity interests		AFS	3,227	—	3,227	—
Loans		L&R	4,659	4,659	—	—
Other financial assets		L&R/AHM[(b)]	36,662	36,662	—	—
Trade and other receivables	**7**	**L&R**	**587,082**	**587,082**	**—**	**—**
Derivatives—assets	**8**					
Hedging financial instruments		CFH	5,126	—	5,126	
Hedging financial instruments[(f)]		A-FVTPL	15,215	—	—	15,215
Speculative financial instruments		A-FVTPL	—	—	—	—
Other current assets	**9**	**L&R**	**307,474**	**307,474**	**—**	**—**
Cash and cash equivalents	**10**	**A-FVTPL**	**630,540**	**—**	**—**	**630,540**
LIABILITIES						
Bank loans and other borrowings[(c)(e)]	**16**	**AC-EIR**	**238,010**	**238,010**	**—**	**—**
Other	**16**	**AC-EIR**	**229,873**	**229,873**	**—**	**—**
Finance leases	**16**	**AC-EIR**	**78,017**	**78,017**	—	—
Bond issues	**16**	**AC-EIR**	**1,597,916**	**1,597,916**	—	—
Overdrafts and other short-term borrowings[(d)(e)]	**16**	**AC-EIR**	**5,981**	**5,981**	**—**	**—**
Trade and other payables		**AC**	**523,476**	**523,476**	**—**	**—**
Derivatives—liabilities	**8**					
Hedging financial instruments		CFH	45,833	—	45,833	—
Hedging financial instruments		L-FVTPL	106,596	—	—	106,596
Speculative financial instruments		L-FVTPL	—	—	—	—
Other current liabilities	**20**	**AC**	**332,854**	**332,854**	**—**	**—**

(a) A-FVTPL —Financial assets measured at fair value through profit or loss

AHM—Assets held to maturity

L&R—Loans and receivables

AFS—Available-for-sale financial assets

CFH—Cash flow hedges

L-FVTPL—Financial liabilities measured at fair value through profit or loss

AC—Amortized cost

AC-EIR—Amortized cost according to the effective interest rate method

(b) In the Group, the only assets in this category are security deposits and guarantees.

(c) Borrowings classified within non-current liabilities maturing in more than 12 months.

NOTE 8 Financial instruments (Continued)

(d) Borrowings that must be repaid within 12 months are classified as current liabilities.

(e) Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity to the extent of their effectiveness. Otherwise, they are recognized under financial income.

(f) Including the Value 10, Value 11, Value 12, Value 13, Value 14 and Value 15 warrants, whose fair value as at 31 December 2015 was €1.6 million.

Financial instruments measured at fair value are classified by category on the basis of their measurement method. Fair value is measured:

(A) mainly based on quoted prices on an active market; listed equity securities are valued this way;

(B) on the basis of observable methods and data and with reference to the financial markets (yield curve, forward prices, etc.).

			Fair value		
2015 Statement of financial position headings and classes of instruments	**Category**	**Total fair value on statement of financial position**	**Listed prices (A)**	**Internal model with observable inputs (B)**	**Internal model with unobservable inputs**
ASSETS					
Listed equity interests	AFS	63,939	63,939	—	—
Other investments in equity instruments	AFS	3,227	—	3,227	—
Derivatives—assets					
Hedging financial instruments	CFH	5,126	—	5,126	—
Speculative financial instruments	L-FVTPL	—	—	—	—
Cash and cash equivalents	**A-FVTPL**	**630,540**	**630,540**	**—**	**—**
LIABILITIES					
Derivatives—liabilities					
Hedging financial instruments	CFH	152,429	—	152,429	—
Speculative financial instruments	L-FVTPL	—	—	—	—

NOTE 8 Financial instruments (Continued)

2014	Notes	Category[(a)]	Gross value as at 31/12/2014	Amortized cost	Fair value through equity	Fair value through profit or loss
ASSETS						
Other non-current assets	**4**					
Listed equity interests		AFS	71,869	—	71,869	—
Other investments in equity instruments		AFS	2,016	—	2,016	—
Loans		L&R	6,713	6,713	—	—
Other financial assets		L&R/AHM[(b)]	41,571	41,571	—	—
Trade and other receivables	**7**	**L&R**	**1,128,838**	**1,128,838**	**—**	**—**
Derivatives—assets	**8**					
Hedging financial instruments		CFH	8,060	—	8,060	—
Hedging financial instruments[(f)]		A-FVTPL	20,151	—		20,151
Speculative financial instruments		A-FVTPL		—	—	—
Other current assets	**9**	**L&R**	**343,155**	**343,155**	**—**	**—**
Cash and cash equivalents	**10**	**A-FVTPL**	**1,146,913**	**—**	**—**	**1,146,913**
LIABILITIES						
Bank loans and other borrowings[(c)(e)]	**16**	**AC-EIR**	**318,784**	**318,784**	**—**	**—**
Other	**16**	**AC-EIR**	**639,291**	**639,291**	**—**	**—**
Finance leases	**16**	**AC-EIR**	**101,575**	**101,575**	—	—
Bond issues	**16**	**AC-EIR**	**1,595,662**	**1,595,662**	—	—
Overdrafts and other short-term borrowings[(d)(e)]	**16**	**AC-EIR**	**38,205**	**38,205**	**—**	**—**
Trade and other payables		**AC**	**806,856**	**806,856**	**—**	**—**
Derivatives—liabilities	**8**					
Hedging financial instruments		CFH	78,648	—	78,648	
Hedging financial instruments		L-FVTPL	94,652	—	—	94,652
Speculative financial instruments		L-FVTPL		—	—	—
Other current liabilities	**20**	**AC**	**438,257**	**438,257**	**—**	**—**

(a) A-FVTPL—Financial assets measured at fair value through profit or loss

AHM—Assets held to maturity

L&R—Loans and receivables

AFS—Available-for-sale financial assets

CFH—Cash flow hedges

L-FVTPL—Financial liabilities measured at fair value through profit or loss

AC—Amortized cost

AC-EIR—Amortized cost according to the effective interest rate method

(b) In the Group, the only assets in this category are security deposits and guarantees.

(c) Borrowings classified within non-current liabilities maturing in more than 12 months.

(d) Borrowings that must be repaid within 12 months are classified as current liabilities.

(e) Variable rate borrowings for which interest rate swaps have been entered into are accounted for using the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity to the extent of their effectiveness. Otherwise, they are recognized under financial income.

(f) Including the Value 10, Value 11, Value 12, Value 13 and Value 14 warrants, whose fair value as at 31 December 2014 was €2.1 million.

Financial instruments measured at fair value are classified by category on the basis of their measurement method. Fair value is measured:

(A) mainly based on quoted prices on an active market; listed equity securities are valued this way;

NOTE 8 Financial instruments (Continued)

(B) on the basis of observable methods and data and with reference to the financial markets (yield curve, forward prices, etc.).

2014 Statement of financial position headings and classes of instruments	Category	Total fair value on statement of financial position	Fair value: Listed prices (A)	Fair value: Internal model with observable inputs (B)	Fair value: Internal model with unobservable inputs
ASSETS					
Listed equity interests	AFS	71,869	71,869	—	—
Other investments in equity instruments	AFS	2,016	—	2,016	—
Derivatives—assets					
Hedging financial instruments	CFH	8,060	—	8,060	—
Speculative financial instruments	L-FVTPL	—	—	—	—
Cash and cash equivalents	**A-FVTPL**	**1,146,913**	**1,146,913**	**—**	**—**
LIABILITIES					
Derivatives—liabilities					
Hedging financial instruments	CFH	173,300	—	173,300	—
Speculative financial instruments	L-FVTPL	—	—	—	—

NOTE 9 Other current assets

	Employee-related receivables and recoverable payroll taxes	Tax receivables excluding income tax	Prepaid expenses	Government, income tax	Other receivables	Total
As at 31/12/2013	**4,117**	**97,689**	**39,496**	**32,271**	**122,532**	**296,105**
Impact of changes in exchange rates	(14)	749	2,454	(240)	2,382	5,331
Provision allowances or reversals	—	—	—	—	20,397	20,397
Other changes	1,848	7,229	8,659	12,427	(8,841)	21,322
As at 31/12/2014	**5,951**	**105,667**	**50,609**	**44,458**	**136,470**	**343,155**
Impact of changes in exchange rates	(730)	(11,936)	(1,370)	(8,843)	(14,267)	(37,146)
Provision allowances or reversals	—	—	—	—	(1,495)	(1,495)
Reclassification to assets held for sale and discontinued operations	(60)	(508)	(295)	(253)	(1,975)	(3,091)
Other changes	(1,232)	(15,370)	779	17,741	4,133	6,051
AS AT 31/12/2015	**3,929**	**77,853**	**49,723**	**53,103**	**122,866**	**307,474**

NOTE 10 Cash and cash equivalents

	Investment securities (gross)	Cash and cash equivalents	Total
As at 31/12/2013	**383,824**	**179,488**	**563,312**
Impact of changes in exchange rates	7,060	16,439	23,499
Other changes	415,601	144,501	560,102
As at 31/12/2014	**806,485**	**340,428**	**1,146,913**
Impact of changes in exchange rates	(61,317)	8,885	(52,432)
Reclassification to assets held for sale and discontinued operations	—	(4,000)	(4,000)
Other changes	(284,642)	(175,299)	(459,941)
AS AT 31/12/2015	**460,526**	**170,014**	**630,540**

"Cash and cash equivalents" comprises cash in bank current accounts and investment securities (shares in short-term cash UCITS and mutual and investment funds) that are immediately available (not pledged), risk-free and have a low volatility level.

NOTE 11 Assets held for sale and discontinued operations

Net values	Total
Assets held for sale and discontinued operations	68,964
Liabilities held for sale and discontinued operations	(60,135)
AS AT 31/12/2015	**8,829**

These assets and liabilities are as follows:

	31/12/2015
Non-current assets	40,360
Current assets	80,608
Non-current liabilities	(2,107)
Current liabilities	(58,028)
Reassessment of asset base	(52,004)
Net carrying amount of assets / liabilities held for sale	**8,829**

On 1 February 2016, Vallourec announced it had entered into exclusive negotiations to sell its subsidiary, Vallourec Heat Exchanger Tubes, a specialist in welded stainless steel and titanium tubes with assets in France, India, the United States, China and Korea. Since the sale is highly probable, the group of assets held for sale was measured at fair value, less selling costs, on 31 December 2015. They are presented on a separate line on the balance sheet (assets of €68 million in assets and liabilities of €60 million). The impact on "Asset disposals, restructuring costs and non-recurring items" is an estimated loss of €52 million.

The net value of assets held for sale includes non-controlling interests of €3.5 million.

NOTE 12 Change in operating working capital requirements

Gross values	31/12/2014	Translation difference	Change	Reclassification and other	31/12/2015
Inventories	1,663,461	(9,522)	(407,719)	(12,173)	1,234,047
Trade receivables	1,164,309	(5,090)	(498,102)	(61,398)	599,719
Trade payables	(806,698)	(38,009)	272,032	49,199	(523,476)
Other receivables and payables	16,855	(21,292)	(8,859)	20,602	7,306
Gross working capital (1)	**2,037,927**	**(73,913)**	**(642,648)**	**(3,770)**	**1,317,596**
Impact of hedging instruments (2)			**10,531**		
TOTAL (1) + (2)			**(632,117)**		
Change in working capital in the statement of cash flows			632,117		

NOTE 13 Equity

CAPITAL

Vallourec's issued capital is comprised of 135,688,432 ordinary shares with a nominal value of €2 per share, fully paid-up, compared with 130,597,975 as at 31 December 2014.

2015

On 25 June 2015, the option for payment of the dividend in shares, approved by the Ordinary and Extraordinary Shareholders' Meeting of 28 May 2015, resulted in the creation of 3,090,460 new shares issued at the price of €19.40, for a capital increase of €59.9 million, including additional paid-in capital net of expenses.

On 15 December 2015, under the Value 15 employee share ownership plan 1,999,997 new shares were subscribed at a price of €8.83 for the leveraged plan and €8.32 for the standard plan, for a capital increase of €17.3 million, including additional paid-in capital net of expenses.

2014

On 25 June 2014, the option for payment of the dividend in shares, approved by the Ordinary and Extraordinary Shareholders' Meeting of 28 May 2014, resulted in the creation of 518,416 new shares issued at the price of €35.69, for a capital increase of €18.5 million, including additional paid-in capital net of expenses.

On 16 December 2014, under the Value 14 employee share ownership plan 1,919,959 new shares were subscribed at a price of €25.62 for the leveraged plan and €24.12 for the standard plan, for a capital increase of €49.2 million, including additional paid-in capital net of expenses.

RESERVES, FINANCIAL INSTRUMENTS

Under IAS 39 Financial Instruments, postings to this reserve account are made for two types of transaction:

- effective currency hedges assigned to the order book and commercial tenders. Changes in the intrinsic values at the year-end are recognized in equity;
- variable rate borrowings for which interest rate swaps (fixed rate) have been contracted. These are accounted for in accordance with the cash flow hedge method. Changes in the fair value of the swap contracts, linked to interest rate movements, are recognized in equity.

NOTE 13 Equity (Continued)

FOREIGN CURRENCY TRANSLATION RESERVE

This reserve arises as a result of the translation of the equity of subsidiaries outside the euro zone. The change in the reserve corresponds to fluctuations in exchange rates used to translate the equity and net profit of these subsidiaries. Components of the reserve are reversed to income only in the case of a partial or total disposal and loss of control of the foreign entity.

	USD	GBP	Brazilian real (BRL)	Chinese yuan (CNY)	Other	Total
As at 31/12/2013	**(18,363)**	**(12,407)**	**(513,799)**	**29,153**	**(9,984)**	**(525,400)**
Change	176,547	3,679	33,981	21,344	2,145	237,696
As at 31/12/2014	**158,184**	**(8,728)**	**(479,818)**	**50,497**	**(7,839)**	**(287,704)**
Change	162,784	2,939	(383,881)	7,976	(2,689)	(212,871)
AS AT 31/12/2015	**320,968**	**(5,789)**	**(863,699)**	**58,473**	**(10,528)**	**(500,575)**

Main exchange rates used (euro/currency): translation of statement of financial position items (reporting date rate) and income statement items (average rate)

For €1.00	USD	GBP	Brazilian real (BRL)	Chinese yuan (CNY)
2014				
Average rate	1.33	0.81	3.12	8.19
Reporting date rate	1.21	0.78	3.22	7.54
2015				
Average rate	1.11	0.73	3.70	6.97
Reporting date rate	1.09	0.73	4.31	7.06

NOTE 14 Earnings per share

Basic earnings per share are calculated by dividing the net income for the year attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding in the same period.

Diluted earnings per share are calculated by dividing the net income for the year attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding in the same period, adjusted for the dilution effect of options.

Details of the earnings and numbers of shares used to calculate basic and diluted earnings per share are presented below:

Earnings per share	2014	2015
Net income attributable to ordinary shareholders for basic earnings per share	**(923,594)**	**(864,753)**
Weighted average number of ordinary shares for basic earnings per share	128,141,863	130,613,382
Weighted average number of treasury shares for basic earnings per share	(821,193)	(486,826)
Weighted average number of shares for earnings per share	127,320,670	130,126,556
EARNINGS PER SHARE *(in €)*	**(7.3)**	**(6.6)**
Earnings per share comparable to 2015 *(in €)*	(7.3)	
Dilution effect—stock purchase and subscription options and performance shares	—	—
Weighted average number of ordinary shares for diluted earnings per share	127,320,670	130,126,556
DILUTED EARNINGS PER SHARE *(in €)*	**(7.3)**	**(6.6)**
Earnings per share comparable to 2015 *(in €)*	(7.3)	

NOTE 14 Earnings per share (Continued)

Dividends paid during the year	2014	2015
• for the previous fiscal year *(in €)*	0.81	0.81
• interim dividend for the current fiscal year *(in €)*	—	—

NOTE 15 Non-controlling interests

	Reserves	Translation difference	Net income	Total
As at 31/12/2014	343,058	37,548	45,647	426,253
AS AT 31/12/2015	**350,393**	**74,749**	**(33,201)**	**391,941**

Contribution at reporting date	As at 31/12/2014	As at 31/12/2015
Main American entities[(a)]	379,116	368,447
Other	47,137	23,494
TOTAL	**426,253**	**391,941**

(a) Non-controlling interests are primarily held by Sumitomo Corp. and Nippon Steel Sumitomo Metal Corp.

Contributions to net income	As at 31/12/2014	As at 31/12/2015
Main American entities[(a)]	43,175	(28,701)
Other	2,472	(4,500)
TOTAL	**45,647**	**(33,201)**

(a) Non-controlling interests are primarily held by Sumitomo Corp. and Nippon Steel Sumitomo Metal Corp.

The amounts presented are the amounts which appear in the financial statements for wholly-owned entities, which were prepared in accordance with IFRS, upon fair value adjustments made at the time of acquisition, and adjustments for standardization with the Group's accounting principles.

Main American entities	As at 31/12/2014	As at 31/12/2015
Current assets	429,929	217,372
Non-current assets	1,577,955	1,694,943
Current liabilities	317,464	251,636
Non-current liabilities	199,506	222,366
NET ASSETS	**1,490,914**	**1,438,313**
Non-controlling interests	379,116	368,447
Revenue	1,317,634	671,788
Net income	169,830	(148,385)
Other comprehensive income (loss)	162,753	153,564
TOTAL COMPREHENSIVE INCOME	**332,583**	**5,179**
Net income attributable to non-controlling interests	43,175	(28,701)
Other items of comprehensive income attributable to non-controlling interests	44,202	39,004
Cash flow from operating activities	267,520	85,137
Cash flow used in investing activities	(92,092)	(61,474)
Cash flow from (used in) financing activities	(221,606)	(113,209)
Impact of changes in exchange rates	5,376	(10,958)
NET CASH FLOWS	**(40,802)**	**(100,504)**

NOTE 16 Bank loans and other borrowings

LIQUIDITY RISK

The Group's financial resources are composed of bank financing and market financing.

The majority of long-term and medium-term bank financing has been put in place in Europe through Vallourec and its sub-holding company Vallourec Tubes and, to a lesser extent, via the subsidiaries in Brazil and the United States (see below).

Market financing is arranged exclusively by Vallourec.

In Europe

In February 2014, Vallourec took out a revolving credit facility for an amount of €1.1 billion, maturing in February 2019, plus two one-year extension options. The first one-year extension has been granted for €1.078 billion with a new maturity of 2020. This credit line is available for the Group's general funding purposes. As at 31 December 2015 this line had not been drawn.

In June 2015, Vallourec agreed a bilateral line of €90 million until February 2019 with two one-year extension options. As at 31 December 2015 this line had not been drawn.

In September 2015, Vallourec took out a revolving credit facility for an amount of €400 million, maturing in July 2019, plus a single one-year extension option. This credit line replaces four medium-term bilateral lines of €100 million each granted to Vallourec Tubes and maturing in July 2017. As at 31 December 2015 this line had not been drawn.

In addition to the financing put in place by Vallourec, Vallourec Tubes has two medium-term bilateral lines of €100 million each, maturing in July 2017. As at 31 December 2015, neither of these two lines was drawn.

Each of these bank facilities requires Vallourec to maintain its consolidated net debt-to-equity ratio at no more than 75%, calculated as at 31 December each year. A change in control of Vallourec could require the repayment of some or all of the debt, which would be decided separately by each bank. It is also stipulated that the entire debt will be immediately due and payable if the Group defaults on one of its debt obligations (cross default), or in case of a major event with consequences for the Group's business or financial position and its ability to repay its debt.

In addition to bank financing, the Group has sought to diversify its funding sources by using market financing. For example, Vallourec launched a commercial paper program on 12 October 2011 to meet its short-term needs. The program has a €1 billion ceiling.

At 31 December 2015, Vallourec had an outstanding debt of €77 million for maturities of up to one year. This commercial paper program was rated B by Standard & Poor's.

On 7 December 2011, Vallourec issued a €650 million bond maturing in February 2017, with a fixed annual coupon of 4.25%.

In August 2012, Vallourec also issued two long-term private bonds totaling €455 million. The amounts and terms of these two private bond issues are €400 million for seven years with an annual coupon of 3.25% for one, and €55 million for 15 years with an annual coupon of 4.125% for the other.

On 30 September 2014, Vallourec issued an initial €500 million bond, maturing in September 2024, with a fixed annual coupon of 2.25%.

The market values of these fixed-rate bonds are €664.9 million, €418.6 million, €60.8 million and €514.5 million, respectively.

These bond issues were intended to diversify and increase the amount and extend the maturity of the financial resources available to the Group.

These bond issues specifically include a change-of-control clause that would trigger the mandatory prepayment of the bonds at the request of each bondholder in the event of a change of control of the

NOTE 16 Bank loans and other borrowings (Continued)

Company (in favor of a person or a group of people acting in concert) leading to a downgrade of Vallourec's financial rating.

In addition, these bonds may be subject to a request for prepayment should any of the common default scenarios for this type of transaction arise. Early redemption may also be requested in some cases by either the Company or the bondholder, particularly in respect of a change in Vallourec's position or tax status.

As at 31 December 2015, the Group complied with its covenants and the terms and conditions for obtaining and maintaining all of the above facilities. Together, the above resources were sufficient to cover the Group's cash requirements. For the Company's plans for financing after 31 December 2015, refer to Note 35 Subsequent events.

In Brazil

In December 2009, Vallourec & Sumitomo Tubos do Brasil, which is 56% owned by the Group, took out a loan of BRL 448.8 million with BNDES (Banco Nacional de Desenvolvimento Econômico e Social). This fixed-rate loan at 4.5% is denominated in Brazilian reals and has a term of eight years. It is amortizable from 15 February 2012. BRL 109.5 million of this loan had been used as at 31 December 2015.

In 2010, this same company in Brazil concluded a finance lease with a nominal value of BRL 570 million relating to equipment needed to operate the plant at Jeceaba. As at 31 December 2015, the residual amount outstanding on this finance lease was BRL 357.4 million.

In the United States

The Group's US companies have a set of bilateral bank lines that were renewed in 2015 for a total of USD 300 million. The amount used as at 31 December 2015 totaled USD 79.5 million. These under 12 month facilities include clauses relating to the debt of each of the companies involved and a change of control clause.

In 2013, Vallourec Star set up a finance lease with a nominal value of USD 64.3 million and a final maturity of five years. As at 31 December 2015, the residual amount outstanding on this finance lease was USD 43.6 million.

Financial liabilities—Non-current liabilities

	Bank borrowings	Finance leases	Bond issue	Other borrowings	Total
As at 31/12/2013	**173,588**	**108,352**	**1,096,223**	**928**	**1,379,091**
New debt	19,885	—	499,439	—	519,324
Repayments	(110,086)	(11,569)	—	(40,820)	(162,475)
Impact of changes in exchange rates	916	5,478	—	39,927	46,321
Other changes	—	(686)	—	298	(388)
As at 31/12/2014	**84,303**	**101,575**	**1,595,662**	**333**	**1,781,873**
New debt	22,002	—	2,254	7,556	31,812
Repayments	(4,544)	(12,329)	—	(3,463)	(20,336)
Impact of changes in exchange rates	(23,057)	(11,034)	—	2,936	(31,155)
Other changes	—	(195)	—	956	761
AS AT 31/12/2015	**78,704**	**78,017**	**1,597,916**	**8,318**	**1,762,955**

NOTE 16 Bank loans and other borrowings (Continued)

Financial liabilities—Current liabilities

	Bank overdrafts	Accrued interest on bank overdrafts	Bank borrowings (<1 year)	Accrued interest not yet due on bank borrowings	Other financial liabilities (<1 year)	Total
As at 31/12/2013	**18,923**	**44**	**190,713**	**31,433**	**573,768**	**814,881**
Reclassifications	—	—	—	—	384	384
Impact of changes in exchange rates	2,018	1	18,272	27	6,513	26,831
Other changes	17,254	(35)	25,496	2,196	24,637	69,548
As at 31/12/2014	**38,195**	**10**	**234,481**	**33,656**	**605,302**	**911,644**
Reclassifications	—	—	—	—	—	—
Impact of changes in exchange rates	2,503	—	(5,867)	22	(50,144)	(53,486)
Reclassification to assets held for sale and discontinued operations	—	—	(1)	—	—	(1)
Other changes	(34,717)	(10)	(69,307)	(306)	(366,975)	(471,315)
AS AT 31/12/2015	**5,981**		**159,306**	**33,372**	**188,183**	**386,842**

Debt by currency

	USD	EUR	BRL	Other	Total
As at 31/12/2014—in thousands of currency unit	556,832	1,950,411	725,308	n/a	n/a
As at 31/12/2014—in € thousands	458,638	1,950,411	225,202	59,266	2,693,517
As at 31/12/2015—in thousands of currency unit	**261,770**	**1,715,789**	**739,043**	**n/a**	**n/a**
AS AT 31/12/2015—IN € THOUSANDS	**240,443**	**1,715,789**	**171,404**	**22,161**	**2,149,797**

Breakdown by maturity of non-current loans and other financial liabilities (> 1 year)

	>1 year	>2 years	>3 years	>4 years	5 years or more	Total
As at 31/12/2014	**35,732**	**676,982**	**42,579**	**413,453**	**613,127**	**1,781,873**
Finance leases	12,167	30,446	4,877	4,878	25,649	78,017
Other non-current financial debts	690,655	12,236	407,681	9,200	565,166	1,684,938
AS AT 31/12/2015	**702,822**	**42,682**	**412,558**	**14,078**	**590,815**	**1,762,955**

Breakdown by maturity of current loans and other financial liabilities

2015	<3 months	>3 months and < 1 year	Total
Bank borrowings	21,013	138,294	159,307
Other borrowings	71,833	104,374	176,207
Finance lease liabilities	1,748	10,228	11,976
Accrued interest on borrowings	24,312	9,060	33,372
Bank overdrafts (negative cash and cash equivalents)	5,741	239	5,980
AS AT 31/12/2015	**124,647**	**262,195**	**386,842**

NOTE 16 Bank loans and other borrowings (Continued)

Debt by interest rate

The following table groups the current and non-current portions of bank and other borrowings.

	Rate <3%	Rate 3 to 6%	Rate 6 to 10%	Rate >10%	Total
As at 31/12/2014					
Fixed rate on date granted	829,822	1,320,029	36,294	—	2,186,145
Variable rate on date granted swapped to fixed rate	—	—	—	—	—
Fixed rate	829,822	1,320,029	36,294		2,186,145
Variable rate	471,264	1,799	26,642	7,667	507,372
TOTAL	**1,301,086**	**1,321,828**	**62,936**	**7,667**	**2,693,517**
As at 31/12/2015					
Fixed rate on date granted	673,482	1,240,592	76,195	—	1,990,269
Variable rate on date granted swapped to fixed rate	—	—	—	—	—
Fixed rate	673,482	1,240,592	76,195	—	1,990,269
Variable rate	129,978	2,232	22,001	5,317	159,528
TOTAL	**803,460**	**1,242,824**	**98,196**	**5,317**	**2,149,797**

Debt contracted at a rate higher than 6% relates to companies based in Brazil and India.

Debt at a fixed rate of less than 3% on the date granted relates mainly to commercial paper and to the €500 million bond issue.

NOTE 17 Provisions

Non-current liabilities	Provisions for environmental risks
As at 31/12/2013	**12,475**
Provisions for the period	763
Provisions used	(18)
Impact of changes in exchange rates	115
Other	102
As at 31/12/2014	**13,437**
Provisions for the period	752
Provisions used	—
Impact of changes in exchange rates	(3,452)
Other	(222)
AS AT 31/12/2015	**10,515**

This provision relates to the cost of treating industrial land; all likely costs have been provisioned.

NOTE 17 Provisions (Continued)

The provision also covers clean-up costs for the mine in Brazil; amounts are provided as and when minerals are extracted, based on the volumes extracted.

Current liabilities	Disputes and commercial commitments	Unfilled orders—losses on completion	Restructuring	Tax risks (income and other taxes, inspections, etc.)	Other	Total
As at 31/12/2013	**35,746**	**43,493**	**558**	**25,713**	**32,105**	**137,615**
Provisions for the period	35,746	28,009	22,008	13,353	13,056	112,172
Provisions used	(26,793)	(45,111)	(301)	(4,877)	(6,236)	(83,318)
Other reversals	—	—	—	—	(2,105)	(2,105)
Impact of changes in exchange rates	164	1,170	—	(110)	460	1,684
Changes in scope and other	(3,261)	(2)	—	402	(191)	(3,052)
As at 31/12/2014	**41,602**	**27,559**	**22,265**	**34,481**	**37,089**	**162,996**
Provisions for the period	32,478	61,783	73,453	11,926	15,881	195,521
Provisions used	(24,255)	(27,559)	(13,063)	(4,770)	(10,422)	(80,069)
Other reversals	(6,880)	—	(949)	(7,308)	(6,216)	(21,353)
Impact of changes in exchange rates	(5,073)	(258)	(3)	(8,605)	(7,130)	(21,069)
Reclassification to liabilities held for sale and discontinued operations	(451)	(390)	—	—	(104)	(945)
Changes in scope and other		(275)	(583)	19	3,865	3,026
AS AT 31/12/2015	**37,421**	**60,860**	**81,120**	**25,743**	**32,963**	**238,107**

PROVISIONS FOR DISPUTES, COMMERCIAL COMMITMENTS AND LOSSES ON UNFILLED ORDERS

Provisions are booked with regard to disputes if the Group has an obligation to a third party at the reporting date. They are determined based on the best estimate of the expense likely to be required to settle the obligation.

PROVISION FOR TAX RISKS

This provision mainly relates to risks in connection with tax disputes in Brazil, some of which are covered by security deposits (see Note 4).

PROVISIONS FOR REORGANIZATION AND RESTRUCTURING MEASURES

As part of the streamlining of its European steel tube production units and support functions, the employee representatives were informed on 28 April 2015 during the European Works Council (EWC).

An estimate of the business costs of the measures announced and the start of implementation were accounted for at the end of December for a total of €73 million.

OTHER CURRENT PROVISIONS

This item comprises various provisions with regard to customer discounts, late-payment penalties and other risks identified at the reporting date, with none being individually material.

For 2015 and 2014, actual annual greenhouse gas emissions were lower than the allowance granted by the French government, so no provisions were booked in this regard.

NOTE 18 Other long-term liabilities

Other long-term liabilities	
As at 31/12/2013	**212,992**
Impact of changes in exchange rates	2,467
Other changes	(33)
As at 31/12/2014	**215,426**
Impact of changes in exchange rates	(32,902)
Other changes	(150,793)
AS AT 31/12/2015	**31,731**

Other long-term liabilities are primarily composed of other non-operating liabilities of more than one year and a €165 million shareholder loan granted on 31 December 2014 to Vallourec & Sumitomo Tubos do Brasil. The impact of the application of the

Amendment to IFRS 11 translated to a €165 million drop in long-term liabilities, offset by non-current assets, which declined by the same amount (see Note 4).

NOTE 19 Employee benefit commitments

	Germany	France	United Kingdom	Other	Total
As at 31/12/2014					
Present value of the obligation	**282,228**	**57,275**	**153,075**	**84,323**	**576,901**
Retirement benefits	256,778	54,639	153,075	78,690	543,182
Early retirement commitments	8,939	—	—	—	8,939
Long-service awards and medical benefits	16,511	2,636	—	5,633	24,780
Fair value of plan assets	(147,164)	(7,706)	(149,691)	(28,058)	(332,619)
NET LIABILITY	**135,064**	**49,569**	**3,384**	**56,265**	**244,282**
As at 31/12/2015					
Present value of the obligation	**289,596**	**54,246**	**140,527**	**85,336**	**569,705**
Retirement benefits	251,294	51,929	140,527	80,657	524,407
Early retirement commitments	23,068	—	—	—	23,068
Long-service awards and medical benefits	15,234	2,317	—	4,679	22,230
Fair value of plan assets	(151,402)	(7,875)	(156,572)	(29,379)	(345,228)
NET LIABILITY	**138,194**	**46,371**	**(16,045)**	**55,957**	**224,477**

The main actuarial assumptions used for the measurement of post-employment benefit obligations, taking account of the plans' durations, are as follows:

Main actuarial assumptions	Germany	France	United Kingdom	Other
As at 31/12/2014				
Discount rate	1.70%	1.70%	3.40%	from 4% to 12.3%
Actual return on plan assets	1.70%	1.70%	3.40%	from 4% to 12.3%
Salary increase rate	2.00%	1.69%	3.35%	from 3% to 10%
As at 31/12/2015				
Discount rate	2.10%	2.10%	3.80%	from 4.35% to 17.95%
Long-term return on plan assets	2.10%	2.10%	3.80%	from 4.35% to 17.95%
Salary increase rate	2.00%	1.30%	3.35%	from 3% to 11.5%

NOTE 19 Employee benefit commitments (Continued)

Commitments are valued by independent actuaries. The assumptions used take account of the specific characteristics of the plans and companies concerned.

Experience gains and losses in 2015 generated €9.5 million in losses for the Group (against €0.7 million in losses in 2014).

In 2016, the Group expects to pay €33.5 million of benefits under defined benefit plans, including €19.2 million in Germany, €5.9 million in the United Kingdom, €4.2 million in France and €1.8 million in Brazil.

Plans that are fully or partially outsourced represented a total obligation of €484 million at 31 December 2015 for assets of €345 million.

In the euro zone, the discount rate is based on the iBoxx index (AA− rated corporate bonds with a maturity of more than 10 years, estimated on the date the obligations are measured). This index uses a basket of bonds of financial and non-financial companies. The rates have not been restated to reflect credit risk not factored into the selected bond baskets. In 2015, a general decline in the discount rate resulted in an overall decrease in liabilities generating actuarial gains for the year of €31.1 million.

Actual returns on plan assets fell short of estimates by €7.3 million.

FRANCE

Obligations in France correspond mainly to retirement benefits, supplemental pension plans and long-service award-type benefits.

On 31 December 2015 a sensitivity test to the discount rate was performed: a 1% variation of this rate would result in a change of about €4.8 million in these commitments.

On 14 September 2005, a supplemental pension plan with its own plan assets was set up for senior management. The plan is partially outsourced to an insurance company. Since it is a defined benefit plan, it is valued on an actuarial basis and recognized in accordance with revised IAS 19 in the case of active employees. As at 31 December 2015, the remaining obligation amounted to €15.8 million for assets of €7.7 million. The restructuring plan reduced commitments by €2.3 million.

GERMANY

The Group's employees in Germany benefit from a variety of mechanisms (retirement benefits, deferred compensation, long-service awards and early retirement), which constitute long-term obligations for the Group.

On 31 December 2015 a sensitivity test to the discount rate was performed: a 1% variation of this rate would result in a change of about €28.6 million in these commitments. The restructuring plan has increased commitments by €11 .2 million (early retirement). The main pension plan was changed, reducing commitments by €3.1 million.

UNITED KINGDOM

The Group helps fund a defined benefit pension plan for Group employees. The obligations are outsourced and managed by leading institutions in the financial markets.

On 31 December 2015 a sensitivity test to the discount rate was performed: a 1% variation of this rate would result in a change of about €22.3 million in these commitments.

BRAZIL

In Brazil, employers help to fund termination benefits and long-service awards. Retirement benefits are partially outsourced in a pension fund with total assets of €0.4 million in 2015 (vs. €1.1 million in 2014). A €0.4 million contribution was paid (€0.4 million in 2014).

NOTE 19 Employee benefit commitments (Continued)

MEXICO

Obligations in Mexico are not material for the Group.

USA

The assumption for increased medical benefits is regressive from 2016 to 2021: from 6.5% to 4.0% for workers and retirees.

There were no significant events during 2015 that could have a material impact on the obligation.

OTHER COUNTRIES

Provisions are made for obligations in other countries in accordance with local standards. They are not considered material at Group level.

Expenses incurred during the year include the additional rights acquired for an additional year of service, the change in existing rights at the beginning of year due to discounting, past service costs recorded in the period, the actual return on plan assets, the effects of plan reductions or liquidations and the amortization of actuarial gains and losses for liabilities other than pensions. The portion relating to the discounting of rights is recognized in financial income/(loss) and the return on plan assets is recorded in investment income. These expenses are broken down as follows:

Expenses for the fiscal year

	Germany	France	United Kingdom	Other	Total
As at 31/12/2014					
Current service cost	8,177	3,124	3,019	3,311	17,631
Interest expense on obligation	7,817	1,690	5,214	5,389	20,110
Actual return on plan assets	(4,680)	(216)	(5,353)	(1,289)	(11,538)
Net actuarial losses/(gains) for the year	3,998	(1,546)	—	4	2,456
Cost of past services	—	15	—	—	15
Impact of any reduction or liquidation	—	—	—	—	—
NET EXPENSE	**15,312**	**3,067**	**2,880**	**7,415**	**28,674**
ACTUAL RETURN ON PLAN ASSETS	**12,963**	**157**	**21,385**	**1,746**	**36,251**

	Germany	France	United Kingdom	Other	Total
As at 31/12/2015					
Current service cost	8,114	3,734	3,862	4,208	19,918
Interest expense on obligation	4,662	948	5,515	5,676	16,801
Actual return on plan assets	(2,502)	(135)	(5,502)	(1,284)	(9,423)
Net actuarial losses/(gains) for the year	4,027	(69)	—	(505)	3,453
Cost of past services	(3,065)	41	—	(702)	(3,726)
Impact of any reduction or liquidation	11,190	(2,169)	—	(465)	8,556
NET EXPENSE	**22,426**	**2,350**	**3,875**	**6,928**	**35,579**
ACTUAL RETURN ON PLAN ASSETS	**2,038**	**169**	**437**	**(518)**	**2,126**

NOTE 19 Employee benefit commitments (Continued)

The changes in assets associated with these benefits are as follows:

Changes in related assets	Germany	France	United Kingdom	Other	Total
As at 31/12/2013	**133,701**	**6,181**	**117,079**	**22,883**	**279,844**
Value of assets	133,701	6,181	117,079	22,883	279,844
Actual return on assets	12,963	157	21,385	1,746	36,251
Contributions	500	1,537	5,912	1,265	9,214
Benefits paid	—	(169)	(3,744)	(846)	(4,759)
Acquisitions, disposals, liquidations	—	—	—	(142)	(142)
Impact of changes in exchange rates	—	—	9,059	3,152	12,211
As at 31/12/2014	**147,164**	**7,706**	**149,691**	**28,058**	**332,619**
Value of assets	147,164	7,706	149,691	28,058	332,619
Actual return on assets	2,038	169	437	(518)	2,126
Contributions	2,200	—	6,100	590	8,890
Benefits paid	—	—	(8,837)	(1,381)	(10,218)
Acquisitions, disposals, liquidations	—	—	—	(225)	(225)
Impact of changes in exchange rates	—	—	9,181	2,855	12,036
AS AT 31/12/2015	**151,402**	**7,875**	**156,572**	**29,379**	**345,228**

Changes in the obligation	Germany	France	United Kingdom	Other	Total
As at 31/12/2013	**231,709**	**49,325**	**116,795**	**64,133**	**461,962**
Current service cost	8,177	3,124	3,019	3,311	17,631
Interest expense	7,817	1,690	5,214	5,389	20,110
Employee contributions	—	—	813	72	885
Actuarial losses (+)/gains (−) generated during the year	—	—	—	—	—
Remeasurements:					
• experience-related adjustments	1,035	(1,649)	336	1,027	749
• actuarial gains and losses arising from changes in demographic assumptions	—	2,795	1,908	2,597	7,300
• actuarial gains and losses arising from changes in financial assumptions	47,910	5,667	19,570	4,842	77,989
Acquisitions/disposals	1,232	—	—	264	1,496
Benefits payments	(15,652)	(3,677)	(3,744)	(3,182)	(26,255)
Plan amendments	—	—	—	—	—
Foreign exchange differences	—	—	9,164	5,870	15,034
Other	—	—	—	—	—
As at 31/12/2014	**282,228**	**57,275**	**153,075**	**84,323**	**576,901**

NOTE 19 Employee benefit commitments (Continued)

Changes in the obligation	Germany	France	United Kingdom	Other	Total
As at 31/12/2014	**282,228**	**57,275**	**153,075**	**84,323**	**576,901**
Current service cost	8,114	3,784	3,862	4,208	19,968
Interest expense	4,662	973	5,515	5,676	16,826
Employee contributions	—	—	751	79	830
Actuarial losses (+)/gains (−) generated during the year	—	—	—	—	—
Remeasurements:					
• experience-related adjustments	14,718	(612)	(6,290)	1,699	9,515
• actuarial gains and losses arising from changes in demographic assumptions	(460)	—	(1,455)	(966)	(2,881)
• actuarial gains and losses arising from changes in financial assumptions	(12,187)	(206)	(15,705)	(3,017)	(31,115)
Acquisitions/disposals	—	—	—	11	11
Benefits payments	(15,710)	(3,056)	(8,837)	(3,104)	(30,707)
Plan amendments	(3,065)	—	—	(687)	(3,752)
Reclassification to assets/liabilities held for sale	—	(1,666)	—	—	(1,666)
Foreign exchange differences	—	—	9,611	(2,190)	7,421
Other[a]	11,296	(2,246)	—	(696)	8,354
As at 31/12/2015	**289,596**	**54,246**	**140,527**	**85,336**	**569,705**

(a) Other changes are mainly related to plan reductions and to the impacts of restructuring in Germany.

Movements during the year in net liabilities recognized on the statement of financial position were as follows:

Change in net liability	Germany	France	United Kingdom	Other	Total
NET LIABILITY/(ASSET) AT 31/12/2013	**98,008**	**43,144**	**(284)**	**41,250**	**182,118**
Total expense for the period	15,312	3,067	2,880	7,415	28,674
Amount recognized in Other comprehensive income— Remeasurement	36,663	8,399	5,782	8,273	59,117
Benefits or contributions to funds	(16,151)	(5,041)	(5,099)	(3,547)	(29,838)
Impact of changes in exchange rates	—	—	105	2,610	2,715
Changes in scope and other	1,232	—	—	264	1,496
NET LIABILITY/(ASSET) AT 31/12/2014	**135,064**	**49,569**	**3,384**	**56,265**	**244,282**
Total expense for the period	22,426	2,350	3,875	6,928	35,579
Amount recognized in Other comprehensive income— Remeasurement	(1,492)	(648)	(18,385)	(82)	(20,607)
Benefits or contributions to funds	(17,910)	(3,069)	(5,349)	(2,217)	(28,545)
Reclassification to assets/liabilities held for sale	—	(1,666)	—	—	(1,666)
Impact of changes in exchange rates	—	—	429	(4,560)	(4,131)
Changes in scope and other	106	(165)	1	(377)	(435)
NET LIABILITY/(ASSET) AT 31/12/2015	**138,194**	**46,371**	**(16,045)**	**55,957**	**224,477**

Plan assets are broken down as follows:

United Kingdom	31/12/2015 in share	31/12/2014 in share
Equities (UK & overseas)	45.00%	47.00%
Bonds	21.00%	20.00%
Real Estate	14.00%	14.00%
Other (cash and index-linked gilts)	20.00%	19.00%

NOTE 19 Employee benefit commitments (Continued)

USA	31/12/2015 in share	31/12/2014 in share
Equities	52.00%	51.00%
Bonds	37.00%	38.00%
Real Estate	9.00%	—
Other	2.00%	11.00%

Germany	31/12/2015 in share	31/12/2014 in share
Equities	25.48%	28.60%
Bonds	74.52%	71.40%
Real Estate	—	—
Other	—	—

In France, 100% of the assets are placed in the general assets of an insurance company.

SENSITIVITY ANALYSIS

Calculating the projected obligation of a defined benefit plan is sensitive to the above assumptions.

A change of 1% in the respective assumptions would have the following impacts on the defined benefit obligation at the reporting date:

	1% increase	1% decrease
Discount rate	(66)	80
Salary increase rate	17	(14)
Guaranteed rate of pension increase	37	(31)

Amounts expensed for defined contribution plans	Production staff	Directors, management, technical and supervisory staff	Total
As at 31/12/2014			
Employer's share of retirement contributions	7,080	12,324	19,404
Life insurance paid by the employer	3,159	2,321	5,480
Other retirement contributions	432	648	1,080
TOTAL	**10,671**	**15,293**	**25,964**
As at 31/12/2015			
Employer's share of retirement contributions	6,217	12,971	19,188
Life insurance paid by the employer	3,889	2,807	6,696
Other retirement contributions	378	12	390
TOTAL	**10,484**	**15,790**	**26,274**

OTHER EMPLOYEE BENEFITS (OPTIONS AND PERFORMANCE SHARES)

Share subscription plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized share subscription plans from 2008 to 2015 for some executive management and corporate officers of the Group.

NOTE 19 Employee benefit commitments (Continued)

The characteristics of these plans are as follows (figures for the 2008 and 2009 plans are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares):

	2008 Plan	2009 Plan	2010 Plan	2011 Plan	2012 Plan	2013 Plan	2014 Plan	2015 Plan
Grant date	01/09/2008	01/09/2009	01/09/2010	01/09/2011	31/08/2012	02/09/2013	15/04/2014	15/04/2015
Maturity date	01/09/2012	01/09/2013	01/09/2014	01/09/2015	01/03/2017	03/03/2018	15/04/2018	15/04/2019
Expiration date	01/09/2015	01/09/2019	01/09/2020	01/09/2021	30/08/2020	01/09/2021	15/04/2022	15/04/2023
Number of beneficiaries at outset	9	303	349	743	387	406	399	486
Exercise price in euros	91.77	51.67	71.17	60.71	37	46.15	38.53	22.60
Number of options granted	143,600	578,800	512,400	684,521	530,400	602,465	373,550	410,350

CHANGE IN NUMBER OF UNEXPIRED OPTIONS

For all of these plans, the change in the number of unexpired options is as follows:

In number of options	2014	2015
Total at beginning of period	3,183,279	3,190,049
Options distributed	373,550	410,350
Options exercised	—	—
Options not exercised at expiration date	(277,600)	(143,600)
Options canceled[(a)]	(89,180)	(596,711)
TOTAL AT END OF PERIOD	**3,190,049**	**2,860,088**
Options available for exercise	1,104,600	960,423

(a) In 2015, beneficiaries who left the Group, or application of the performance factor.

In 2015, the reported figures corresponded to the theoretical number of shares originally allocated with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

Measurement of Plans[(a)]	2008 Plan	2009 Plan	2010 Plan	2011 Plan	2012 Plan	2013 Plan	2014 Plan	2015 Plan
Expense for fiscal year 2008	711	—	—	—	—	—	—	—
Expense for fiscal year 2009	1,445	820	—	—	—	—	—	—
Expense for fiscal year 2010	895	1,581	694	—	—	—	—	—
Expense for fiscal year 2011	746	1,321	2,253	853	—	—	—	—
Expense for fiscal year 2012	768	1,493	638	1,175	176	—	—	—
Expense for fiscal year 2013	—	815	1,162	882	511	450	—	—
Expense for fiscal year 2014	—	—	444	815	11	1,153	503	—
Expense for fiscal year 2015	—	—	—	363	(698)	(640)	(105)	283
Accrued expense as at 31 December 2015	**4,565**	**6,030**	**5,191**	**4,088**	**—**	**963**	**398**	**283**
Assumptions								
Share price at allocation date	€95.42	€50.65	€70.34	€62.93	€36.87	€46.33	€39.69	€26.03
Volatility[(b)]	35.00%	43.00%	35.00%	35.00%	35.00%	30.00%	30.00%	29.00%
Risk-free rate[(c)]	4.40%	2.39%	2.60%	3.01%	1.92%	2.16%	1.72%	0.21%
Exercise price	€91.77	€51.67	€71.17	€60.71	€37.00	€46.15	€38.53	€22.60
Dividend rate[(d)]	3.50%	5.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Fair value of the option[(e)]	€31.79	€17.11	€24.05	€18.50	€ 9.36	€10.41	€ 8.60	€ 5.40

(a) The binomial model of projecting share prices has been used to measure the fair value of the options granted.

(b) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(c) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(d) The expected dividend rates have been determined on the basis of analysts' expectations and the Group's dividend policy.

(e) The fair value for the Management Board and the Operational Committee is €5.40 for the 2015 plan.

NOTE 19 Employee benefit commitments (Continued)

Performance share allocation plans

CHARACTERISTICS OF THE PLANS

The Vallourec Management Board authorized performance share plans from 2008 to 2015 for some employees and corporate officers of the Group.

The characteristics of these plans are as follows (figures for the 2008 and 2009 plans are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares):

	Allocation date	Vesting period	Holding period	Number of beneficiaries at outset	Theoretical number of shares allocated
Value 08 Plan	16/12/08	4.5 years	—	8,697	67,712
2009 Plan[a]	31/07/09	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	53	26,668
Value 09 Plan	17/12/09	4.6 years	—	8,097	69,400
1-2-3 Plan[b]	17/12/09	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	17,404	104,424
03/2010 Plan[c]	15/03/10	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	848	190,540
07/2010 Plan[d]	31/07/10	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	2	4,280
Value 10 Plan	03/12/10	4.6 years	—	9,632	83,462
2-4-6 Plan[e]	03/12/10	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	12,098	72,588
2011 Plan[f]	30/03/11	2 years (French residents and members of the Management Board) or 4 years (non-French residents)	2 years (French residents and members of the Management Board) or none (non-French residents)	1,157	214,271
Value 11 Plan	18/11/11	4.6 years	—	841	6,462
2011 2-4-6 Plan[g]	15/12/11	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	13,053	78,318
2012 Plan[h]	30/03/12	2 years (French residents and members of the Management Board) or 4 years (non-French residents)	2 years (French residents and members of the Management Board) or none (non-French residents)	1,591	286,718
2012 2-4-6 Plan[i]	30/03/12	2 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	21,686	130,116
Value 12 Plan	06/12/12	4.6 years	—	737	4,395
2013 Plan[j]	29/03/13	3 years (French residents and members of the Management Board) or 4 years (non-French residents)	2 years (French residents and members of the Management Board) or none (non-French residents)	1,647	295,225
2013 2-4-6 Plan[k]	29/03/13	3 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	21,744	130,464
Value 13 Plan	10/12/13	4.6 years	—	732	4,028
2014 Plan[l]	15/04/14	3 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	1,758	413,597
2014 2-4-6 Plan[m]	15/04/14	3 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	21,677	130,062
Value 14 Plan	16/12/14	4.6 years		768	3,960
2015 Plan[n]	15/04/15	3 years (French residents) or 4 years (non-French residents)	2 years (French residents) or none (non-French residents)	497	242,826
Value 15 Plan	15/12/15	4.6 years	—	348	1,715

(a) Definitive allocation of shares in 2011 for French residents and in 2013 for non-French residents, based on the consolidated EBITDA performance achieved by the Group in 2009 and 2010. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The theoretical number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(b) Definitive allocation of shares in 2011 for French residents and in 2013 for non-French residents, based on the consolidated EBITDA performance achieved by the Group for the period from **1** January 2010 to 30 September 2011. The number of shares acquired at the end of the vesting period may vary from 0 to 6 per beneficiary.

(c) Definitive allocation of shares in 2012 for French residents and in 2014 for non-French residents, based on the consolidated EBITDA performance achieved by the Group in 2010 and 2011. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1. The theoretical number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(d) Definitive allocation of shares in 2012 for French residents and in 2014 for non-French residents, based on the consolidated EBITDA performance achieved by the Group in 2010, 2011 and 2012. The actual number is determined by applying a performance factor,

NOTE 19 Employee benefit commitments (Continued)

calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1. The theoretical number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(e) Definitive allocation of shares in 2012 for French residents and in 2014 for non-French residents, based on the consolidated EBITDA performance achieved by the Group for the period from 1 January 2011 to 30 September 2012. The number of shares acquired at the end of the vesting period may vary from 0 to 6 per beneficiary.

(f) Definitive allocation of shares in 2013 for French residents and members of the Management Board, and in 2015 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2011 and 2012. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Management Board, the definitive allocation of shares in 2013 will be based on the following three criteria assessed for fiscal years 2011 and 2012: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(g) Definitive allocation of shares in 2014 for French residents and in 2016 for non-French residents, based on the consolidated EBITDA performance achieved by the Group for the period from 1 January 2012 to 30 September 2013. The number of shares acquired at the end of the vesting period may vary from 0 to 6 per beneficiary.

(h) Definitive allocation of shares in 2014 for French residents and members of the Management Board, and in 2016 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2012 and 2013. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation of shares will be based on the following three criteria assessed for fiscal years 2012 and 2013: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(i) Definitive allocation of shares in 2014 for French residents and in 2016 for non-French residents, based on the consolidated EBITDA performance achieved by the Group for the period from 1 January 2012 to 31 December 2013. The number of shares acquired at the end of the vesting period may vary from 0 to 6 per beneficiary.

(j) Definitive allocation of shares in 2016 for French residents and members of the Management Board, and in 2017 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2013, 2014 and 2015. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation of shares will be based on the following three criteria assessed for fiscal years 2013, 2014 and 2015: revenue growth on a like-for-like basis; the ratio of consolidated EBITDA to consolidated revenue on a like-for-like basis; and the performance of the Vallourec share on the regulated NYSE Euronext Paris stock market against a benchmark panel. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(k) Definitive award of shares in 2016 for French residents and in 2017 for non-French residents, based on the consolidated EBITDA performance achieved by the Group for the period from 1 January 2013 to 31 December 2015. The number of shares acquired at the end of the vesting period may vary from 0 to 6 per beneficiary.

(l) Definitive allocation of shares in 2017 for French residents and members of the Management Board, and in 2018 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2014, 2015 and 2016. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, final allocation shall depend on the following four criteria, assessed in 2014, 2015 and 2016: the rate of return on capital employed (ROCE), compared with the ROCE in the budget, consolidated revenue on a like-for-like basis, as compared with the revenue in the budget, the relative stock market performance of the Vallourec share on the regulated NYSE Euronext market in Paris, as compared with a benchmark panel, and the relative EBITDA performance as compared with the same panel as for the previous criterion. The actual number is determined by applying a performance factor, calculated for the two years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

(m) Definitive allocation of shares in 2017 for French residents and in 2018 for non-French residents, based on the consolidated EBITDA performance achieved by the Group for the period from 1 January 2014 to 31 December 2016. The number of shares acquired at the end of the vesting period may vary from 0 to 6 per beneficiary.

(n) Definitive allocation of shares in 2018 for French residents and members of the Management Board, and in 2019 for non-French residents. For all beneficiaries (excluding Management Board members), it will be based on the ratio of consolidated EBITDA to consolidated revenue achieved by the Group in 2015, 2016 and 201 7. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.25. For members of the Executive Committee, the definitive allocation of shares will be based on the following two criteria assessed for fiscal years 2015, 2016 and 201 7: the rate of return on capital employed (ROCE), compared with the ROCE in the budget, and the Total Shareholder Return (TSR) over fiscal years 2015, 2016 and 2017. The actual number is determined by applying a performance factor, calculated for the three years concerned, to the theoretical number of shares allocated. This factor may range from 0 to 1.33. The number of shares allocated, as shown in the above table, corresponds to the application of a performance factor of 1.

NOTE 19 Employee benefit commitments (Continued)

CHANGE IN NUMBER OF SHARES

The characteristics of these plans are as follows (figures for the 2008 and 2009 plans are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares):

	Initial theoretical number of shares allocated	Number of shares canceled	Theoretical number of shares acquired or being vested	Number of shares delivered
Value 09 Plan	69,400	(4,074)	65,326	65,326
03/2010 Plan	190,540	(22,837)	167,703	153,643
07/2010 Plan	4,280	—	4,280	3,938
Value 10 Plan	83,462	(3,952)	79,510	79,510
2-4-6 Plan	72,588	(4,860)	67,728	67,728
2011 Plan	214,271	(121,858)	92,413	92,413
Value 11 Plan	6,462	(1,453)	5,009	—
2011 2-4-6 Plan	78,318	(10,212)	68,106	68,106
2012 Plan	286,718	(72,310)	214,408	64,972
2012 2-4-6 Plan	130,116	(11,064)	119,052	29,646
Value 12 Plan	4,395	(849)	3,546	—
2013 Plan	295,225	(471)	294,754	—
2013 2-4-6 Plan	130,464	(7,572)	122,892	—
Value 2013 Plan	4,028	(688)	3,340	—
2014 Plan	413,597	(59)	413,538	—
2014 2-4-6 Plan	130,062	(4,452)	125,610	—
Value 2014 Plan	3,960	(342)	3,618	—
2015 Plan	242,826	—	242,826	—
Value 2015 Plan	1,715	—	1,715	—

NOTE 19 Employee benefit commitments (Continued)

The reported figures correspond to the theoretical number of shares originally allocated, with a performance factor of 1 for plans that were vesting, and to the actual number of shares allocated for plans that had matured.

Measurement of Plans[(a)]	Value 08 Plan	2009 Plan	Value 09 Plan	123 Plan	03/2010 Plan	07/2010 Plan
Expense for fiscal year 2008	17	—	—	—	—	—
Expense for fiscal year 2009	414	271	83	63	—	—
Expense for fiscal year 2010	411	459	692	1,671	3,544	58
Expense for fiscal year 2011	412	290	657	1,639	3,368	128
Expense for fiscal year 2012	366	14	689	865	1,648	28
Expense for fiscal year 2013	32	17	563	693	1,139	44
Expense for fiscal year 2014	—	—	324	—	(357)	5
Expense for fiscal year 2015	—	—	—	—	—	—
Accrued expense as at 31 December 2015	**1,652**	**1,051**	**3,008**	**4,931**	**9,342**	**263**
Assumptions						
Share price at allocation date	€41.08	€46.15	€59.50	€60.50	€72.65	€74.71
Volatility[(b)]	40%	40%	40%	40%	40%	40%
Risk-free rate[(c)]	3.03%	2.37%	2.40%	2.24%	2.01%	1.67%
Dividend rate[(d)]	7.30%	5%	5%	5%	5%	5%
Fair value of share tranche 1	€28.12	€37.32 (French residents) or €35.71 (non-French residents)	€46.04	€52.07 (French residents) or €49.28 (non-French residents)	€62.22 (French residents) or €59.18 (non-French residents)	€66.94 (French residents) or €66.14 (non-French residents)
Fair value of share tranche 2	—	—	—	—	—	—
Fair value of share tranche 3	—	—	—	—	—	—

(a) The binomial model of projecting share prices has been used to determine the fair value of the shares allocated. The employee benefit corresponds to the fair value of the shares allocated, taking into account the impossibility of receiving dividends during the vesting period and the cost to the employee of the non-transferability of shares during the holding period.

(b) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(c) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(d) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

NOTE 19 Employee benefit commitments (Continued)

Measurement of Plans[a]	Value 10 Plan	2-4-6 Plan	2011 Plan	Value 11 Plan	2011/2-4-6 Plan	2012 Plan
Expense for fiscal year 2010	136	127	—	—	—	—
Expense for fiscal year 2011	1,088	1,654	3,673	—	—	—
Expense for fiscal year 2012	1,134	1,530	2,560	51	1,095	2,994
Expense for fiscal year 2013	1,033	564	(80)	39	892	970
Expense for fiscal year 2014	1,084	521	527	51	450	1,084
Expense for fiscal year 2015	493	—	(166)	21	309	1,142
Accrued expense as at 31 December 2015	**4,968**	**4,396**	**6,514**	**162**	**2,746**	**6,190**
Assumptions						
Share price at allocation date	€72.77	€72.87	€78.98	€41.01	€45.53	€47.50
Volatility[b]	40%	40%	35%	35%	35%	35%
Risk-free rate[c]	1.93%	1.78%	2.69%	2.07%	2.13%	1.36%
Dividend rate[d]	3.00%	3%	3%	3%	3%	3%
Fair value of the share	€62.49	€65.44 (French residents) or €64.51 (non-French residents)	€70.81 (French residents) or €69.92 (non-French residents)	€36.31	€40.32 (French residents) or €40.31 (non-French residents)	€41.34 (French residents) or €42.05 (non-French residents)

(a) The binomial model of projecting share prices has been used to determine the fair value of the shares allocated. The employee benefit corresponds to the fair value of the shares allocated, taking into account the impossibility of receiving dividends during the vesting period and the cost to the employee of the non- transferability of shares during the holding period.

(b) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(c) The risk free rate corresponds to the zero coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(d) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

Measurement of Plans[a]	2012/2-4-6 Plan	Value 12 Plan	2013 Plan	2013/2-4-6 Plan	Value 13 Plan	2014 Plan
Expense for fiscal year 2012	1,267	7	—	—	—	—
Expense for fiscal year 2013	1,541	22	2,053	860	2	—
Expense for fiscal year 2014	1,093	25	1,436	451	32	2,219
Expense for fiscal year 2015	853	14	68	683	21	(2,006)
Accrued expense as at 31 December 2015	**4,754**	**68**	**3,557**	**1,994**	**55**	**213**
Assumptions						
Share price at allocation date	€47.50	€34.15	€37.50	€37.50	€42.51	€39.69
Volatility[b]	35%	35%	30%	30%	30%	30%
Risk-free rate[c]	1.36%	0.91%	0.85%	0.85%	0.90%	0.93% and 0.66%
Dividend rate[d]	3%	3%	3%	3%	3%	3%
Fair value of the share	€41.34 (French residents) or €42.05 (non-French residents)	€29.33	€31.20 (French residents) or €33.20 (non-French residents)	€31.20 (French residents) or €33.20 (non-French residents)	€36.50	€32.68 (French residents) or €35.14 (non-French residents)

(a) The binomial model of projecting share prices has been used to determine the fair value of the shares granted. The employee benefit corresponds to the fair value of the shares allocated, taking into account the impossibility of receiving dividends during the vesting period and the cost to the employee of the non- transferability of shares during the holding period.

(b) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(c) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(d) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

NOTE 19 Employee benefit commitments (Continued)

Measurement of Plans[(a)]	2014/2-4-6 Plan	Value 14 Plan	2015 Plan	Value 15 Plan
Expense for fiscal year 2014	552	3,611	—	—
Expense for fiscal year 2015	(552)	20	710	654
Accrued expense as at 31 December 2015	**—**	**3,631**	**710**	**654**
Assumptions				
Share price at allocation date	€39.69	€29.68	€26.03	€9.09
Volatility[(b)]	30%	24%	29%	26%
Risk-free rate[(c)]	0.93% or 1 .72% and 0.66%	0.23%	0.03%	0.03%
Dividend rate[(d)]	3%	3%	3%	3%
Fair value of the share	€29.08 (French residents) or €35.14 (non-French residents)	€25.49	€21.22 (French residents) or €23.04 (non-French residents)	€7.81

(a) The binomial model of projecting share prices has been used to determine the fair value of the shares allocated. The employee benefit corresponds to the fair value of the shares allocated, taking into account the impossibility of receiving dividends during the vesting period and the cost to the employee of the non transferability of shares during the holding period.

(b) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(c) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(d) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

The impact on the income statement of employee share ownership plans is presented in Note 25.

NOTE 20 Other current liabilities

	Social security liabilities	Tax liabilities	Liabilities associated with the acquisition of assets	Deferred income	Other current liabilities	Total
As at 31/12/2013	**259,755**	**67,079**	**64,298**	**7,143**	**71,525**	**469,800**
Impact of changes in exchange rates	5,996	1,077	1,332	249	5,908	14,562
Other changes	13,573	(16,392)	(18,707)	1,148	(25,727)	(46,105)
As at 31/12/2014	**279,324**	**51,764**	**46,923**	**8,540**	**51,706**	**438,257**
Impact of changes in exchange rates	(7,061)	(2,773)	(3,326)	192	1,575	(11,393)
Reclassification to liabilities held for sale and discontinued operations	(6,734)	(1,911)	(306)	—	(422)	(9,373)
Other changes	(45,688)	(15,060)	(18,443)	(3,269)	(2,177)	(84,637)
AS AT 31/12/2015	**219,841**	**32,020**	**24,848**	**5,463**	**50,682**	**332,854**

NOTE 21 Information on related parties

The following transactions were entered into with related parties:

	Sales to related parties	Purchases from related parties	Related party receivables	Related party payables
As at 31/12/2014				
HKM	1,864	405,729	—	81,948
Rothschild & Cie[a]	—	247	—	—
Joint operations	42,537	198,854	51,402	93,586
As at 31/12/2015				
HKM	2,602	257,524	386	59,736
Rothschild & Cie[a]	—	1,011	—	—
Joint operations	39,803	135,958	70,847	52,794

(a) Rothschild & Cie is deemed to be a related party because the Chairman of the Rothschild group's merchant bank is a member of the Group's Supervisory Board.

Purchases mainly concern the acquisition of steel rounds from HKM, which are used as raw manufacturing materials by the European rolling mills of Vallourec Deutschland and Vallourec Tubes France.

Transactions carried out in 2015 with Rothschild & Cie relate to a financial consultancy agreement to assist the Management Board.

Additionally, Vallourec has a liquidity contract with Rothschild & Cie, which was established in 2012. It was implemented under the annual general authorization for the share buyback program approved by the Ordinary and Extraordinary Shareholders' Meeting of 28 May 2015 (eleventh resolution).

As at 31 December 2015, the balance on the liquidity account comprised:

- 1,375,000 shares with a value of €11.8 million as at 31 December;
- €1,428,580.

COMPENSATION OF THE MANAGEMENT AND SUPERVISORY BOARDS

The total compensation paid to members of the Executive Committee, as constituted at 31 December (9 people in 2015, against 16 in 2014), as well as pension liabilities at the reporting date, were as follows:

	2014	2015
Compensation and benefits in kind	8,045	5,530
Share-based payments[a]	993	163
Pension commitments	1,569	968
Supplementary pension commitments	9,330	9,491

(a) Information provided based on the 2015, 2014, 2013, 2012, 2011 and 2010 share subscription option, performance share and employee share ownership plans.

NOTE 21 Information on related parties (Continued)

Share purchase and share subscription options (Note 19) granted to members of the Executive Committee at 31 December

	2014[a]	2015[a]
Options granted on 1 September 2008 exercisable from 1 September 2012 to 1 September 2015	100,400	77,600
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	100,400	77,600
Options granted on 1 September 2009 exercisable from 1 September 2013 to 1 September 2019	118,800	94,400
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	118,800	94,400
Options granted on 1 September 2010 exercisable from 1 September 2014 to 1 September 2020	108,900	87,300
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	108,900	87,300
Options granted on 1 September 2011 exercisable from 1 September 2015 to 1 September 2021	108,716	82,858
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	108,716	82,858
Options granted on 31 August 2012 exercisable from 1 September 2016 to 1 September 2022	51,000	24,000
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	51,000	24,000
Options granted on 2 September 2013 exercisable from 3 April 2018 to 1 September 2021	111,000	84,000
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	111,000	84,000
Options granted on 15 April 2014 exercisable from 15 April 2018 to 15 April 2022	67,800	53,600
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	67,800	53,600
Options granted on 15 April 2015 exercisable from 15 April 2019 to 15 April 2023	—	53,900
Options exercised at 31 December (1 option = 1 share) by members of the Executive Committee	—	—
Number of shares subscribed during the year (1 option = 1 share) by members of the Executive Committee	—	—
Number of exercisable options at 31 December	—	53,900

(a) Plan figures are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares.

NOTE 21 Information on related parties (Continued)

Performance shares (Note 19) allocated to employees who were members of the Executive Committee at 31 December:

	2014[(a)]	2015[(a)]
Value 09 Plan of 17 December 2009		
Theoretical number of shares allocated		
Theoretical number of shares allocated	24	—
15 March 2010 Plan		
Theoretical number of shares allocated	24,480	—
Number of shares vested during the year	1,242	—
31 July 2010 Plan		
Theoretical number of shares allocated	4,000	—
Number of shares vested during the year	—	—
Value 10 Plan of 3 December 2010		
Theoretical number of shares allocated	42	24
Number of shares vested during the year	—	24
2-4-6 Plan of 3 December 2010		
Theoretical number of shares allocated	48	—
Number of shares vested during the year	6	—
30 March 2011 Plan		
Theoretical number of shares allocated	25,200	20,895
Number of shares vested during the year	—	5,199
Value 11 Plan of 15 December 2011		
Theoretical number of shares allocated	—	—
2-4-6 Plan of 15 December 2011		
Theoretical number of shares allocated	54	24
Number of shares vested during the year	—	—
30 March 2012 Plan		
Theoretical number of shares allocated	28,518	22,848
Number of shares vested during the year	4,315	—
2-4-6 Plan of 30 March 2012		
Theoretical number of shares allocated	66	30
Number of shares vested during the year	42	—
Value 12 Plan of 18 November 2012		
Theoretical number of shares allocated	—	—
29 March 2013 Plan		
Theoretical number of shares allocated	28,833	22,848
2-4-6 Plan of 29 March 2013		
Theoretical number of shares allocated	66	30
Value 13 Plan of 14 November 2013		
Theoretical number of shares allocated	—	—
Plan of 15 April 2014		
Theoretical number of shares allocated	58,730	45,880
2-4-6 Plan of 15 April 2014		
Theoretical number of shares allocated	78	36
Value 14 Plan of 14 November 2014		
Theoretical number of shares allocated	—	—
Plan of 15 April 2015		
Theoretical number of shares allocated	—	40,320
Value 15 Plan of 16 November 2015		
Theoretical number of shares allocated	—	—

(a) Plan figures are restated to reflect the 2:1 stock split on 9 July 2010 and the subsequent doubling of the number of shares.

NOTE 21 Information on related parties (Continued)

As regards post-employment benefits for senior managers, there is no specific plan. Senior managers are covered by the Vallourec Group's supplemental pension plan (under Article 39 of the French General Tax Code) introduced in 2005 (Note 19).

At 31 December 2015, no loans or guarantees had been granted to senior management by the parent company or its subsidiaries.

NOTE 22 Contingent liabilities and commitments

For its activities in Europe, the Group was granted a greenhouse gas emissions allowance of 433,157 metric tons in 2015.

Vallourec is concerned by the third emissions trading period (2013-2020), not only for the Saint Saulve steelworks, but for its tube mills as well. Although from 2013, a portion of the allowances allocated is no longer free and will be auctioned on the market, the metalworking sector is classified as being exposed to the risk of "carbon leakage" and will continue to receive free allowances until 2020. European authorities are working on the rules applicable after 2020, but everything suggests that the metalworking industry will continue to receive free allowances.

Off-statement of financial position commitments received (excluding financial instruments)

	2014	2015
Firm non-current asset orders	7,373	8,556
Guarantees and commitments received	98,575	119,735
Other commitments received	14,691	17,619
TOTAL	120,639	145,910
OFF-STATEMENT OF FINANCIAL POSITION COMMITMENTS GIVEN (EXCLUDING FINANCIAL INSTRUMENTS)	480,581	466,157

Commitments given by maturity

	2015	<1 year	>1 year	>5 years
Statement of financial position				
Long-term financial debts	2,149,797	386,842	1,172,140	590,815
Off-statement of financial position				
Market guarantees and letters of credit given	139,385	110,325	29,060	—
Other securities, mortgages and pledges given	62,000	97	1,794	60,109
Long-term lease	70,793	10,461	28,519	31,813
Firm asset orders given	6,758	2,145	4,613	—
Other obligations	187,221	151,661	26,962	8,598
TOTAL	**466,157**	**274,689**	**90,948**	**100,520**

NOTE 22 Contingent liabilities and commitments (Continued)

	2014	<1 year	> 1 year	> 5 years
Statement of financial position				
Long-term financial debts	2,693,517	911,644	1,168,746	613,127
Off-statement of financial position				
Market guarantees and letters of credit given	157,904	129,925	27,979	—
Other securities, mortgages and pledges given	87,533	5,880	506	81,147
Long-term lease	76,164	11,980	25,078	39,106
Firm asset orders given	4,905	2,901	—	2,004
Other obligations	154,075	63,099	73,852	17,124
TOTAL	**480,581**	**213,785**	**127,415**	**139,381**

The partnership agreement signed by the two shareholders, Vallourec and Sumitomo, provides that each will have the option of buying the other shareholder's stake should it undergo a change of control.

The main exchange rates used for income statement items are set out in Note 13. Income statement items are translated at the average rate.

NOTE 23 Revenue

	2014	2015
Europe	1,089,853	849,351
North America (NAFTA)	1,746,660	1,095,599
South America	918,802	596,171
Asia and the Middle East	1,434,061	852,413
Rest of the world	511,160	409,889
TOTAL	**5,700,536**	**3,803,423**

NOTE 24 Cost of sales

	2014	2015
Direct cost of sales	(313,053)	(214,653)
Cost of raw materials consumed	(1,752,600)	(1,201,140)
Labor costs	(947,237)	(836,619)
Other manufacturing costs	(1,272,426)	(956,744)
Change in non-raw material inventories	37,167	(143,588)
TOTAL	**(4,248,149)**	**(3,352,744)**
Depreciation and amortization	(310,713)	(302,632)
TOTAL (INCLUDING DEPRECIATION AND AMORTIZATION)	**(4,558,862)**	**(3,655,376)**

"Other manufacturing costs" mainly include the costs of energy and consumables, and the costs of outsourcing, maintenance and provisions.

NOTE 25 Sales, general and administrative costs

	2014	2015
Research and Development costs	(95,743)	(81,938)
Selling and marketing costs	(104,557)	(99,155)
General and administrative costs	(366,854)	(331,736)
TOTAL	**(567,154)**	**(512,829)**
Depreciation and amortization	(50,596)	(44,279)
TOTAL (INCLUDING DEPRECIATION AND AMORTIZATION)	**(617,750)**	**(557,108)**

Personnel expenses and average headcount of consolidated companies

	2014	2015
Personnel expenses		
Wages and salaries	(856,646)	(796,209)
Employee profit-sharing and bonuses	(54,143)	(32,802)
Expenses related to share subscription and share purchase options and performance shares	(16,034)	(1,467)
Share subscription option plan of 1 September 2010	(444)	—
Share subscription option plan of 1 September 2011	(815)	(363)
Share subscription option plan of 30 August 2012	(11)	698
Share subscription option plan of 2 September 2013	(1,153)	640
Share subscription option plan of 15 April 2014	(503)	105
Share subscription option plan of 15 April 2015	—	(283)
Value 09 employee share ownership plan of 12 December 2009 including the bonus share plan	(324)	—
1-2-3 performance share allocation plan of 17 December 2009	—	—
Performance share allocation plan of 15 March 2010	357	—
Performance share allocation plan of 31 July 2010	(5)	—
Value 10 employee share ownership plan of 17 November 2010 including the bonus share plan	(1,084)	(493)
2-4-6 performance share allocation plan of 3 December 2010	(521)	—
Performance share allocation plan of 30 March 2011	(527)	166
Value 11 employee share ownership plan of 18 November 2011 including the bonus share plan	(51)	(21)
2-4-6 performance share allocation plan of 18 November 2011	(450)	(309)
Performance share allocation plan of 30 March 2012	(1,084)	(1,142)
2-4-6 performance share allocation plan of 30 March 2012	(1,093)	(853)
Value 12 employee share ownership plan of 12 November 2012 including the bonus share plan	(25)	(14)
Performance share allocation plan of 29 March 2013	(1,436)	(68)
2-4-6 performance share allocation plan of 29 March 2013	(451)	(683)
Value 13 employee share ownership plan of 14 November 2013 including the bonus share plan	(32)	(21)
Performance share allocation plan of 15 April 2014	(2,219)	2,006
2-4-6 performance share allocation plan of 15 April 2014	(552)	552
Value 14 employee share ownership plan of 14 November 2014 including the bonus share plan	(3,611)	(20)
Performance share allocation plan of 15 April 2015	—	(710)
Value 15 employee share ownership plan of 16 November 2015 including the bonus share plan	—	(654)
Social security costs	(309,313)	(289,079)
TOTAL	**(1,236,136)**	**(1,119,557)**

NOTE 25 Sales, general and administrative costs (Continued)

2015

An employee share ownership plan was offered to all employees. In order to meet the legal and fiscal requirements of each country, different plans were offered:

- Leveraged company mutual fund plan (fonds commun de placement entreprise levier—FCPE levier): employees subscribe via a company mutual fund to a number of Vallourec shares at a price discounted by 15% and receive, at the end of the holding period, a performance multiple on their Vallourec shares as well as protection of their initial investment, excluding currency effects. The increase multiple is achieved through the transfer of the discount, dividends and other financial rights related to ownership of the shares to the bank structuring the transaction through a swap contract;
- Standard company mutual fund (fonds commun de placement classique—FCPE classique): employees subscribe via a company mutual fund to Vallourec shares at a price discounted by 20% and receive any dividends;
- Share and Stock Appreciation Rights (SAR): employees, by buying one share at a price discounted by 15%, receive one SAR (protection on their initial investment, excluding currency effects, and a performance multiple on said share), which will be paid by the employer, in cash, at the end of the holding period. The resulting liability (SAR) is covered by warrants provided to the employer by the bank structuring the transaction. The warrants are issued in consideration of the issue of shares reserved for the bank at a price discounted by 15%;
- Cash and Stock Appreciation Rights (SAR): employees, by depositing funds in an interest-bearing bank account, receive SARs (performance multiple on the deposit), which will be paid to the employee by the employer in cash at the end of the holding period. The resulting liability (SAR) is covered by warrants provided to the employer by the bank structuring the transaction. The warrants are issued in consideration of the issue of shares reserved for the bank at a price discounted by 15%.

The IFRS 2 expense resulting from the benefit granted to the employee under the terms of the ESOP is measured on the grant date. The fair value of the benefit corresponds, in the case of the standard offering, to the value of the economic benefit granted less the cost to the employee of the non-transferability of the share, and, for the leveraged plans, to the estimated present value of the amounts ultimately paid to the employee. In the case of the "Share and SAR" plan, the discount on the share held by the employee and the measurement of the option protecting the initial investment are added.

NOTE 25 Sales, general and administrative costs (Continued)

Characteristics of Value plans	2013	2014	2015
Allocation date	14 November 2013	14 November 2014	16 November 2015
Maturity date of plans	2 July 2018	1 July 2019	1 July 2020
Reference price in euros	€43.47	€30.14	€10.39
Subscription price in euros	€34.78	€24.11	€8.32
Subscription price for leveraged plan in euros	€36.95	€25.62	€8.83
Discount	15% and 20%	15% and 20%	15% and 20%
Total amount subscribed (in € thousands)	69,223	49,166	17,647
Total number of shares subscribed	1,874,453	1,919,959	1,999,997
Total discount (in € thousands)	12,259	8,702	3,130
Multiple per share			
• Leveraged company mutual fund plan (FCPE levier)	6.8	7.8	6.8
• Share and SAR plan	4.9	5.7	4.8
• Cash and SAR plan	6.3	7.5	6.4
Measurement assumptions			
Volatility(a)	30%	24%	26%
Risk-free rate(b)	0.90%	0.23%	0.03%
Annual dividend rate(c)	3.00%	3.00%	3.00%
Total IFRS 2 expense(d)	**5,593**	**3,610**	**654**

(a) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(b) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(c) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

(d) Calculated using a binomial model for share price movements.

This benefit led to the recognition of a personnel cost of €0.7 million in 2015 compared to €3.6 million in 2014.

The IFRS 2 expense resulting from the SARs is measured again at each quarter-end by reference to the fair value corresponding to the estimated present value of the amounts ultimately paid to the employee.

Parameters for measuring the fair value of SARs	Value 11	Value 12	Value 13	Value 14	Value 15
Measurement date	31 December 2015	31 December 2015	31 December 2015	31 December 2015	31 December 2015
Maturity date	1 July 2016	1 July 2017	1 July 2018	1 July 2019	1 July 2020
Share price at the measurement date	€8.90	€8.90	€8.90	€8.90	€8.90
Multiple per share					
• Share and SAR plan	6.2	6.06	4.9	5.7	4.8
• Cash and SAR plan	7.2	7.2	6.3	7.5	6.4
Measurement assumptions					
Volatility(a)	54%	47%	42%	40%	40%
Risk-free rate(b)	−0.35%	−0.36%	−0.28%	−0.20%	−0.08%
Annual dividend rate(c)	3.00%	3.00%	3.00%	3.00%	3.00%
IFRS 2 expense for the period(d)	**(54)**	**71**	**(9)**	**219**	**(166)**

(a) Volatility corresponds to historical volatility observed over a period corresponding to the duration of the plans.

(b) The risk-free rate corresponds to the zero-coupon rate (source: French Institute of Actuaries—Institut des Actuaires).

(c) The expected dividend rates were determined based on analysts' expectations (external information) and the Group's dividend policy.

(d) Calculated using a binomial model for share price movements.

NOTE 25 Sales, general and administrative costs (Continued)

The liability to employees resulting from SARs resulted in an expense included in personnel costs of €0.1 million.

In accordance with IAS 39, the income from warrants is remeasured at each quarter-end by reference to the fair value of the derivative instrument.

Parameters for determining the fair value of warrants	Value 11	Value 12	Value 13	Value 14	Value 15
Measurement date	31 December 2015	31 December 2015	31 December 2015	31 December 2015	31 December 2015
Maturity date	1 July 2016	1 July 2017	1 July 2018	1 July 2019	1 July 2020
Share price at the measurement date	€8.90	€8.90	€8.90	€8.90	€8.90
Multiple per share					
• Share and SAR plan	6.2	6.06	4.9	5.7	4.8
• Cash and SAR plan	7.2	7.2	6.3	7.5	6.4
Measurement assumptions[(a)]					
Implied volatility	54%	47%	42%	40%	40%
Interest rate	−0.18%	from −0.18% to −0.16%	from −0.18% to 0.05%	from −0.18% to 0.16%	from −0.18% to 0.29%
Annual dividend (in euros)	€0.65	€0.65	€0.65	€0.65	€0.65
IAS 39 income for the period	55	(70)	12	(195)	176

(a) Assumptions of the bank structuring the transaction.

The expense corresponding to the warrants paid by the bank to the employer was added to the employees' investment and recognized in personnel expenses for €0.1 million in 2015 since it is intended to cover income associated with SARs (see above).

Closing headcount of consolidated companies[(a)]	2014	2015
Managers	3,476	3,358
Technical and supervisory staff	4,094	3,334
Production staff	15,587	12,615
TOTAL	**23,157**	**19,307**

(a) The headcount of companies recognized as joint operations is included based on the percentage interest held by the Group.

Group headcount as at 31 December 2015 was 19,307 people, compared with 23,157 as at 31 December 2014.

NOTE 26 Other

	2014	2015
Employee profit-sharing and bonuses	(54,143)	(32,802)
Fees for concessions and patents	34,432	30,653
Other income and expenses	(10,271)	(12,948)
TOTAL	**(29,982)**	**(15,097)**

Provision allowances, net of reversals	2014	2015
Provision allowances net of reversals included in EBITDA amounted to	(38,862)	(37,167)

NOTE 27 Fees paid to the Statutory Auditors and members of their networks

Amount (excl. tax)	KPMG 2014	KPMG 2015	Deloitte 2014	Deloitte 2015
Audit				
Statutory audit, certification, examination of Parent Company and consolidated financial statements				
Issuer	220	212	212	212
%	19%	19%	12%	12%
Fully consolidated subsidiaries	817	790	1,489	1,510
%	70%	70%	87%	87%
Other services directly associated with the statutory audit				
Issuer	70	70	0	0
%	6%	6%	0%	0%
Fully consolidated subsidiaries	52	62	14	14
%	4%	5%	1%	1%
SUB-TOTAL	**1,159**	**1,134**	**1,715**	**1,736**
%	100%	100%	100%	100%
Other services provided by audit networks to fully consolidated subsidiaries				
Legal, tax, payroll	0	0	0	0
%	0%	0%	0%	0%
Other (details to be provided if > 10% of audit fees)	0		0	0
%	0%	0%	0%	0%
SUB-TOTAL	**0**	**0**	**0**	**0**
%	0%	0%	0%	0%
TOTAL	**1,159**	**1,134**	**1,715**	**1,736**

NOTE 28 Accumulated depreciation and amortization

	2014	2015
By function		
Depreciation of industrial assets	(310,713)	(302,632)
Depreciation and amortization—Research and Development	(10,931)	(9,797)
Depreciation and amortization—Sales and Marketing Department contracts	(19,454)	(11,558)
Depreciation and amortization—general and administrative expenses	(20,211)	(22,924)
TOTAL	**(361,309)**	**(346,911)**
By type		
Net amortization of intangible assets (see Note 1)	(40,118)	(34,099)
Net depreciation of property, plant and equipment (see Note 2)	(311,858)	(299,897)
Net depreciation and amortization of biological assets	(9,333)	(12,915)
TOTAL	**(361,309)**	**(346,911)**

Depreciation of new industrial sites in the development stage is calculated according to the production-units method for assets used directly in the production process and the straight-line depreciation method for other assets.

NOTE 29 Impairment of assets and goodwill, asset disposals and restructuring costs

	2014	2015
Reorganization measures (net of expenses and provisions)	(25,176)	(101,431)
Gains and losses on disposals of non-current assets and other	(25,654)	(16,529)
TOTAL	**(50,830)**	**(117,960)**

	2014	2015
Impairment of intangible assets (see Note 1)	(23,134)	—
Impairment of property, plant and equipment (see Note 2)	(875,859)	(163,202)
Impairment of goodwill (see Note 1)	(204,148)	(36,316)
Other impairment of assets	(559)	(96,704)
TOTAL	**(1,103,700)**	**(296,222)**

Other impairment of assets mainly concerns the impact of the mark-to-market valuation of assets held for sale for €52.0 million (see Note 11) and impairment of receivables related to country risk (Angola and Venezuela) for €40.9 million (see Note 7).

NOTE 30 Financial income/(loss)

	2014	2015
Financial income		
Income from investment securities	40,935	35,908
Income from disposals of investment securities	2,206	856
TOTAL	**43,141**	**36,764**
Interest expenses	**(132,226)**	**(111,695)**
Net interest expenses	**(89,085)**	**(74,931)**
Other financial income and expenses		
Income from securities	2,774	1,687
Income from loans and receivables	5,218	1,479
Exchange (losses) and gains and changes in premiums/discounts	29,741	401
Provision allowances, net of reversals	(2,915)	(2,078)
Other financial income and expenses	1,662	5,934
TOTAL	**36,480**	**7,423**
Other discounting expenses		
Interest expense pension obligation	(9,096)	(7,998)
Financial income from discounted assets and liabilities	(491)	739
TOTAL	**(9,587)**	**(7,259)**
FINANCIAL INCOME/(LOSS)	**(62,192)**	**(74,767)**

NOTE 31 Reconciliation of theoretical and actual tax expense

Breakdown of the tax expense	2014	2015
Current tax expense	(129,615)	(29,861)
Deferred taxes (see Note 5)	(28,039)	(45,039)
NET EXPENSE (−) / INCOME (+)	**(157,654)**	**15,178**
Consolidated net income/(loss)	(880,432)	(897,927)
Tax expense	(157,654)	15,178
CONSOLIDATED NET INCOME/(LOSS) BEFORE TAX	**(722,778)**	**(913,105)**
Statutory tax rate of consolidating company (see Note 5)	34.43%	34.43%
Theoretical tax	248,852	314,382
Impact of main tax loss carryforwards	(343,897)	(196,725)
Impact of permanent differences	(45,320)	(75,901)
Other impacts	(4,751)	(11,793)
Impact of differences in tax rates	(12,538)	(14,785)
NET EXPENSE (−) / INCOME (+)	**(157,654)**	**15,178**
ACTUAL TAX RATE	**−22%**	**2%**

The 2% rate mainly reflects the items detailed below:

The impact of tax loss carryforwards and timing differences mainly concerns the non-recognition of deferred tax assets (DTAs) for the year in France, Germany, China, Saudi Arabia and VSB in Brazil.

Permanent differences consist mainly of the net income attributable to non-controlling interests, withholding taxes and the change in the share of costs and expenses with regard to dividend distributions, the income/(loss) generated from the fair value measurement of assets held for sale (see Note 11) along with the impact of free share allocations.

Differences in taxation mainly reflect the range of tax rates applied in each country (France 34.4%, Germany 31.6%, United States 36.5%, Brazil 34%, China 25% and Saudi Arabia 20%).

NOTE 32 Segment information

OPERATING SEGMENTS

The following tables provide information on the income and results for each operating segment, as well as certain information on the assets, liabilities and investments for the 2015 and 2014 fiscal years.

NOTE 32 Segment information (Continued)

Information on results, assets and liabilities by operating segment

2015	Seamless tubes	Specialty products	Holdings & miscellaneous[a]	Inter-segment transactions	Total
Income statement					
Sales to external customers	3,700,576	208,272	(105,425)		3,803,423
EBITDA	(46,503)	12,962	(39,569)	(4,137)	(77,247)
Depreciation and amortization	(323,902)	(21,671)	(1,674)	336	(346,911)
Impairment of assets and goodwill	(242,921)	(53,301)	—	—	(296,222)
Asset disposals and restructuring costs	(104,848)	(3,089)	(10,023)		(117,960)
OPERATING INCOME/(LOSS)	**(718,174)**	**(65,099)**	**(51,266)**	**(3,801)**	**(838,340)**
Unallocated income					44,187
Unallocated expenses					(118,954)
Pre-tax income					(913,107)
Income tax					15,178
Net income of associates					(25)
Consolidated net income/(loss)					(897,954)
Statement of financial position					
Non-current assets	4,480,204	149,243	3,713,881	(3,990,432)	4,352,896
Current assets	1,891,569	55,830	94,872	(103,387)	1,938,884
Cash	446,851	12,305	984,339	(812,955)	630,540
Assets held for sale and discontinued operations	—	68,964	—	—	68,964
TOTAL ASSETS	**6,818,624**	**286,342**	**4,793,092**	**(4,906,774)**	**6,991,284**
Equity	2,793,478	115,233	2,699,619	(2,962,662)	2,645,668
Non-controlling interests	385,986	5,882	—	73	391,941
Long-term liabilities	1,562,911	3,454	1,609,947	(930,462)	2,245,850
Current liabilities	2,076,249	101,638	483,526	(1,013,723)	1,647,690
Liabilities held for sale and discontinued operations	—	60,135	—	—	60,135
TOTAL LIABILITIES	**6,818,624**	**286,342**	**4,793,092**	**(4,906,774)**	**6,991,284**
Cash flows investments					
Property, plant and equipment, intangible assets and biological assets	245,759	4,430	619	—	250,808
Other information					
Closing headcount	18,014	1,096	197	—	19,307
Personnel expenses	(1,028,579)	(47,413)	(43,565)	—	(1,119,557)

(a) Vallourec and Vallourec Tubes.

NOTE 32 Segment information (Continued)

2014	Seamless tubes	Specialty products	Holdings & miscellaneous[a]	Inter-segment transactions	Total
Income statement					
Sales to external customers	5,479,222	220,405	909	—	5,700,536
EBITDA	886,494	20,178	(47,343)	(4,078)	855,251
Depreciation and amortization	(341,403)	(18,574)	(1,667)	335	(361,309)
Impairment of assets and goodwill	(1,003,618)	(5,931)	(9,128)	(85,023)	(1,103,700)
Asset disposals and restructuring costs	(50,650)	(397)	217	—	(50,830)
OPERATING INCOME/(LOSS)	**(509,177)**	**(4,724)**	**(57,921)**	**(88,766)**	**(660,588)**
Unallocated income					79,621
Unallocated expenses					(141,813)
Pre-tax income					(722,780)
Income tax					(157,654)
Net income of associates					2,487
Consolidated net income/(loss)					(877,947)
Statement of financial position					
Non-current assets	4,905,839	200,178	3,871,431	(3,899,857)	5,077,591
Current assets	2,840,832	154,260	132,063	(120,104)	3,007,051
Cash	590,764	19,802	1,266,624	(730,277)	1,146,913
TOTAL ASSETS	**8,337,435**	**374,240**	**5,270,118**	**(4,750,238)**	**9,231,555**
Equity	3,535,242	129,566	3,152,155	(3,073,604)	3,743,359
Non-controlling interests	418,049	6,154	—	2,050	426,253
Long-term liabilities	1,679,434	50,492	1,602,271	(820,933)	2,511,264
Current liabilities	2,704,710	188,028	515,692	(857,751)	2,550,679
TOTAL LIABILITIES	**8,337,435**	**374,240**	**5,270,118**	**(4,750,238)**	**9,231,555**
Cash flows investments					
Property, plant and equipment, intangible assets and biological assets	358,187	11,286	364	—	369,837
Other information					
Closing headcount	21,780	1,168	209	—	23,157
Personnel costs expenses	(1,127,448)	(60,577)	(48,111)	—	(1,236,136)

(a) Vallourec and Vallourec Tubes.

The impairment losses recorded as at 31 December 2014 (see Note 2.3) primarily concerned the seamless tubes sector.

NOTE 32 Segment information (Continued)

GEOGRAPHICAL REGIONS

The following tables provide information by geographical region on sales (by location of the Group's customers) and capital expenditure as well as certain information on assets (by regions where the companies operate).

2015	Europe	North America	South America	Asia	Rest of the world	Total
Revenue						
Sales to external customers	849,351	1,095,599	596,171	852,413	409,889	3,803,423
Statement of financial position						
Property, plant & equipment, intangible assets and biological assets (net)	690,947	1,816,203	941,838	342,255	2,902	3,794,145
Cash flows						
Property, plant and equipment, intangible assets and biological assets	108,711	66,370	59,589	15,501	637	250,808
Other information						
Closing headcount	8,745	2,272	6,339	1,879	72	19,307
Personnel expenses	(629,634)	(232,827)	(202,495)	(51,955)	(2,646)	(1,119,557)

2014	Europe	North America	South America	Asia	Rest of the world	Total
Revenue						
Sales to external customers	1,089,853	1,746,660	918,802	1,434,061	511,160	5,700,536
Statement of financial position						
Property, plant & equipment, intangible assets and biological assets (net)	892,614	1,705,941	1,292,475	340,736	3,534	4,235,300
Cash flows						
Property, plant and equipment, intangible assets and biological assets	143,511	95,347	107,124	21,503	2,352	369,837
Other information						
Closing headcount	9,925	3,141	7,336	2,676	79	23,157
Personnel expenses	(679,425)	(241,229)	(264,509)	(48,390)	(2,583)	(1,236,136)

NOTE 33 Share in net income/(loss) of associates

The contribution to the consolidated net income of associates is as follows:

	2014	2015
HKM	6	—
Poongsan Valinox	(246)	(428)
Subsidiaries of P.T. Citra Tubindo	1,577	1,758
Tianda Oil Pipe	1,439	(436)
Xi'an Baotimet Valinox Tubes	(289)	(919)
TOTAL	**2,487**	**(25)**

NOTE 34 Business combinations

There were no business combinations in 2015 or 2014.

NOTE 35 Subsequent events

On 11 January 2016, Serimax and Technip signed an agreement in principle to develop a strategic partnership for offshore pipeline welding. The plans envisage that Technip, a long-time customer of Serimax, would acquire a minority stake in Serimax.

On 29 January 2016, Vallourec and Tianda Oil Pipe (TOP), a Chinese seamless pipe manufacturer listed on the Hong Kong Stock Exchange, signed an agreement whereby Vallourec would take control of the company by acquiring a further 50.61% stake in the company. Since 2011, Vallourec has owned a 19.46% stake in TOP, which has been accounted for by the equity method in the Group's financial statements (see Note 3). This transaction would give Vallourec a 70.07% controlling interest in TOP. Vallourec would subsequently launch a Mandatory General Offer to acquire all remaining shares, as required by the Hong Kong Code on Takeovers and Mergers. The total maximum cash out would be USD 175 million. This transaction is subject to approval by the Hong Kong competition authorities.

On 1 February, Vallourec and NSSMC announced the merger of Vallourec & Sumitomo Tubos do Brasil (VSB, Jeceaba site, operated by Vallourec and NSSMC in a 56/40.4% joint operation, with Sumitomo Corp. holding the remaining 3.6%) and Vallourec Tubos do Brasil (VBR, fully owned by Vallourec) into a single new entity to be called Vallourec Soluções Tubulares do Brasil in which Vallourec will hold a majority stake of 84.6%, with NSSMC and Sumitomo Corp. holding the remaining 15% and 0.4%, respectively. NSSMC will keep its supply agreement for 300kt to be manufactured at the Jeceaba plant. The impact of this transaction on the Group's financial statements as at the date of change of control will be a change in the consolidation method of VSB's assets and liabilities to full consolidation (compared with 56% as at 31 December 2015). This transaction is subject to approval by the Hong Kong competition authorities.

On 1 February 2016, the Group presented a comprehensive industrial reorganization plan that will downsize European capacity by 50%, to focus on high value-added products and specialized activities. This rationalization project will lead to the closure of two rolling mills (Saint-Saulve and Deville in France), one threading line (Mülheim in Germany), as well as one heat treatment line (Bellshill in Scotland), resulting in a 50% cut in tube production capacity by 2017 versus the 2014 level. It will result in approximately 1,000 more FTE reductions as compared to the Valens plan. These new measures will have an estimated impact of €137 million, which will be recognized in the first quarter of 2016.

On 1 February 2016, Vallourec announced its intention to raise €1.0 billion of new equity to strengthen its balance sheet and finance its transformation to secure long-term growth through a combination of an equity instrument (convertible bond redeemable in shares, "ORA") reserved to Bpifrance and NSSMC and an equity issuance with preferential rights. The convertible bond will be subscribed by Bpifrance and NSSMC up to an amount which will allow them each to reach a 15% ownership post-completion of the equity issuance with preferential rights and conversion on a fully-diluted basis. An Ordinary and Extraordinary Shareholders' Meeting will be convened on 6 April 2016 to submit the equity issuance for shareholders' approval. This transaction is subject to approval by the Hong Kong competition authorities.

If these equity transactions are not completed, Vallourec will draw on its credit lines. It should be noted that the bank facilities contain financial covenants that must be met or renegotiated as at 31 December 2016, otherwise these lines could be rendered due and payable.

On 2 February 2016, Standard & Poor's downgraded Vallourec's long-term rating to BB−.

Statutory auditors' report on the consolidated financial statements

Year ended 31 December 2015

This is a free translation into English of the statutory auditors' report on the consolidated financial statements issued in the French language and is provided solely for the convenience of English speaking users.

The statutory auditors' report includes information specifically required by French law in such reports, whether modified or not. This information is presented below the opinion on the consolidated financial statements and includes explanatory paragraphs discussing the auditors' assessments of certain significant accounting and auditing matters. These assessments were made for the purpose of issuing an audit opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account captions or on information taken outside of the consolidated financial statements.

This report also includes information relating to the specific verification of information given in the management report.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

To the Shareholders,

In accordance with our appointment as statutory auditors by your Shareholders' Meeting, we hereby report to you for the year ended 31 December 2015, on:

- the audit of the accompanying consolidated financial statements of VALLOUREC;
- the justification of our assessments;
- the specific verification required by law.

These consolidated financial statements have been approved by the Management Board. Our role is to express an opinion on these consolidated financial statements based on our audit.

I. Opinion on the consolidated financial statements

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit involves performing procedures, using sampling techniques or other methods of selection, to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at 31 December 2015 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

Without qualifying the opinion expressed above, we draw your attention to Note C-35 to the consolidated financial statements concerning the subsequent events.

II. Justification of our assessments

In accordance with the requirements of article L.823-9 of the French Commercial Code (*"Code de commerce"*) relating to the justification of our assessments, we draw to your attention the following matters:

Note A-2.2 to the consolidated financial statements mentions the significant estimates and assumptions made by Management that affect certain amounts in the consolidated financial statements and accompanying notes. This note specifies that these assumptions are, by nature, subject to uncertainties and that actual results could differ from these estimates, especially in the current economic situation. In the context of our audit of the consolidated financial statements for the year ended 31 December 2015, we

considered that these significant assumptions and estimates concern goodwill, intangible assets and property, plant and equipment (notes A-2.7 to A-2.9), provisions (note A-2.12) and retirement benefits and similar obligations (note A-2.13):

- Concerning goodwill, intangible assets and property, plant and equipment, we have examined the data and key assumptions used for the determination of recoverable amounts, assessed the sensitivity of the measurements to these assumptions as well as the procedure for approving these estimates by Management. We also reviewed the calculation made by the Group and verified that the note C-2.3 to the consolidated financial statements provide appropriate disclosure.
- Concerning the provisions, we have assessed the bases and assumptions on which such estimates were made, reviewed the calculations made by the Company, examined Management's procedures for approving these estimates, and reviewed the appropriateness of the information disclosed in note C-17 to the consolidated financial statements;
- Concerning retirement benefits and similar obligations, which have been measured by independent actuaries, our procedures consisted in examining the information used, assessing the assumptions adopted and reviewing the appropriateness of the information disclosed in note C-19 to the consolidated financial statements.

These assessments were made as part of our audit of the consolidated financial statements taken as a whole, and therefore contributed to the opinion we formed which is expressed in the first part of this report

III. Specific verification

As required by law, we have also verified in accordance with professional standards applicable in France the information presented in the Group's management report.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

Neuilly-sur-Seine and Paris La Défense, 15 March 2016
The statutory auditors,

Deloitte & Associés
Christophe Patrier

KPMG Audit
Department of KPMG SA
Catherine Porta

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