KRONOS®

Kronos International, Inc.
€400,000,000
3.750% Senior Secured Notes due 2025

Kronos International, Inc. (the "Company" or the "Issuer") is offering €400,000,000 aggregate principal amount of its 3.750% Senior Secured Notes due 2025 (the "Notes"). The Issuer intends to use the net proceeds of this offering to repay in full all indebtedness outstanding under, and terminate, the $350,000,000 term loan B facility of Kronos Worldwide, Inc. ("Parent") for which the Company is a guarantor (the "Term Loan Facility"), to repay all current indebtedness outstanding under Parent's North American revolving credit agreement (the "North American Revolving Credit Agreement"; the revolving credit facility thereunder is referred to as the "North American Revolving Credit Facility"), to pay related fees and expenses and, to the extent any proceeds remain thereafter, for general corporate purposes.

The Notes will mature on September 15, 2025. The Issuer will pay interest semi-annually on the Notes on March 15 and September 15 of each year, commencing on March 15, 2018.

The Notes will be redeemable, in whole or in part, at any time on or after September 15, 2020, and on the redemption date and at the redemption price specified under "Description of Notes—Optional Redemption," plus accrued and unpaid interest, if any, to, but not including, the redemption date. The Issuer may redeem up to 40% of the aggregate principal amount of the Notes at any time prior to September 15, 2020 with the net cash proceeds from certain equity offerings at the redemption price set forth in this offering memorandum. The Issuer may also redeem some or all of the Notes at any time prior to September 15, 2020 at a price equal to 100% of the principal amount thereof plus a "make-whole" premium plus accrued and unpaid interest, if any, to, but not including, the redemption date.

If the Issuer or Parent experiences specific kinds of change of control events, the Issuer may be required to offer to repurchase the Notes at a price equal to 101% of the principal amount thereof, plus accrued and unpaid interest. If the Issuer or Parent sells assets under certain circumstances, the Issuer may be required to offer to repurchase the Notes at a price equal to 100% of the principal amount thereof, plus accrued and unpaid interest.

The Notes will be fully and unconditionally guaranteed, jointly and severally, on a senior secured basis by Parent and each of its direct and indirect domestic, wholly-owned subsidiaries (other than the Issuer), subject to certain exceptions (each a "Guarantor" and collectively, the "Guarantors"). The Notes and the related guarantees will be secured by first-priority liens on (1) 100% of the issued and outstanding capital stock of the existing and future direct domestic subsidiaries of the Issuer or any Guarantor and (2) 65% of the issued and outstanding voting capital stock and 100% of the issued and outstanding non-voting capital stock of each foreign subsidiary that is directly owned by the Issuer or any Guarantor, subject to certain exceptions (the "Notes Collateral"). The Notes and the related guarantees will rank pari passu in right of payment with all of the Issuer's and the Guarantors' existing and future senior indebtedness, effectively senior in right of payment to all of the Issuer's and the Guarantors' existing and future unsecured and junior lien indebtedness and secured indebtedness that is not secured on a pari passu basis with the Notes Collateral, in each case, to the extent of the value of the Notes Collateral, effectively subordinated to all of the Issuer's and the Guarantors' existing and future indebtedness that is secured by assets other than the Notes Collateral to the extent of the value of such assets and senior in right of payment to all of the Issuer's and Guarantors' existing and future subordinated indebtedness. In addition, the Notes and the related guarantees will be structurally subordinated to all existing and future liabilities of each of the Parent's existing and future subsidiaries (other than the Issuer) that do not guarantee the Notes.

There is currently no public market for the Notes. The Issuer intends to apply to list the Notes on The International Stock Exchange ("TISE"). The Issuer can provide no assurance that this application will be granted. Consummation of the offering of the Notes is not contingent upon obtaining such listing.

The Issuer will neither be required, nor does it intend, to register the Notes for resale under the Securities Act of 1933, as amended (the "Securities Act"), or offer to exchange the Notes for Notes registered under the Securities Act or the securities laws of any jurisdiction.

Investing in the Notes involves risks. See "Risk Factors" beginning on page 19.

Issue Price: 100%
plus accrued and unpaid interest from September 13, 2017

The Notes and the related guarantees have not been, and will not be, registered under the Securities Act, or the laws of any other jurisdiction. The Notes may not be offered or sold within the United States to, or for the account or benefit of, U.S. persons, except to persons reasonably believed to be qualified institutional buyers in reliance on the exemption from registration provided by Rule 144A under the Securities Act and to certain non-U.S. persons in offshore transactions in reliance on Regulation S under the Securities Act. You are hereby notified that sellers of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A. See "Notice to Investors."

The Issuer expects that delivery of the Notes will be made to investors in book-entry form through the facilities of Euroclear Bank S.A. / N.V. ("Euroclear") and Clearstream Banking, société anonyme ("Clearstream") on or about September 13, 2017.

Sole Bookrunner

Deutsche Bank

The date of this offering memorandum is September 6, 2017.

The Issuer accepts responsibility for the information in this offering memorandum. We have not authorized anyone to provide any information other than that contained in this document or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This document may only be used where it is legal to sell these securities. The information in this document may only be accurate as of the date of this document.

Unless otherwise indicated or the context otherwise requires, references herein to "Kronos," "we," "us," or "our" refer to Kronos Worldwide, Inc., the parent guarantor, together with its direct and indirect subsidiaries and predecessors, taken as a whole.

It is expected that delivery of the Notes will be made against payment therefor on or about September 13, 2017, which will be the fifth business day after the date of this offering memorandum (such settlement cycle being referred to as "T + 5"). Pursuant to Rule 15c6-1 under the Securities Exchange Act of 1934, as amended (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 the Notes prior to the date that is two business days preceding the settlement date will be required, by virtue of the fact that the Notes will initially settle T + 5, to specify an alternative settlement cycle at the time of trade to prevent a failed settlement. Investors who wish to trade the Notes prior to the delivery date should consult their own advisors.

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 (including any amendment thereto) 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.

Pursuant to section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* ("NI 33-105"), the initial purchaser is not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relevant Member State"), the initial purchaser has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the "Relevant Implementation Date") it has 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 Relevant Member State other than:

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

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the relevant dealer or dealers nominated by the Issuer for any such offer; or

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

provided that no such offer of Notes shall require the issuer or the initial purchaser to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer of notes to the public" in relation to any Notes in any Relevant 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, the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

France

This offering memorandum has not been prepared in the context of a public offering in France within the meaning of Article L.411-1 of the *Code monétaire et financier* and Title I of Book II of the *Règlement Général de l'autorité des marchés financiers* (the "AMF") and therefore has not been submitted for clearance to the AMF. Consequently, the Notes may not be, directly or indirectly, offered or sold to the public in France, and offers and sales of the Notes will only be made in France to providers of investment services relating to portfolio management for the account of third parties (*personnes fournissant le service d'investissement de gestion de portefeuille pour le compte de tiers*) and/or to qualified investors (*investisseurs qualifiés*) acting for their own account and/or to a closed circle of investors (cercle restreint d'investisseurs) acting for their own accounts, as defined in and in accordance with Articles L.411-1, L.411-2, D.411-1, D.411-4, D.744-1, D.754-1 and D.764-1 of the French Code monetaire et financier. Neither this offering memorandum nor any other offering or marketing materials relating to the Notes may be made available or distributed in any way that would constitute, directly or indirectly, an offer to the public in France.

Germany

The Notes may not be offered and sold to the public, except in accordance with the German Securities Prospectus Act (Wertpapierprospektgesetz) or any other laws applicable in Germany governing the issue, offering and sale of securities. This listing particulars has not been and will not be submitted to, nor has it been and will not be approved by, the Bundesanstalt für Finanzdienstleistungsaufsicht, the German Financial Services Supervisory Authority. The Notes must not be distributed within Germany by way of a public offer, public advertisement or in any similar manner, and this listing particulars and any other document relating to the Notes, as well as information contained therein, may not be supplied to the public in Germany or used in connection with any offer for subscription of Notes to the public in Germany. Consequently, in Germany, the Notes will only be available to, and this listing particulars and any other offering material in relation to the Notes are directed only at, persons who are qualified investors (qualifiizierte Anleger) within the meaning of Section 2 No. 6 of the Securities Prospectus Act. This listing particulars and other offering materials relating to the offer of Notes are strictly confidential and may not be distributed to any person or entity other than the recipients hereof.

Italy

None of this offering memorandum or any other documents or materials relating to the Notes have been or will be submitted to the clearance procedure of the Commissione Nazionale per le Società e la Borsa ("CONSOB"). Therefore, the Notes may only be offered or sold in the Republic of Italy ("Italy") pursuant to an exemption under article 101-bis, paragraph 3-bis of the Legislative Decree No.58 of 24 February 1998, as amended and article 35-bis, paragraph 3, of CONSOB Regulation No.11971 of 14 May 1999, as amended. Accordingly, the Notes are not addressed to, and neither the offering memorandum nor any other documents, materials or information relating, directly or indirectly, to the Notes can be distributed or otherwise made available (either directly or indirectly) to any person in Italy other than to qualified investors (investitori qualificati) pursuant to article 34-ter, paragraph 1, letter (b) of CONSOB Regulation No.11971 of 14 May 1999, as amended from time to time, acting on their own account.

Luxembourg

This offering memorandum has not been approved by, and will not be submitted for approval to, the Luxembourg Financial Services Authority (Commission de Surveillance du Secteur Financier) (the "CSSF") for purposes of public offering or sale in the Grand Duchy of Luxembourg ("Luxembourg"). Accordingly, the Notes may not be offered or sold to the public in Luxembourg, directly or indirectly, and neither this offering memorandum nor any other circular, prospectus, form of application, advertisement, communication or other material may be distributed, or otherwise made available in or from, or published in Luxembourg, except in circumstances which do not constitute an offer of securities to the public which benefits from an exemption to or constitutes a transaction otherwise not subject to the requirement to publish a prospectus for the purpose of the Luxembourg law dated July 10, 2005 on prospectuses for securities, as amended.

The Netherlands

The Notes (including rights representing an interest in each global note that represents the Notes) may not be offered or sold to individuals or legal entities in The Netherlands other than to qualified investors as defined in The Netherlands Financial Supervision Act (Wet op het financieel toezicht).

Singapore

This offering memorandum has not been and will not be registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this offering memorandum or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes may not be circulated or distributed, nor may the Notes be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1) or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Notes are subscribed for or purchased under Section 275 of the SFA by a relevant person which is:

(1) a corporation (which is not an accredited investor (as defined in Section 4 of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(2) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (however described) in that trust shall not be transferable within six months after that corporation or that trust has acquired the Notes pursuant to offers made under Section 275 of the SFA except:

a. to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA;

b. where no consideration is or will be given for the transfer; or

c. where the transfer is by operation of law.

Sweden

This offering memorandum is not a prospectus and has not been prepared in accordance with the prospectus requirements provided for in the Swedish Financial Instruments Trading Act (*Sw. lagen* (1991:980) *om handel med finansiella instrument*) nor any other Swedish enactment. Neither the Swedish Financial Supervisory Authority (*Sw. Finansinspektionen*) nor any other Swedish public body has examined, approved or registered this offering memorandum or will examine, approve or register this offering memorandum. Accordingly, this offering memorandum may not be made available, nor may the Notes otherwise be marketed and offered for sale, in Sweden other than in circumstances that constitute an exemption from the requirement to prepare a prospectus under the Swedish Financial Instruments Trading Act.

Switzerland

The Notes are being offered in Switzerland on the basis of a private placement only. This offering memorandum does not constitute a prospectus within the meaning of Art. 652A or Article 1156 of the Swiss Federal Code of Obligations and the Notes will not be listed on the SIX Swiss Exchange. Therefore this offering memorandum may not comply with the disclosure standards of the listing rules (including any additional listing rules or prospectus schemes) of the SIX Swiss Exchange. Accordingly, the Notes may not be offered to the public in or from Switzerland, but only to a selected and limited circle of investors who do not subscribe to the Notes with a view to distribution. Any such investors will be individually approached by the initial purchaser from time to time.

United Kingdom

This offering memorandum has not been approved for the purposes of section 21 of the UK Financial Services and Markets Act 2000, as amended ("FSMA"), by a person authorized under FSMA. This offering memorandum is for distribution only to, and is directed solely at, persons who (i) are outside the United Kingdom, (ii) are investment professionals, being persons having professional experience in matters relating to investments and who fall within the definition set out in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order

2005, as amended (the “Financial Promotion Order”), (iii) are persons falling within Article 49(2)(a) to (d) (high net worth companies, unincorporated associations, partnerships or high value trusts, etc.) of the Financial Promotion Order or (iv) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) in connection with the issue or sale of any Notes may otherwise lawfully be communicated (all such persons together being referred to as “relevant persons”). This offering memorandum is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is available only to relevant persons and will be engaged in only with relevant persons. Any person who receives this offering memorandum but does not fall within one of the preceding categories of relevant person should return it immediately to the Issuer. No part of this offering memorandum should be published, reproduced, distributed or otherwise made available in whole or in part to any other person in the United Kingdom without the prior written consent of the Issuer. The Notes are not being offered or sold to any person in the United Kingdom, except in circumstances which will not result in an offer of securities to the public in the United Kingdom within the meaning of Part VI of the FSMA.

The initial purchaser may engage in transactions that stabilize, maintain or otherwise affect the price of the Notes which, if commenced, may be discontinued. Specifically, the initial purchaser may over-allot in connection with this offering and may bid for and purchase Notes in the open market. For a description of these activities, see “Plan of Distribution.”

This offering memorandum is highly confidential and has been prepared by us solely for use in connection with the proposed offering of the Notes hereby and the application of the proceeds therefrom, and in connection with the application of the Notes for listing on TISE. Its use for any other purpose is not authorized. This offering memorandum is personal to the offeree to whom it has been delivered by the initial purchaser and does not constitute an offer to any other person or to the public generally. Distribution of this offering memorandum to any person other than the offeree and any person retained to advise such offeree is unauthorized and any disclosure of the contents of this offering memorandum without our prior written consent is prohibited. By accepting delivery of this offering memorandum, you agree to the foregoing and to make no photocopies of this offering memorandum or any documents referred to herein.

Notwithstanding the foregoing, effective from the date of commencement of discussions concerning the offering, you and each of your employees, representatives, or other agents may disclose to any and all persons, without limitation of any kind, the tax treatment and tax structure of the offering and all materials of any kind, including opinions or other tax analyses, that we have provided to you relating to such tax treatment and tax structure. However, the foregoing does not constitute an authorization to disclose the identity of the Issuer or its affiliates, agents or advisers, or, except to the extent relating to such tax structure or tax treatment, any specific pricing terms or commercial or financial information.

Upon receiving this offering memorandum, you acknowledge that (1) you have been afforded an opportunity to request from us, and to review, all additional information considered by you to be necessary to verify the accuracy of, or to supplement, the information contained herein, (2) you have not relied on the initial purchaser or any person affiliated with the initial purchaser in connection with any investigation of the accuracy of such information or your investment decision, and (3) we have not authorized any person to deliver any information different from that contained in this offering memorandum. The offering is being made on the basis of this offering memorandum. Any decision to purchase the Notes in the offering must be based on the information contained in this document. In making an investment decision, investors must rely on their own examination of Kronos and the terms of this offering, including the merits and risks involved.

The information contained in this offering memorandum has been furnished by us and other sources we believe to be reliable. The initial purchaser makes no representations or warranty, express or implied, as to the accuracy or completeness of any of the information set forth in this offering memorandum, and you should not rely on anything contained in this offering memorandum as a promise or representation, whether as to the past or the future. This offering memorandum contains summaries, believed to be accurate, of the terms we consider material of certain documents, but reference is made to the actual documents. All such summaries are qualified in their entirety by this reference. See "Where You Can Find Additional Information."

We reserve the right to withdraw the offering of the Notes at any time and we and the initial purchaser reserve the right to reject any commitment to subscribe for the Notes in whole or in part and to allot to you less than the full amount of Notes subscribed for by you.

This offering memorandum does not constitute an offer to sell or a solicitation of an offer to buy the Notes to any person in any jurisdiction where it is unlawful to make such offer or solicitation. You are not to construe the contents of this offering memorandum as investment, legal or tax advice. You should consult your own counsel, accountant and other advisors as to legal, tax, business, financial and related aspects of a purchase of the Notes. We are not, and the initial purchaser is not, making any representation to you regarding the legality of an investment in the Notes by you under appropriate legal investment or similar laws.

None of the Notes have been registered with, recommended by or approved by the Securities and Exchange Commission (the "SEC") or any other federal or state securities commission or regulatory authority, nor has the SEC or any state securities commission or regulatory authority passed upon the accuracy or adequacy of this offering memorandum. Any representation to the contrary is a criminal offense.

The offering is being made in reliance upon an exemption from registration under the Securities Act for an offer and sale of securities that does not involve a public offering. In making your purchase, you will be deemed to have made certain acknowledgments, representations and agreements set forth in this offering memorandum under the caption "Notice to Investors." The Notes are subject to restrictions on transferability and resale and may not be transferred or resold except as permitted under the Securities Act and applicable state securities laws pursuant to registration or an exemption from registration. You should be aware that you may be required to bear the financial risks of this investment for an indefinite period of time.

The distribution of this offering memorandum and the offer and the sale of the Notes may be restricted by law in certain jurisdictions. Persons into whose possession this offering memorandum or any of the Notes come must inform themselves about, and observe, any such restrictions. See the selling restrictions listed above.

We intend to apply to list the Notes on TISE, and will submit this offering memorandum in connection with the listing application. In the course of any review by TISE, we may be requested to make changes to the financial and other information included in this offering memorandum. Comments by TISE may require significant modification or reformulation of information contained in this offering memorandum or may require the inclusion of additional information, including additional financial information in respect of the Issuer or the Guarantors. We may also be required to update the information in this offering memorandum to reflect changes in our business, financial condition or results of operations and prospects. We cannot guarantee that our application to list the Notes on TISE will be approved as of the issue date for the Notes or any date thereafter, and settlement of the Notes is not conditioned on obtaining this listing. Each prospective purchaser of the Notes must comply with all applicable laws and regulations in force in any jurisdiction in which it purchases, offers or sells the Notes and must obtain any consent, approval or permission required by it for the purchase, offer or sale by it of the Notes under the laws and regulations in force in any jurisdiction to which it is subject or in which it makes such purchases, offers or sales, and neither we nor the initial purchaser shall have any responsibility therefor.

NON-GAAP FINANCIAL MEASURES

We refer to EBITDA in various places in this offering memorandum. We define EBITDA as net income before income taxes, interest expense and depreciation and amortization expense. EBITDA is used by our management to assess the performance of our operations. We believe disclosure of EBITDA provides useful information to investors because it allows investors to analyze the performance of our operations in the same way that our management assesses performance. EBITDA is a supplemental financial measure that is not prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP") and has important limitations as an analytical tool. Any analysis of non-GAAP financial measures should be used only in conjunction with results presented in accordance with GAAP and should not be considered in isolation or as a substitute for analysis of our results as reported under GAAP. In addition, this measure is defined differently by different companies in our industry and, accordingly, such measure as used in this offering memorandum may not be comparable to similarly titled measures of other companies.

The SEC has adopted rules to regulate the use in filings with the SEC and in public disclosures of "non-GAAP financial measures," such as those mentioned above and ratios related thereto. These measures are derived on the basis of methodologies other than in accordance with GAAP. These rules govern the manner in which non-GAAP financial measures are publicly presented and require, among other things:

- a presentation with equal or greater prominence of the most comparable financial measure or measures calculated and presented in accordance with GAAP; and
- a statement disclosing the purposes for which management uses the non-GAAP financial measure.

The rules prohibit, among other things:

- the exclusion of charges or liabilities that require, or will require, cash settlement or would have required cash settlement, absent an ability to settle in another manner, from a non-GAAP liquidity measure; and

- the adjustment of a non-GAAP performance measure to eliminate or smooth items identified as non-recurring, infrequent or unusual, when the nature of the charge or gain is such that it has occurred in the past two years or is reasonably likely to recur within the next two years.

Please see “Summary—Summary Financial Data and Other Information” for a further discussion and quantification of non-GAAP financial measures used in this offering memorandum, including the reasons that we believe this information is useful to management and to investors and reconciliations of non-GAAP financial measures to the most closely comparable financial measures calculated in accordance with GAAP.

INDUSTRY AND MARKET DATA

We obtained the market and competitive position data used throughout this offering memorandum from our own research, surveys or studies conducted by third parties and industry or general publications. Industry publications and surveys generally state that they have obtained information from sources believed to be reliable, but do not guarantee the accuracy and completeness of such information. While we believe that each of these studies and publications is reliable, neither we nor the initial purchaser has independently verified such data and neither we nor the initial purchaser makes any representation as to the accuracy of such information. Similarly, we believe our internal research is reliable but it has not been verified by any independent sources.

TRADEMARKS, COPYRIGHTS AND TRADE NAMES

This offering memorandum includes trademarks which are protected under applicable intellectual property laws and are the property of Parent or its subsidiaries. This offering memorandum may also contain trademarks, service marks, trade names, copyrights and logos of other companies, which are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this offering memorandum may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to these trademarks and trade names. One of the more important trademarks that we use is Kronos®.

FORWARD-LOOKING STATEMENTS

This offering memorandum contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended. Statements in this offering memorandum that are not historical facts are forward-looking in nature and represent management’s beliefs and assumptions based on currently available information. In some cases, you can identify forward-looking statements by the use of words such as “believes,” “intends,” “may,” “should,” “could,” “anticipates,” “expects” or comparable terminology, or by discussions of strategies or trends. Although we believe that the expectations reflected in such forward-looking statements are reasonable, we do not know if these expectations will be correct. Such statements by their nature involve substantial risks and uncertainties that could significantly impact expected results. Actual future results could differ materially from those predicted. The factors that could cause actual future results to differ materially from those described herein are the risks and uncertainties discussed in this offering memorandum and include, but are not limited to, the following:

- Future supply and demand for our products;
- The extent of the dependence of certain of our businesses on certain market sectors;
- The cyclicality of our business;
- Customer and producer inventory levels;
- Unexpected or earlier-than-expected industry capacity expansion;
- Changes in raw material and other operating costs (such as energy and ore costs);
- Changes in the availability of raw materials (such as ore);
- General global economic and political conditions (such as changes in the level of gross domestic product in various regions of the world and the impact of such changes on demand for TiO_2);
- Competitive products and substitute products;
- Customer and competitor strategies;
- Potential consolidation of our competitors;
- Potential consolidation of our customers;
- The impact of pricing and production decisions;
- Competitive technology positions;
- Potential difficulties in upgrading or implementing new accounting and manufacturing software systems;
- The introduction of trade barriers;
- Possible disruption of our business, or increases in our cost of doing business, resulting from terrorist activities or global conflicts;
- Fluctuations in currency exchange rates (such as changes in the exchange rate between the United States dollar and each of the euro, the Norwegian krone and the Canadian dollar), or possible disruptions to our business resulting from potential instability resulting from uncertainties associated with the euro or other currencies;
- Operating interruptions (including, but not limited to, labor disputes, leaks, natural disasters, fires, explosions, unscheduled or unplanned downtime, transportation interruptions and cyberattacks);
- Our ability to renew or refinance our credit facilities;
- Our ability to maintain sufficient liquidity;
- The ultimate outcome of income tax audits, tax settlement initiatives or other tax matters;
- Our ability to utilize income tax attributes, the benefits of which may or may not have been recognized under the more-likely-than-not recognition criteria;
- Environmental matters (such as those requiring compliance with emission and discharge standards for existing and new facilities);
- Government laws and regulations and possible changes therein;

- The ultimate resolution of pending litigation; and
- Possible future litigation.

Should one or more of these risks materialize (or the consequences of such a development worsen), or should the underlying assumptions prove incorrect, actual results could differ materially from those forecasted or expected. Given these risks and uncertainties, we caution you not to place undue reliance on these forward-looking statements. The forward-looking statements included in this offering memorandum are made only as of the date hereof. We do not undertake and specifically decline any obligation to update any of these statements or to publicly announce the results of any revisions to any of these statements to reflect future events or developments.

SUMMARY

This summary highlights certain information contained in this offering memorandum and may not include all the information relevant to you. For a more complete understanding of our business, you should read the following summary together with the more detailed information appearing elsewhere in this offering memorandum, including "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the notes thereto included elsewhere in this offering memorandum.

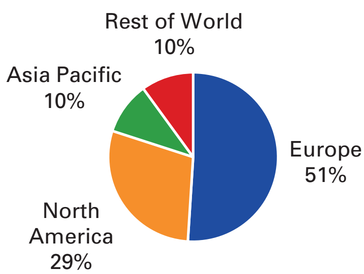
Except as otherwise indicated, references herein to the "Company", "Kronos", "we", "us", or "our" refer to Kronos Worldwide, Inc.

Overview

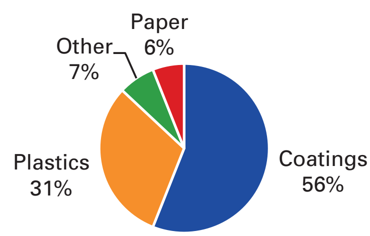
We are a leading global producer and marketer of value-added titanium dioxide pigments, or TiO_2, a base industrial product used in a wide range of applications. We offer our customers a broad portfolio of products that include over 40 different TiO_2 pigment grades under the Kronos® trademark, which improve whiteness, brightness, opacity and durability to meet customers' specific requirements. Including our predecessors, we have produced and marketed TiO_2 in North America and Europe for over 100 years and we believe we have developed considerable expertise and efficiency in the manufacture, sale, shipment and service of our products. We, along with our distributors and agents, sell and provide technical services for our products to approximately 4,000 customers in 100 countries with the majority of sales in Europe, North America and Asia Pacific. For the twelve months ended June 30, 2017, we generated $1,501 million in sales and $234 million in EBITDA.

The table below shows our approximate TiO_2 sales volume by geographic region and end use for the year ended December 31, 2016:

Sales volumes percentages by geographic region



Sales volumes percentages by end-use



We are one of the five largest global producers and marketers of TiO_2, with approximately 9% of reported industry production in 2016. We estimate that we and our four principal competitors comprise approximately 57% of the world's production. We have a broad and well-balanced portfolio of TiO_2 product offerings and core technologies and, unlike some competitors, have the capability to produce TiO_2 through both the chloride and sulfate process. The chloride process is the preferred form to produce TiO_2 pigments for use in coatings and plastics, the two largest end-use markets. The sulfate process is preferred for use in selected paper products, ceramics, rubber tires, man-made fibers, food products, pharmaceuticals and cosmetics, some of which generate higher profit margins. This dual manufacturing capability enables us to meet our customers' diverse needs and allows us flexibility in end market applications, thereby improving profitability.

We operate facilities throughout North America and Europe, including the most recent greenfield chloride process plant in the western world, Lake Charles, Louisiana, and the only sulfate process plant in North America. We also own and operate the only ilmenite mines in Western Europe, enabling the Company to 100% vertically integrate its European sulfate process manufacturing operations. We use a wide range of titanium-containing feedstock which can be shipped efficiently and economically to our various manufacturing facilities to maintain cost competitiveness. The Company also has the ability to efficiently and economically ship pigment to fast growing regions such as Asia / Pacific and Central & South America. As a result of recent strategic initiatives and investments we have made, we have expanded our marketing efforts in these export markets and expect to benefit from ongoing economic growth and development in these areas of the world.

Our production capacity in 2016 was 555,000 metric tons, approximately three-fourths of which was from the chloride production process. The following table presents the division of our current manufacturing capacity by plant location and type of manufacturing process:

		% of capacity by TiO_2 manufacturing process	
Facility	**Description**	**Chloride**	**Sulfate**
Leverkusen, Germany	TiO_2 production, chloride and sulfate process, co-products	29	5
Nordenham, Germany	TiO_2 production, sulfate process, co-products	—	11
Langerbrugge, Belgium	TiO_2 production, chloride process, co-products, titanium chemicals products	16	—
Fredrikstad, Norway	TiO_2 production, sulfate process, co-products	—	6
Varennes, Canada	TiO_2 production, chloride and sulfate process, slurry facility, titanium chemicals products	16	3
Lake Charles, LA, US(1)	TiO_2 production, chloride process	14	—
Hauge i Dalane, Norway	Ilmenite mines	—	—
Total TiO_2		75%	25%

(1) We operate the Lake Charles facility in a joint venture with Huntsman P&A Investments LLC (HPA) (a wholly-owned subsidiary of Tioxide Group, of which Venator Materials PLC owns 100% and is the ultimate parent), and the amount indicated in the table above represents the share of TiO_2 produced by the joint venture to which we are entitled. See Note 5 to our Audited Consolidated Financial Statements and "Business—TiO_2 Manufacturing Joint Venture."

During the first half of 2017, we operated our production facilities at 100% of practical capacity. We expect our production volumes to be slightly higher in 2017 as compared to 2016, as our production rates in 2017 will be positively impacted by the implementation of certain productivity-enhancing improvement projects at certain facilities. We believe it is reasonably likely we will set a new company record for production volumes in 2017.

TiO_2 industry overview

Based on TZMI price estimates for 2016, global TiO_2 sales generated approximately $12.5 billion in revenues industry-wide, which equated to approximately 6.0 million metric tons of material. The market for TiO_2 is extremely competitive, and we compete primarily on the basis of product quality, technical service, price, and the availability of high performance pigment grades. Pricing is largely a product of negotiation between suppliers and their respective customers. Cost advantages are typically driven by scale of plants, proprietary process technology, production know-how and environmental regulations and, to a lesser extent, type of feedstock, source of energy, and cost of local labor.

The primary raw materials used in sulfate and chloride process TiO_2 are titanium-containing feedstock (including ilmenite, rutile, chloride and sulfate slag and synthetic rutile). The global market for titanium-bearing ores is diverse in terms of supplier options, and the market is structured by short and long-term contracts with market-based pricing subject to ongoing negotiations throughout each year, often on a quarterly basis. In the past we have been, and we expect that we will continue to be, successful in obtaining short-term and long-term extensions to titanium-bearing ore supply contracts prior to their expiration. We believe there is more than ample global supply of titanium containing feedstock ore, and do not currently expect any difficulties in procuring sufficient quantities of ore necessary to operate our plants for the foreseeable future. Additionally, we have structured a portion of our feedstock contracts with pricing mechanisms in an attempt to reduce earnings volatility through all cycles. These procurement dynamics allow us to be flexible in response to pricing fluctuations and quantity obligations. Our vertically integrated structure in the sulfate production business provides further protection by allowing us to capture margin despite broader variability in pricing.

As a critical component of everyday applications such as coatings, plastics, paper, and other specialty products, TiO_2 is considered a "quality of life" product, and demand has generally been driven by global economic activity and GDP per capita. There is currently no effective substitute for TiO_2 because no other white pigment has the physical properties capable of achieving comparable opacity and brightness in a cost-effective manner. As such, customer demands for TiO_2 generally increase with rising standards of living in various regions of the world. Our customers also differentiate their finished products based on product quality which drives increased demand for $TiO_{2,}$ because of its superior performance attributes. According to industry estimates, TiO_2 consumption has grown at a compound annual growth rate of approximately 3% since 1990. Per capita consumption of TiO_2 in Western Europe and the United States far exceeds that in other areas of the world, and these regions are expected to continue to be the largest consumers of TiO_2 on a per capita basis. Markets for TiO_2 are generally increasing in South America, Eastern Europe, the Asia Pacific region and China and we believe these are significant markets where we expect continued growth as economies in these regions continue to develop and quality-of-life products, including TiO_2, experience greater demand.

Historically, the TiO_2 industry has been highly sensitive to supply and demand dynamics. Changes in TiO_2 consumption levels and available production capacity result in changes to TiO_2 industry operating rates and have a direct impact on our profitability. During 2010 and 2011, TiO_2 demand reached levels that approximated estimated industry capacity, leading to a period of supply shortage and peak profitability. Beginning in 2012, the TiO_2 industry experienced decreased sales and production volumes as the majority of TiO_2 producers and consumers undertook inventory de-stocking initiatives in response to global economic weakness and uncertainty. As demand weakened, TiO_2 industry operating rates declined, leading to declines in selling prices. At the same time, industry contracts for the procurement of feedstock ore generally switched from contracts with long-term fixed pricing mechanisms to pricing mechanisms more generally based on spot pricing. This transition was accompanied by significant increases in the cost of feedstock ore, which also led to reduced profitability until feedstock ore costs began to moderate beginning in 2015. Between 2013 and 2014, the TiO_2 industry was characterized by flat sales volumes driven primarily by low demand and widespread destocking efforts. Profitability across the industry continued to lag in 2015 and the first quarter of 2016 as producers experienced low utilization rates despite demand recovering. Since the first quarter of 2016, however, inventory levels and consumption patterns have stabilized and the industry has begun to see improvement in pricing as a result of growing demand levels and continued capacity rationalization. This positive momentum is expected to continue, driving additional upside relative to historically normalized price and margin levels.

Although overall industry demand is expected to continue to strengthen through 2017 as a result of improving worldwide economic conditions, we do not expect any other significant efforts will be undertaken by us or our principal competitors to further increase capacity via new TiO_2 plants or brownfield expansions in Europe or North America in the foreseeable future. Due to the constraints of high capital costs and extended lead time associated with adding significant new TiO_2 production capacity, especially for premium grades of TiO_2 products produced from the chloride process, we believe increased and sustained profit margins will be necessary to financially justify major expansions of TiO_2 production capacity required to meet expected future growth in demand. As a result of relative customer inventory levels during the recent past and the resulting adverse effect on global TiO_2 pricing, some industry projects to increase TiO_2 production capacity have been cancelled or deferred indefinitely, and announcements have been made regarding the closure of certain facilities. Given the lead time required for production capacity expansions, a shortage of TiO_2 could occur if economic conditions improve and global demand levels for TiO_2 increase sufficiently.

Competitive strengths

Well-Positioned to Capitalize on TiO_2 Market Strength and Economic Growth

We are well-positioned to benefit from the ongoing improvement in the TiO_2 industry cycle as demonstrated by our recent results. Industry data suggests that global TiO_2 demand will have increased by approximately 9% between 2015 and 2017 while net production capacity increased by approximately 4%, creating an environment favorable for TiO_2 price increases. The TiO_2 markets are in the process of returning to more normalized levels following a period of reduced demand during the 2012 – 2014 time period, as discussed above. Various TiO_2 key demand drivers are projected to remain strong, supporting continued sector strengthening. The Leading Indicator of Home Remodeling Activity is forecasted to increase 6.7% in 2017 and 2.0% per year through 2025; expected global GDP growth rates for 2017 and 2018 are 3.5% and 3.6%, respectively; end-use demand for coatings and plastics remain strong with IHS Chemical projecting 4.0% and 3.4% CAGRs for 2016-2021, respectively. If prices continue to increase in and beyond 2017, and as capacity utilization increases globally, TiO_2 margins are expected to increase to more historically normalized levels.

We started 2017 with average selling prices 10% higher than the beginning of 2016, and average selling prices increased by an additional 12% in the first half of 2017. Despite recent pricing momentum, prices remain significantly below prior peak levels. Following industry-wide increases in production volumes in 2016, most western TiO_2 producers are running near 100% of practical capacity and TiO_2 inventory levels have declined significantly at both the producer and customer level. With the strong sales volumes experienced in the first half of 2017, we continue to see evidence of strengthening demand for TiO_2 products in our primary markets. TZMI projects future TiO_2 price increases, reflecting continued positive industry outlook.

In addition to our efforts to maximize profitability, current market conditions have allowed us to execute new long-term supply contracts with strategic customers to mitigate future volatility in pricing levels. We have exposure to both emerging and mature markets, and believe that our geographic mix positions us to take advantage of significant growth opportunities. We have invested in commercial and sales and marketing resources in export markets by investing in distribution centers and by making a broad strategic commitment to building and firmly entrenching our presence in those areas. In order to do so, we have made efforts to improve these regional customer relationships, and have proactively shifted sales volumes to export customers in order to continue to strengthen our presence. We believe that long-term volumes in these geographies will drive value for the overall business through all cycles.

Leading Market Position Anchored in World Class Products and Production Technology

We are one of the top five global producers of TiO_2, the second largest TiO_2 producer in Europe and the largest chloride process TiO_2 producer in Europe, with production capacity of approximately 555,000 metric tons per year, accounting for approximately 9% of global TiO_2 production. We have a 17% market share in Western Europe and 16% market share in North America and are the leading seller of TiO_2 in several countries, including Germany, the largest consumer of TiO_2 on a per capita basis.

Approximately 75% of our production capacity utilizes the chloride process, which is closely guarded by the major western producers due to its technological advantages in many applications. In addition to the process know-how, the chloride process requires significant capital investments for greenfield expansions, uninterrupted power supplies and highly skilled labor forces, all of which have prevented emerging market participants from building meaningful chloride process capabilities. Additionally, the chloride process produces a high volume, high grade pigment, while providing lower total conversion costs through higher pigment yield, less waste, lower energy requirements and lower labor costs. Our typical chloride process cost structure is comprised of approximately 49% feedstock, 28% fixed cost, 9% utilities and 14% other raw materials. Since some of the traditional incentives for manufacturers to locate in China, such as relatively lower labor costs, are not as important for the chloride process, and the chloride process requires a stable, uninterrupted power supply (which may not be as prevalent in China as other parts of the world), the incentive for Chinese competitors to invest in chloride process technology is lessened. Therefore, western producers collectively produce approximately 90% of the world's total chloride production, which we believe is superior in quality to Chinese TiO_2, that is virtually all based on sulfate production processes and is typically used in different applications. Many coatings and plastics applications, which comprise over 80% of industry demand by volume, typically require the highest quality TiO_2 that is only produced by the major western producers. We have world-class facilities throughout North America and Europe, including the most recent greenfield plant in the western world and the only sulfate process plant in North America.

We and our predecessors have produced and marketed TiO_2 in North America and Europe, our primary markets, for over 100 years. We believe the stability of our ownership structure (since 1986) provides multiple points of differentiation versus our competitors. Building on our history of innovation, we maintain a dedicated team of scientists, chemists, process engineers, and technicians. We offer a broad portfolio of products that include over 40 different grades of TiO_2 for plastics and coatings by leveraging our dual chloride / sulfate process capabilities, in addition to continuously improving the quality of existing grades through our technical support department. Since 2012, we have added 4 new grades for pigments and other applications. We have increased production capacity by approximately 9.0% over the past ten years through innovative de-bottlenecking requiring only moderate capital expenditures, and it is reasonably likely we will set a new company record for production volumes in 2017. Unlike most competitors, all of our chloride process plants utilize the same technology, which enables improvements to be efficiently implemented in all plants at minimal cost. The aforementioned investments have enhanced Kronos' ability to achieve economies of scale benefits.

Vertically Integrated Production Process; Security of Feedstock Supply

Our raw material procurement capabilities and vertically integrated sulfate production configuration distinguish us from many of our peers. The primary raw materials used in the TiO_2 sulfate production process are titanium-containing feedstock, primarily ilmenite or purchased sulfate grade slag and sulfuric acid. While sulfuric acid is widely available, titanium containing feedstock used in the sulfate process is distributed by a limited number of suppliers principally in Norway, Canada, Australia, India South Africa, and China. We are one of the few vertically integrated producers of sulfate-process pigments, with 100% vertical integration in our sulfate business in Europe (representing 22% of total production capacity). We own and operate two ilmenite mines in Norway which supplied all of our feedstock requirements for our European sulfate process plants and 93% of total feedstock needs for our sulfate process pigment plants globally in 2016. Based on internal estimates, we expect these reserves to last over 50 years, thereby meeting European feedstock requirements into the foreseeable future.

Historically, sales to third parties have ranged from 45% to 70% of our ilmenite ore production, providing a natural hedge to fluctuations in feedstock prices. We have also established long-term relationships with third-party ore suppliers that provide a secure source of feedstock for all chloride process facilities, as well as the sulfate process line in Varennes, Quebec (which is not serviced by our Norwegian sources). We source feedstock from multiple suppliers, and over 70% of our third party chloride process feedstock requirements are purchased under long-term contracts (the remainder of our chloride process feedstock ore requirements are currently provided under contracts with a term of one year or less which are subject to renewal). We have a proven track record of securing sufficient feedstock to operate our plants due to our relationships with these suppliers and others. If approved, the proposed merger of Tronox and Cristal will result in only three material buyers of chloride process feedstock in the market (as Tronox's internal feedstock ore sources would be expected to cover the majority of the needs of the combined entity), while the market is served by numerous suppliers. In addition, we have developed manufacturing processes that allow waste material from the sulfate TiO_2 production to be converted into profitable iron-based chemical co-products instead of being disposed, which helps us avoid additional expense.

Diversified Blue Chip Customer Base with Long-Term Relationships

We sell to a diverse, blue chip customer base and benefit from long-standing relationships with top tier clients in all relevant end-markets. By leveraging a cross-functional, value-add technical service offering and direct sales force, we have developed strong connections with over 4,000 customers in 100 countries. Notably, we have minimal customer concentration risk; in 2016, no customer accounted for more than 10% of total sales and the largest 10 customers accounted for only 33% of total sales. The average tenure of our top tier customers exceeds 10 years.

The Company continues to strengthen its customer relationships by working directly with customers to monitor the success of its products in their end-use applications, evaluate the need for improvements in product and process technology and identify opportunities to develop new product solutions.

Longstanding Track-Record of Prudent Balance Sheet Management

Our management team has demonstrated a consistent ability to efficiently service our debt through earnings volatility, while preserving operating flexibility. These efforts have allowed us to maintain a strong liquidity position, while maintaining a conservative amount of debt as a percentage of total enterprise value. At the same time, we continue to invest in the business through capital expenditures to maintain existing infrastructure and execute incremental projects, including cost-cutting initiatives and de-bottlenecking projects. While we use excess cash flow to pay dividends to shareholders, management has shown commitment to capital discipline. During the global recession, for example, we suspended all dividends for seven quarters to conserve cash and ensure the Company was in solid financial condition. Our balance sheet conservatism is in-line with our long-term ownership structure.

Seasoned Management Team with Exceptional Industry Expertise

Our management team is composed of individuals with deep industry experience and strong leadership capabilities. Members of the management team boast an average of over 15 years of experience with the Company (ranging from 5 to 29 years). In addition to a corporate leadership function that provides strategic direction in finance, legal, accounting, marketing services and other areas, we rely on an operational leadership team, comprised of the most senior operations managers, to oversee complex facility operations. The combination of these leadership mechanisms ensures seamless execution of our strategy.

Strategies

Maximize Cash Flow Generation

We manage our operations to maximize cash flow generation across economic cycles through our disciplined focus on asset utilization, optimization of working capital and low ongoing capital expenditures. As a result, we have consistently generated positive cash from operations despite historical TiO_2 sector volatility.

Our cost structure is optimized at full production levels and as such, we target production levels at 100% of practical capacity, subject to market demand. Our goal is to achieve these targets by ensuring we have maximum product demand and reliable production assets, The flexibility associated with our chloride and sulfate process capabilities and our vast and diverse product portfolio allow us to shift into different end markets beyond coatings and plastics depending on demand trends, thereby helping us to maintain relatively high production capacity utilization rates. We intend to continue production rates in-line with recent levels.

We actively manage our working capital balances by optimizing manufacturing schedules, increasing inventory turnover and reducing finished goods and raw materials inventory. Our vertical integration in Europe enables us to further harmonize the raw material and pigment production schedules. Our working capital balances typically act as a counter balance to our earnings results in order to smooth cash generation through the cycle.

We plan to make capital expenditures required to maintain and improve the overall performance, safety and reliability of our manufacturing asset base as well as implement new accounting and manufacturing systems. We intend to optimize capital spending on growth and cost reduction projects.

Continue to Drive Operational Efficiencies Across the Enterprise

Our management team is focused on driving continuous improvement in our cost structure and process productivity improvements in order to grow shareholder value. Historically, we have taken decisive action in response to industry conditions, undertaken proactive efforts to mitigate fixed cost inflation, and made disciplined investments in production capabilities to support our growth. We regularly seek opportunities for further improvements across our Company.

In 2015 we initiated a restructuring plan designed to improve our long-term cost structure, which resulted in approximately $19 million of annual cost savings. These workforce reductions did not negatively impact our ability to operate our production facilities at their practical capacity rates, as evidenced by the production levels we achieved in 2016 and our anticipated record production in 2017. Through careful planning and an organizational re-design, we are in the process of implementing other cost reduction initiatives throughout the organization that are expected to generate additional savings through 2020 and beyond, with minimal to no impact on our operational and commercial capabilities.

We also actively invest in process productivity improvements. We have increased our production capacity by a CAGR of 2.0% since 1995 through innovative production de-bottlenecking and process engineering enhancements without any brownfield or greenfield investments since 1992. Unlike most competitors, all of our chloride process plants utilize the same technology, which enables improvements to be efficiently implemented in all plants at minimal costs. We continue to seek opportunities to increase our production capacity through high return capital investments.

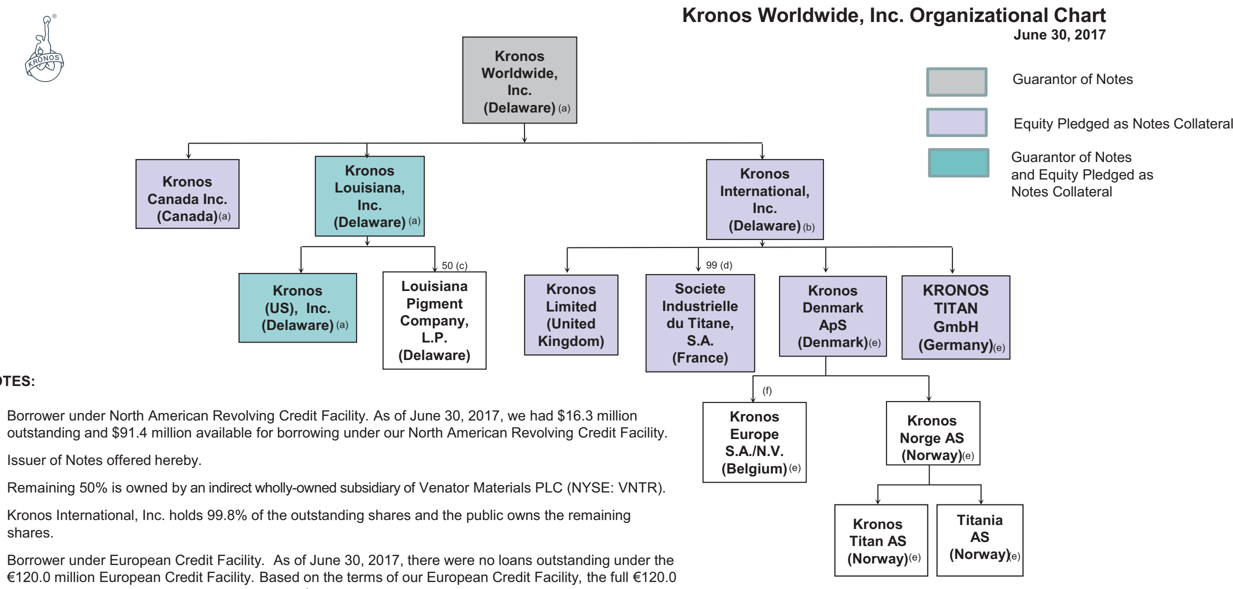
Maintain Strong Customer Focus

Our customer strategy is aimed at developing and maintaining strong customer relationships with new and existing accounts. We work to maintain close relationships with the key decision makers, through in-depth and frequent in-person meetings. We endeavor to extend these commercial and technical relationships to multiple levels within our customers' organization using our experienced direct sales force and technical service group to accomplish this objective. We believe this has helped build customer loyalty to Kronos and strengthened our competitive position vs. our competitors. Close cooperation and strong customer relationships enable us to stay closely attuned to trends in our customers' businesses. Where appropriate, we work in conjunction with our customers to solve formulation or application problems by modifying specific product properties or developing new pigment grades.

Our marketing strategy is also aimed at working directly with customers to monitor the success of our products in their end-use applications, evaluate the need for improvements in product and process technology and identify opportunities to develop new product solutions for our customers. Our marketing staff closely coordinates with our sales force and technical specialists to ensure that the needs of our customers are met, and to help develop and commercialize new grades where appropriate. We focus our sales and marketing efforts on those geographic and end-use segments where the Company can realize higher selling prices. This focus includes continuously reviewing and optimizing our customer and product portfolios.

Corporate Structure

The following chart reflects certain relevant aspects of our corporate structure as of the date of this offering memorandum.



NOTES:

(a) Borrower under North American Revolving Credit Facility. As of June 30, 2017, we had \$16.3 million outstanding and \$91.4 million available for borrowing under our North American Revolving Credit Facility.

(b) Issuer of Notes offered hereby.

(c) Remaining 50% is owned by an indirect wholly-owned subsidiary of Venator Materials PLC (NYSE: VNTR).

(d) Kronos International, Inc. holds 99.8% of the outstanding shares and the public owns the remaining shares.

(e) Borrower under European Credit Facility. As of June 30, 2017, there were no loans outstanding under the €120.0 million European Credit Facility. Based on the terms of our European Credit Facility, the full €120.0 million amount of the European Credit Facility (\$137.1 million based on the exchange rate as of June 30, 2017 of \$1.1424 United States dollars per Euro) is available for borrowing at June 30, 2017.

(f) KRONOS TITAN GmbH owns two shares out of 543,145 shares as nominee shareholder for Kronos Denmark ApS.

Ownership is 100% voting control unless otherwise shown.
Organizational jurisdiction of each entity is indicated in parenthesis.

Refinancing

We intend to use a portion of the net proceeds from this offering (a) to repay in full all indebtedness outstanding under, and terminate, the Term Loan Facility, (b) to repay all current indebtedness outstanding under the North American Revolving Credit Facility (provided that no commitments under the North American Revolving Credit Agreement shall be terminated in connection with this offering or the related transactions) and (c) to pay related fees and expenses (collectively, the "Refinancing"). See "Use of Proceeds."

THE OFFERING

The Notes will be governed by the Indenture (as defined below). The summary below describes the principal terms of the Notes and the related guarantees. Certain of the terms and conditions described below are subject to important limitations and exceptions. The following is not intended to be complete. You should carefully review the "Description of Notes" section of this offering memorandum, which contains a more detailed description of the terms and conditions of the Notes, the related guarantees and the Indenture. Capitalized terms used but not defined in this summary have the meanings assigned to them in the "Description of Notes" section of this offering memorandum.

Issuer	Kronos International, Inc.
Notes Offered	€400.0 million aggregate principal amount of 3.750% senior secured notes due 2025.
Form and Denomination	The Issuer will issue the Notes in minimum denominations of €100,000 and integral multiples of €1,000 in excess thereof, maintained in book-entry form. Notes in denominations of less than €100,000 will not be available.
Maturity Date	September 15, 2025
Interest	Interest on the Notes will accrue at a rate of 3.750% per annum and will be payable semi-annually on March 15 and September 15 of each year, commencing on March 15, 2018.
Guarantees	The Notes will be fully and unconditionally guaranteed, jointly and severally, on a senior secured basis by Parent and each of its direct and indirect domestic, wholly-owned subsidiaries (other than the Issuer), subject to certain exceptions. See "Description of Notes—Guarantees."
	For the twelve months ended June 30, 2017, our non-guarantor subsidiaries (excluding, for the avoidance of doubt, the Issuer) represented approximately 67% and 90% of our net sales and EBITDA, respectively. In addition, such non-guarantor subsidiaries represented approximately 76% and 40% of our total assets and total liabilities, respectively, as of June 30, 2017.
Ranking	The Notes and the related guarantees will be senior secured obligations of the Issuer and the Guarantors and will:
	• rank *pari passu* in right of payment with all existing and future senior indebtedness of the Issuer and the Guarantors;
	• be effectively senior in right of payment to all of the Issuer's and the Guarantor's existing and future

unsecured and junior lien indebtedness and secured indebtedness that is not secured on a *pari passu* basis with the Notes Collateral, in each case, to the extent of the value of the Notes Collateral (as defined below);

- be effectively subordinated to all existing and future indebtedness of the Issuer and the Guarantors that is secured by assets other than the Notes Collateral to the extent of the value of such assets;
- be structurally subordinated to all existing and future liabilities of each of the Parent's existing and future subsidiaries (other than the Issuer) that do not guarantee the Notes; and
- be senior in right of payment to all existing and future indebtedness of the Issuer and the Guarantors that is subordinated to the Notes and the related guarantees.

On an as adjusted basis, after giving effect to this offering and the application of the net proceeds thereof as described under the heading "Use of Proceeds," as of June 30, 2017, Kronos would have had $453.2 million in aggregate principal amount of consolidated indebtedness outstanding, $450.0 million of which relates to the Notes (such amount being based on the exchange rate as of June 30, 2017 of $1.1424 United States dollars per Euro and stated net of the initial purchaser's discount and other estimated expenses associated with the notes offering aggregating $7.0 million) and $3.2 million of which relates to other unsecured indebtedness. On an as adjusted basis, after giving effect to this offering and the application of the net proceeds thereof as described under the heading "Use of Proceeds," as of June 30, 2017, there would be no amounts outstanding under either (i) that certain Credit Agreement dated as of June 18, 2012 between Parent, Kronos Louisiana, Inc., Kronos (US), Inc., and Kronos Canada, Inc., as borrowers, and Wells Fargo Capital Finance, LLC, as administrative agent, lead arranger, and sole book runner (as amended, amended and restated, supplemented or otherwise modified from time to time, the "North American Revolving Credit Agreement") or (ii) that certain Facility Agreement, dated June 25, 2002, among, inter alios, Kronos Titan GmbH, Kronos Europe S.A./N.V., Kronos Titan AS, Kronos Norge AS, Titania AS and Kronos Denmark APS and Deutsche Bank Luxembourg S.A., as agent (as amended, amended and restated, supplemented or otherwise modified from time to time, the "European Credit Agreement"; the credit facility thereunder is referred to as the "European Credit Facility"; the European Credit Facility, the Term Loan Facility and the North American

	Revolving Credit Facility are herein collectively referred to as the "Credit Facilities"). On an as adjusted basis, after giving effect to this offering and the application of the net proceeds thereof as described under the heading "Use of Proceeds," as of June 30, 2017, our non-guarantor subsidiaries (other than the Issuer) would have had $3.2 million of total indebtedness outstanding, all of which will be structurally senior to the Notes.
Collateral	The Notes and the related guarantees will be secured on a first priority basis by: (1) 100% of the issued and outstanding Capital Stock of certain wholly-owned existing and future domestic subsidiaries of the Issuer or any Guarantor; (2) 65% of the issued and outstanding voting Capital Stock and 100% of the issued and outstanding non-voting Capital Stock of each foreign subsidiary that is directly owned by the Issuer or any Guarantor; (3) all dividends, cash, options, warrants, rights, instruments, distributions, returns of capital or principal, income, interest, profits and other property, interests (debt or equity) or proceeds, including as a result of a split, revision, reclassification or other like change of any of the assets referred to in the foregoing clauses (1) through (2), from time to time received, receivable or otherwise distributed to the Issuer or a Guarantor in respect of or in exchange for any or all of the assets referred to in the foregoing clauses (1) through (2); (4) all books and records evidencing, relating to, or referring to any of the foregoing (excluding books and records evidencing, relating to, or referring to the collateral securing indebtedness incurred under the North American Revolving Credit Agreement); and (5) all of the proceeds (as such term is defined in the UCC) and products, whether tangible or intangible, of any of the foregoing; in each case, subject to certain exceptions described under "Description of Notes— Collateral and Security" (collectively, the "Notes Collateral").
Optional Redemption	We may, at our option, redeem some or all of the Notes at any time on or after September 15, 2020, at the redemption prices listed under "Description of Notes—Optional Redemption."

	In addition, prior to September 15, 2020, we may, at our option, redeem up to 40% of the Notes with the proceeds of certain sales of our equity at a redemption price equal to 103.750% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but not including, the relevant redemption date.
	Prior to September 15, 2020, we may, at our option, redeem some or all of the Notes at the "make whole" amounts set forth under "Description of Notes—Optional Redemption."
Tax Redemption	We may redeem the Notes in whole, but not in part, at any time at a redemption price equal to 100% of the principal amount thereof, plus accrued and unpaid interest, if any, and Additional Amounts (as hereinafter defined), if any, to, but not including, the redemption date in certain circumstances in which we or the Guarantors would become obligated to pay Additional Amounts. See "Description of Notes—Redemption for Tax Reasons."
Payment of Additional Amounts	In the event that taxes are required to be withheld or deducted from payments on the Notes or the guarantees thereof, the Issuer or the Guarantors will, subject to certain exceptions and limitations, pay such additional amounts as will result in the payment of the amounts which would have been payable in respect of such Notes had no such withholding or deduction been required after deduction or withholding of such taxes (the "Additional Amounts"). See "Description of Notes—Payment of Additional Amounts."
Change of Control Offer	If Parent or the Issuer experiences certain change of control events, the Issuer must offer to repurchase the Notes at a purchase price equal to 101% of the principal amount of the Notes repurchased, plus accrued and unpaid interest, if any, to, but not including, the applicable repurchase date. See "Description of Notes—Repurchase at the Option of Holders—Change of Control."
Asset Sale Offer	If we sell assets under certain circumstances, we must offer to repurchase the Notes at 100% of their principal amount, plus accrued and unpaid interest, if any, to, but not including, the applicable repurchase date. See "Description of Notes—Repurchase at the Option of Holders—Asset Sales."
Certain Covenants	The Issuer will issue the Notes under an indenture with Deutsche Bank Trust Company Americas, as trustee, collateral agent, paying agent, registrar and transfer agent (the "Indenture"). The Indenture will contain covenants

	that, among other things, will limit the ability of Parent and its restricted subsidiaries to: • sell certain assets or merge or consolidate with or into other companies or otherwise dispose of all or substantially all of their assets; • pay dividends or make certain other distributions on our capital stock or repurchase our capital stock or prepay subordinated indebtedness; • incur additional debt or issue certain disqualified stock and preferred stock; • create liens; • make certain investments or other restricted payments; and • engage in transactions with affiliates. These covenants are subject to important exceptions and qualifications as described under "Description of Notes—Certain Covenants." Many of these covenants will cease to apply to the Notes during any time that the Notes have investment grade ratings from both Moody's Investors Service, Inc. and Standard & Poor's so long as there is no default under the Indenture. See "Description of Notes—Certain Covenants—Covenant Suspension."
No Registration Rights	The offer and sale of the Notes will not be registered under the Securities Act or the securities laws of any other jurisdiction and no offer to exchange the Notes in a transaction registered under the Securities Act will be made.
Transfer Restrictions	The issuance of the Notes has not been registered under the Securities Act or any state securities laws, and the Notes are subject to certain restrictions on transfer. See "Notice to Investors."
Use of Proceeds	We intend to use the net proceeds from this offering to fund the Refinancing and, to the extent any proceeds remain thereafter, for general corporate purposes. See "Use of Proceeds."
Absence of Established Trading Market	The Notes will be a new class of securities for which there is currently no market. Although the initial purchaser has informed us that it intends to make a market in the Notes, the initial purchaser is not obligated to do so, and may discontinue market-making activities at any time without notice. Accordingly, we cannot assure you that a liquid market for the Notes will develop or be maintained.

Listing	Following the closing date of this offering, we intend to apply to list the Notes on TISE. The Issuer can provide no assurance that this application will be granted. Consummation of the offering of the Notes is not contingent upon obtaining such listing.
Trustee	Deutsche Bank Trust Company Americas
Paying Agent	Deutsche Bank Trust Company Americas
Collateral Agent	Deutsche Bank Trust Company Americas
Registrar and Transfer Agent	Deutsche Bank Trust Company Americas
Risk Factors	Investing in the Notes involves substantial risk. You should carefully consider all of the information in this offering memorandum prior to investing in the Notes. See "Risk Factors" and the other information in this offering memorandum for a discussion of the factors you should carefully consider before deciding to invest in the Notes.

SUMMARY FINANCIAL DATA AND OTHER INFORMATION

The following tables set forth the summary consolidated financial information and other operating data of Kronos. The summary historical consolidated financial data for the years ended December 31, 2014, 2015 and 2016 and as of December 31, 2015 and 2016 have been derived from our audited consolidated financial statements included elsewhere in this offering memorandum. The summary historical consolidated financial data as of December 31, 2014 are derived from our audited consolidated financial statements not included in this offering memorandum. The summary historical consolidated financial data as of June 30, 2017 and for the six months ended June 30, 2016 and 2017 have been derived from our unaudited condensed consolidated financial statements included elsewhere in this offering memorandum. The summary historical consolidated financial data as of June 30, 2016 has been derived from our unaudited condensed consolidated financial statements not included in this offering memorandum. The statement of operations data presented below for the twelve months ended June 30, 2017 has been derived by adding our audited consolidated financial statements for the year ended December 31, 2016 to our unaudited consolidated financial statements for the six months ended June 30, 2017 and subtracting our unaudited consolidated financial statements for the six months ended June 30, 2016. The results of operations for the periods presented below are not necessarily indicative of the results that may be expected for any future period.

This information is only a summary and should be read in conjunction with "Selected Historical Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the notes thereto and other financial information appearing elsewhere in this offering memorandum.

	Years ended December 31,			Six months ended June 30,		Twelve months ended
	2014	2015	2016	2016	2017	June 30, 2017
	(In millions, except ratios and TiO_2 operating statistics)					
STATEMENTS OF OPERATIONS DATA:						
Net sales	$1,651.9	$1,348.8	$1,364.3	$ 674.5	$ 811.2	$1,501.0
Cost of sales	1,302.2	1,156.5	1,107.3	578.6	578.0	1,106.7
Gross margin	349.7	192.3	257.0	95.9	233.2	394.3
Selling, general and administrative expense	191.9	178.0	172.6	86.1	99.4	185.9
Other operating income (expense):						
Currency transaction gains (losses), net	4.0	(.1)	5.5	4.2	(3.7)	(2.4)
Other operating expense, net	(12.1)	(15.3)	(8.8)	(3.8)	(7.7)	(12.7)
Income (loss) from operations	149.7	(1.1)	81.1	10.2	122.4	193.3
Other income (expense):						
Interest and dividend income	1.0	.8	.6	.4	.3	.5
Securities transactions, net	—	(12.0)	—	—	—	—
Interest expense	(17.0)	(18.5)	(20.5)	(10.2)	(9.5)	(19.8)
Income (loss) before income taxes	133.7	(30.8)	61.2	.4	113.2	174.0
Income tax expense (benefit)	34.5	142.8	17.9	2.5	(120.1)	(104.7)
Net income (loss)	$ 99.2	$ (173.6)	$ 43.3	$ (2.1)	$ 233.3	$ 278.7

	Years ended December 31,			Six months ended June 30,		Twelve months ended
	2014	2015	2016	2016	2017	June 30, 2017
	(In millions, except ratios and TiO_2 operating statistics)					
BALANCE SHEET DATA (at period end):						
Total assets	$1,633.1	$1,242.7	$1,179.6	$1,234.4	$1,472.9	$1,472.9
Notes payable and long-term debt including current maturities	343.6	341.0	339.0	370.1	354.4	354.4
Common stockholders' equity	781.1	461.9	395.0	436.6	620.8	620.8
STATEMENTS OF CASH FLOW DATA:						
Net cash provided by (used in):						
Operating activities	$ 87.7	$ 52.1	$ 89.6	$ 16.6	$ 101.6	$ 174.6
Investing activities(1)	(61.2)	(47.1)	(53.0)	(23.7)	(26.6)	(55.9)
Financing activities	89.6	(72.1)	(73.3)	(6.7)	(20.4)	(87.0)
TiO_2 OPERATING STATISTICS:						
Sales volume(2)	496	525	559	287	300	572
Production volume(2)	511	528	546	262	286	570
Production capacity at beginning of year(2)	555	555	555	555	555	555
Production rate as a percentage of capacity	92%	95%	98%	96%	100%	100%
OTHER FINANCIAL DATA:						
EBITDA(3)	$ 199.9	$ 29.8	$ 122.2	$ 31.4	$ 142.9	$ 233.7
SELECTED CREDIT DATA:						
Adjusted total debt						$ 453.2
Adjusted net debt(4)						244.0
Ratio of adjusted total debt to EBITDA(5)						1.9x
Ratio of adjusted net debt to EBITDA(6)						1.0x

(1) Prior period amounts have been reclassified to reflect the change in the statement of cash flow presentation with respect to restricted cash. As a result, net cash used in investing activities for the years ended December 31, 2014 and 2015 increased by $7.2 million and $0.3 million, respectively, in each case as compared to previously reported amounts. See Note 19 to our Audited Consolidated Financial Statements.

(2) Metric tons in thousands.

(3) We define EBITDA as net income before income taxes, interest expense and depreciation and amortization expense. We disclose EBITDA, which is used by our management to assess the performance of our operations. We believe disclosure of EBITDA provides useful information to investors because it allows investors to analyze the performance of our operations in the same way that our management assesses performance. EBITDA is a supplemental financial measure that is not prepared in accordance with GAAP and has important limitations as an analytical tool. Any analysis of non-GAAP financial measures should be used only in conjunction with results presented in accordance with GAAP and should not be considered in isolation or as a substitute for analysis of our results as reported under GAAP. In addition, this measure is defined differently by different companies in our

industry and, accordingly, such measure as used in this offering memorandum may not be comparable to similarly titled measures of other companies. See "Non-GAAP Financial Measures."

	Years ended December 31,			Six months ended June 30,		Twelve months ended
	2014	2015	2016	2016	2017	June 30, 2017
	(In millions)					
Reconciliation of Net income to EBITDA:						
Net income (loss)	$ 99.2	$(173.6)	$ 43.3	$ (2.1)	$ 233.3	$ 278.7
Adjustments:						
Depreciation and amortization expense	49.2	42.1	40.5	20.8	20.2	39.9
Interest expense	17.0	18.5	20.5	10.2	9.5	19.8
Income tax expense (benefit)	34.5	142.8	17.9	2.5	(120.1)	(104.7)
EBITDA	$199.9	$ 29.8	$122.2	$31.4	$ 142.9	$ 233.7

(4) Adjusted net debt represents the aggregate principal amount of adjusted total debt less adjusted cash and cash equivalents, and is calculated giving pro forma effect to the issuance of the Notes offered hereby and the Refinancing, as if such transactions had occurred as of June 30, 2017.

(5) The ratio of adjusted total debt to EBITDA is determined by dividing adjusted total debt by EBITDA, and is calculated giving pro forma effect to the issuance of the Notes offered hereby and the Refinancing, as if such transactions had occurred as of June 30, 2017.

(6) The ratio of adjusted net debt to EBITDA is determined by dividing adjusted net debt by EBITDA, and is calculated giving pro forma effect to the issuance of the Notes offered hereby and the Refinancing, as if such transactions had occurred as of June 30, 2017.

RISK FACTORS

An investment in the Notes involves certain risks. You should carefully consider the risks described below and other information included in this offering memorandum before making an investment decision. If any of these risks and uncertainties were to actually occur, our business, financial condition or results of operations could be materially adversely affected. In such case, you may lose all or part of your investment. Please also read the cautionary note regarding "Forward-Looking Statements" beginning on page viii.

Risks Related to Our Business and Industry

Demand for, and prices of, certain of our products are influenced by changing market conditions for our products, which may result in reduced earnings or in operating losses.

Our revenue and profitability is largely dependent on the TiO_2 industry. For the year ended December 31, 2016 and the six month period ended June 30, 2017, 93% and 94%, respectively, of our revenues were attributable to sales of TiO_2. TiO_2 is used in many "quality of life" products for which demand historically has been linked to global, regional and local gross domestic product and discretionary spending, which can be negatively impacted by regional and world events or economic conditions. Such events are likely to cause a decrease in demand for our products and, as a result, may have an adverse effect on our results of operations and financial condition.

Pricing within the global TiO_2 industry over the long term is cyclical and changes in economic conditions, especially in Western industrialized nations, can significantly impact our earnings and operating cash flows. Historically, the markets for many of our products have experienced alternating periods of increasing and decreasing demand. Relative changes in the selling prices for our products are one of the main factors that affect the level of our profitability. In periods of increasing demand, our selling prices and profit margins generally will tend to increase, while in periods of decreasing demand our selling prices and profit margins generally tend to decrease. In addition, pricing may affect customer inventory levels as customers may from time to time accelerate purchases of TiO_2 in advance of anticipated price increases or defer purchases of TiO_2 in advance of anticipated price decreases. Our ability to further increase capacity without additional investment in greenfield or brownfield capacity increases may be limited and as a result, our profitability may become even more dependent upon the selling prices of our products.

The TiO_2 industry is concentrated and highly competitive and we face price pressures in the markets in which we operate, which may result in reduced earnings or operating losses.

The global market in which we operate our business is concentrated with the top five TiO_2 producers accounting for over 50% of the world's production capacity and is highly competitive. Competition is based on a number of factors, such as price, product quality and service. Some of our competitors may be able to drive down prices for our products if their costs are lower than our costs. In addition, some of our competitors' financial, technological and other resources may be greater than our resources and such competitors may be better able to withstand changes in market conditions. Our competitors may be able to respond more quickly than we can to new or emerging technologies and changes in customer requirements. Further, consolidation of our competitors or customers may result in reduced demand for our products or make it more difficult for us to compete with our competitors. The occurrence of any of these events could result in reduced earnings or operating losses.

Higher costs or limited availability of our raw materials may reduce our earnings and decrease our liquidity. In addition, many of our raw material contracts contain fixed quantities we are required to purchase.

The number of sources for and availability of certain raw materials is specific to the particular geographical region in which a facility is located. For example, titanium-containing feedstocks suitable for use in our TiO_2 facilities are available from a limited number of suppliers around the world. Political and economic instability in the countries from which we purchase our raw material supplies could adversely affect their availability. If our worldwide vendors were unable to meet their contractual obligations and we were unable to obtain necessary raw materials, we could incur higher costs for raw materials or may be required to reduce production levels. We experienced significantly higher ore costs in 2012 which carried over into 2013. We have seen moderation in the purchase cost of third-party feedstock ore since 2013. We may also experience higher operating costs such as energy costs, which could affect our profitability. We may not always be able to increase our selling prices to offset the impact of any higher costs or reduced production levels, which could reduce our earnings and decrease our liquidity.

We have long-term supply contracts that provide for our TiO_2 feedstock requirements that currently expire through 2019. While we believe we will be able to renew these contracts, there can be no assurance we will be successful in renewing them or in obtaining long-term extensions to them prior to expiration. Our current agreements (including those entered into through February 2017) require us to purchase certain minimum quantities of feedstock with minimum purchase commitments aggregating approximately $605 million in years subsequent to December 31, 2016. In addition, we have other long-term supply and service contracts that provide for various raw materials and services. These agreements require us to purchase certain minimum quantities or services with minimum purchase commitments aggregating approximately $158 million at December 31, 2016. Our commitments under these contracts could adversely affect our financial results if we significantly reduce our production and were unable to modify the contractual commitments.

As a global business, we are subject to risks associated with doing business outside the United States.

We have global operations and derive a large portion of our sales from customers outside the United States. Accordingly, our international operations or those of our international customers could be substantially affected by a number of risks arising with operating an international business, including trade barriers, tariffs, exchange controls, economic and political conditions, compliance with a variety of foreign laws and regulations (including income tax laws and regulations) or compliance with United States law and regulations in respect to doing business internationally, limitations on restrictions on the repatriation of foreign earnings to the United States, and difficulty in enforcing agreements or other legal rights. Our operations are also subject to the effects of global competition. These risks, individually or in the aggregate, could have an adverse effect on our results of operations and financial condition.

Changes in exchange rates and interest rates can adversely affect our net sales, profits and cash flows.

We operate our businesses in several different countries and sell our products worldwide. For example, during 2016 and the first six months of 2017, approximately one-half of our sales volumes were sold into European markets. The majority (but not all) of our sales from our operations outside the United States are denominated in currencies other than the United States dollar, primarily the euro, other major European currencies and the Canadian dollar. Therefore, we are exposed to risks related to the need to convert currencies we receive from the sale of our products into the currencies required to pay for certain of our operating costs and expenses and other liabilities (including indebtedness), all of which could result in future losses depending on fluctuations in currency exchange rates and affect the comparability of our results of operations between periods.

If our intellectual property were to be declared invalid, or copied by or become known to by competitors, or if our competitors were to develop similar or superior intellectual property or technology, our ability to complete could be adversely impacted.

Protection of our intellectual property rights, including patents, trade secrets, confidential information, trademarks and tradenames, is important to our business and our competitive position. We endeavor to protect our intellectual property rights in key jurisdictions in which our products are produced or used and in jurisdictions into which our products are imported. However, we may be unable to obtain protection for our intellectual property in key jurisdictions. Although we own and have applied for numerous patents and trademarks throughout the world, we may have to rely on judicial enforcement of our patents and other proprietary rights. Our patents and other intellectual property rights may be challenged, invalidated, circumvented, and rendered unenforceable or otherwise compromised. A failure to protect, defend or enforce our intellectual property could have an adverse effect on our financial condition and results of operations. Similarly, third parties may assert claims against us and our customers and distributors alleging our products infringe upon third party intellectual property rights.

Although it is our practice to enter into confidentiality agreements with our employees and third parties to protect our proprietary expertise and other trade secrets, these agreements may not provide sufficient protection for our trade secrets or proprietary know-how, or adequate remedies for breaches of such agreements may not be available in the event of an unauthorized use or disclosure of such trade secrets and know-how. We also may not be able to readily detect breaches of such agreements. The failure of our patents or confidentiality agreements to protect our proprietary technology, know-how or trade secrets could result in a material loss of our competitive position, which could lead to significantly lower revenues, reduced profit margins or loss of market share.

If we must take legal action to protect, defend or enforce our intellectual property rights, any suits or proceedings could result in significant costs and diversion of resources and management’s attention, and we may not prevail in any such suits or proceedings. A failure to protect, defend or enforce our intellectual property rights could have an adverse effect on our financial condition and results of operations.

We may be subject to litigation, the disposition of which could have a material adverse effect on our results of operations.

The nature of our operations exposes us to possible litigation claims, including disputes with customers and suppliers and matters relating to, among other things, antitrust, product liability, intellectual property, employment and environmental claims. It is possible that judgments could be rendered against us in these or other types of cases for which we could be uninsured or not covered by indemnity, or which may be beyond the amounts that we currently have reserved or anticipate incurring for such matters. Some of the lawsuits may seek fines or penalties and damages in large amounts, or seek to restrict our business activities. Because of the uncertain nature of litigation and coverage decisions, we cannot predict the outcome of these matters or whether insurance claims may mitigate any damages ultimately determined to be owed by us. Any liability we might incur in the future could be material. In addition, litigation is very costly, and the costs associated with defending litigation matters could have a material adverse effect on our results of operations.

Global climate change legislation could negatively impact our financial results or limit our ability to operate our businesses.

We operate production facilities in several countries. In many of the countries in which we operate, legislation has been passed, or proposed legislation is being considered, to limit greenhouse gases through various means, including emissions permits and/or energy taxes. In several of our production facilities, we consume large amounts of energy, primarily electricity and natural gas. To date, the permit system in effect in the various countries in which we operate has not had a material adverse effect on our financial results. However, if further greenhouse gas legislation were to be enacted in one or more countries, it could negatively impact our future results from operations through increased costs of production, particularly as it relates to our energy requirements or our need to obtain emissions permits. If such increased costs of production were to materialize, we may be unable to pass price increases onto our customers to compensate for increased production costs, which may decrease our liquidity, operating income and results of operations.

Risks Related to our Indebtedness, the Notes and the Guarantees

Kronos has substantial indebtedness, which could restrict Kronos' business activities and could subject Kronos to significant interest rate risk.

As of June 30, 2017, Kronos had $354.4 million of outstanding indebtedness. Kronos is permitted by the terms of its debt instruments to incur additional indebtedness, subject to the restrictions therein. Kronos' inability to generate sufficient cash flow to satisfy its debt obligations or to refinance its debt obligations on commercially reasonable terms would have a material adverse effect on Kronos' business, financial condition, and results of operations. In addition, covenants in Kronos' debt agreements, including the Indenture governing the Notes, could limit its ability to engage in certain transactions and pursue its business strategies, which could adversely affect liquidity.

Kronos' indebtedness could have important consequences to our stockholders and creditors, including:

- limiting Kronos' ability to borrow money for working capital, capital expenditures, debt service requirements or other corporate purposes, guarantee additional debt or issue redeemable, convertible of preferred equity;
- limiting Kronos' ability to make distributions or prepay its debt, incur liens, enter into agreements that restrict distributions from restricted subsidiaries, sell or otherwise dispose of assets (including capital stock of subsidiaries), enter into transactions with affiliates and merge, consolidate or sell substantially all of its assets;
- requiring Kronos to dedicate a substantial portion of its cash flow to payments on indebtedness, which would reduce the amount of cash flow available to fund working capital, capital expenditures, product development, and other corporate requirements;
- increasing Kronos' vulnerability to general adverse economic and industry conditions;
- limiting Kronos' ability to respond to business opportunities;

- increasing Kronos' vulnerability to adverse general economic and industry conditions;
- limiting Kronos' flexibility in planning for, or reacting to, changes in our business and the industry in which we operate; and
- placing Kronos at a competitive disadvantage relative to other less leveraged competitors.

Indebtedness outstanding under the North American Revolving Credit Agreement and European Credit Agreement accrues interest at variable rates. To the extent market interest rates rise, the cost of Kronos' debt would increase, adversely affecting Kronos' financial condition, results of operations, and cash flows.

In addition to our indebtedness, at December 31, 2016, we were party to various lease and other agreements (including feedstock ore purchase contracts and other long-term supply and service contracts, as discussed above) pursuant to which, along with our indebtedness, we are committed to pay approximately $433 million in 2017. Our ability to make payments on and refinance our debt and to fund planned capital expenditures depends on our future ability to generate cash flow. To some extent, this is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control.

Our business may not generate cash flows from operating activities sufficient to enable us to pay our debts when they become due and to fund our other liquidity needs. As a result, we may need to refinance all or a portion of our debt before maturity. We may not be able to refinance any of our debt in a timely manner on favorable terms, if at all, in the current credit markets. Any inability to generate sufficient cash flows or to refinance our debt on favorable terms could have a material adverse effect on our financial condition.

We may incur substantially more debt, including secured debt, or take other actions which may affect our ability to satisfy our obligations under the Notes and our other indebtedness.

The Indenture will allow, and the North American Revolving Credit Agreement and the European Credit Agreement allow, us to incur significant additional indebtedness in the future, including secured debt. For example, as of June 30, 2017, there was $91.4 million of borrowing availability under our North American Revolving Credit Agreement and €120 million ($137.1 million based on the exchange rate as of June 30, 2017 of $1.1424 United States dollars per Euro) of availability under our European Credit Agreement. If we add new debt to our current debt levels, the related risks that we now face could intensify, making it less likely that we will be able to fulfill our obligations to holders of the Notes. The terms of the Indenture will permit us to incur substantial additional debt and to issue additional secured debt under certain circumstances, which may or may not be guaranteed by the Guarantors and may or may not share in the collateral that will secure the Notes and the guarantees thereof. The Indenture will also allow our foreign subsidiaries to incur additional debt, which would be structurally senior to the Notes. In addition, the Indenture will not prevent us from incurring other liabilities that do not constitute indebtedness. See "Description of Notes."

Under the Indenture, we will have the capacity to make certain payments, including dividends.

The Indenture will limit our ability to make certain payments, including dividends or distributions in respect of shares of our capital stock, the purchase, redemption, or retirement of any equity interests, and restricted investments. However, these limitations are subject to a number of exceptions, including certain exceptions based on a calculation of our net income, equity issuances or other capital contributions and return on certain investments subsequent to the date of this offering. Accordingly, we will have the capacity to make certain restricted payments (a portion of which is available only upon compliance with a net total leverage ratio) under the Indenture (in addition to certain permitted investments). See "Description of Notes—Certain Covenants—Limitation on Restricted Payments."

We may not have sufficient cash flows from operating activities to service our indebtedness, including the Notes, and may be forced to take other actions to satisfy our obligations under our indebtedness, which may not be successful.

Our ability to make scheduled payments on or to refinance our debt obligations depends on our financial condition and operating performance, which is subject to prevailing economic and competitive conditions and to certain financial, business and other factors beyond our control. We may not be able to maintain a level of cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness, including the Notes.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay investments and capital expenditures, or to sell assets, seek additional capital or restructure or refinance our indebtedness, including the Notes. Our ability to restructure or refinance our debt will depend on the condition of the capital markets and our financial condition at such time. Any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, which could further restrict our business operations. The terms of existing or future debt instruments and the Indenture may restrict us from adopting some of these alternatives. In addition, any failure to make payments of interest and principal on our outstanding indebtedness on a timely basis would likely result in a reduction of our credit rating, which could harm our ability to incur additional indebtedness. In the absence of such operating results and resources, we could face substantial liquidity problems and might be required to dispose of material assets or operations to meet our debt service and other obligations. The North American Revolving Credit Agreement restricts, and the Indenture will restrict, our ability to dispose of assets and use the proceeds from the disposition. We may not be able to consummate those dispositions and, if we are able, any proceeds therefrom may not be adequate to meet any debt service obligations then due. These alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations.

The agreements governing our debt, including the Notes, contain various covenants that impose restrictions on us and may affect our ability to operate our business and to make payments on the Notes and our other indebtedness.

Agreements governing our indebtedness, including the Indenture, the North American Revolving Credit Agreement and the European Credit Agreement, impose, and future financing agreements are likely to impose, operating and financial restrictions on our activities which may adversely affect our ability to finance future operations or capital needs or to engage in new business activities. In some cases, these restrictions require us to comply with or maintain certain financial tests and ratios. Subject to certain exceptions, our North American Revolving Credit Agreement and European Credit Agreement restrict, and the Indenture governing the Notes will restrict, our ability to, among other things:

- declare dividends or redeem or repurchase capital stock;
- prepay, redeem or purchase other debt;
- incur liens;

- make loans, guarantees, acquisitions and investments;
- incur additional indebtedness;
- amend or otherwise alter debt and other material agreements;
- engage in mergers, acquisitions or asset sales;
- engage in transactions with affiliates; and
- enter into arrangements that would prohibit us from granting liens or restrict our ability to pay dividends, make loans or transfer assets among our subsidiaries.

Further, various risks, uncertainties and events beyond our control could affect our ability to comply with these covenants. Failure to comply with any of the covenants in our existing or future financing agreements, including the Indenture and the North American Revolving Credit Agreement and European Credit Agreement, could result in a default under those agreements and under other agreements containing cross-default provisions. Such a default would permit lenders to accelerate the maturity of the debt under these agreements and to foreclose upon any collateral securing the debt. Under these circumstances, we might not have sufficient funds or other resources to satisfy all of our obligations, including our obligations under the Indenture. In addition, the limitations imposed by our existing and future financing agreements on our ability to incur additional debt and to take other actions might significantly impair our ability to obtain other financing. We cannot assure you that we will be granted waivers or amendments to these agreements if for any reason we are unable to comply with these agreements or that we will be able to refinance our debt on terms acceptable to us, or at all.

Our credit ratings may not reflect the risks of investing in the Notes.

Our credit ratings are an assessment by rating agencies of our ability to pay our debts when due and include many subjective factors. Consequently, real or anticipated changes in our credit ratings will generally affect the value of the Notes. Also, these credit ratings may not reflect the potential impact of risks relating to structure or marketing of the Notes. Agency ratings are not a recommendation to buy, sell or hold any security and may be revised or withdrawn at any time by the issuing organization. Each agency’s rating should be evaluated independently of any other agency’s rating. There can be no assurance that our credit ratings will remain in effect for any given period of time or that such ratings will not be lowered, suspended or withdrawn entirely by a rating agency, if, in that rating agency’s judgment, circumstances so warrant. There can also be no assurance that our credit ratings will reflect all of the factors that would be important to holders of the Notes. Actual or anticipated changes or downgrades in our credit ratings, including any announcement that our ratings are under further review for a downgrade, could affect the value of the Notes, may increase our borrowing costs and may negatively impact our ability to incur additional debt.

Federal and state fraudulent transfer and conveyance statutes and similar laws may permit courts, under specific circumstances, to avoid the Notes, the guarantees and/or security interests related to the Notes, to require noteholders to return payments received from us or the Guarantors, and to take other actions detrimental to the noteholders.

Federal and state fraudulent transfer and conveyance statutes may apply to the issuance of the Notes, the delivery of any guarantees of the Notes, including the guarantees by the Guarantors entered into upon issuance of the Notes and guarantees (if any) that may be entered into thereafter under the terms of the Indenture, and the granting of security interests on the assets that secure the Notes and related guarantees. Under United States federal bankruptcy law and comparable provisions of state fraudulent transfer or conveyance laws, which may vary from state to state, the issuance of the Notes, the delivery of guarantees, and the granting of security interests related to the Notes could be avoided as fraudulent transfers or conveyances if a court determined that the Issuer, at the time it issued the Notes or granted the security interests related to the Notes or any of the Guarantors, at the time they delivered the applicable guarantee or granted the security interests related to the Notes (or, in some jurisdictions, at the time payment became due under the Notes or a guarantee thereof),

- issued the Notes or provided the applicable guarantee, as the case may be, or granted the security interests related to the Notes, with the intent of hindering, delaying or defrauding any present or future creditor; or
- received less than reasonably equivalent value or fair consideration for issuing the Notes or providing such guarantee, as the case may be, or granting the security interests related to the Notes, and
- one of the following applies:
    - it was insolvent or rendered insolvent by reason of such issuance, provision, or granting,
    - it was engaged in a business or transaction for which its remaining assets constituted unreasonably small capital, or
    - it intended to incur, or believed that it would incur, debts beyond its ability to pay such debts as they mature.

In addition, any payment by the debtor or a Guarantor under the Notes or a guarantee of the Notes could be voided and required to be returned to the debtor or Guarantor, as the case may be, or deposited in a fund for the benefit of the creditors of the debtor or Guarantor. Among other things, under United States bankruptcy law, a payment may be avoided as a preference if such payment is made to an insider within a one-year period prior to a bankruptcy filing or within 90 days for any outside party and such payment would give such insider or outsider party more than such creditors would have received in a distribution under the United States Bankruptcy Code in a hypothetical Chapter 7 liquidation.

As a general matter, value is given for a transfer or an obligation if, in exchange for the transfer or obligation, property is transferred or a valid antecedent debt is satisfied. A court would likely find that a Guarantor did not receive reasonably equivalent value or fair consideration for such guarantee and/or lien if such Guarantor did not substantially benefit directly or indirectly from the issuance of the Notes and/or such guarantee and/or lien. Thus, if the guarantees were legally challenged, any guarantee could be subject to the claim that, since the guarantee was incurred for the Issuer's benefit, and only indirectly for the benefit of the Guarantor, the obligations of the applicable Guarantor were incurred for less than reasonably equivalent value or fair consideration.

The measures of insolvency for purposes of these fraudulent transfer laws vary depending upon the law applied in any proceeding to determine whether a fraudulent transfer has occurred, such that we cannot be certain as to the standards a court would use to determine whether the Issuer or a Guarantor was solvent at the relevant time which, if applicable in a particular jurisdiction, may be when payment became due under the Notes or a guarantee. Regardless of the actual standard applied by the court, we cannot be certain that the issuance of the Notes or a guarantee, or the granting of a security interest related to the Notes or a guarantee, would not be avoided as a preference, fraudulent transfer, fraudulent conveyance, or otherwise, or that the issuance of the Notes and the guarantees would not be subordinated to the Issuer's or any Guarantor's other debt. Generally, however, a debtor or a guarantor would be considered insolvent if:

- the sum of its debts, including contingent liabilities, was greater than the fair value of all its assets,
- the present fair saleable value of its assets was less than the amount that would be required to pay its probable liability on its existing debts, including contingent liabilities, as they become absolute and mature, or
- it could not pay its debts as they become due.

To the extent that a court avoids or otherwise finds unenforceable for any other reason the Notes or a guarantee, your claims against the Issuer or the relevant Guarantor would be eliminated or limited, and to the extent that a court avoids or otherwise finds unenforceable for any other reason the liens related to the Notes or a guarantee, you would lose the benefit of such security interest and your claims under the Notes and related guarantees could be effectively subordinated to our secured debt. In addition, the court might direct you to repay any amounts already received from the Issuer or such Guarantor. Further, the avoidance of the Notes, a related guarantee, or a lien related to the Notes could result in an event of default with respect to our other debt that, in turn, could result in acceleration of such debt.

In certain circumstances, a court may subordinate claims in respect of the Notes or a guarantee to all other debts of an Issuer or a Guarantor, or take other actions detrimental to the noteholders, based on equitable or other grounds. We cannot be certain as to the standards that a court might apply and whether it might find such subordination or other actions appropriate.

Each guarantee contains a provision intended to limit the Guarantor's liability to the maximum amount that it could incur without causing the incurrence of obligations under its guarantee to be a fraudulent transfer. This provision may not be effective as a legal matter to protect the guarantees from being voided under fraudulent transfer or fraudulent conveyance law or may reduce or eliminate the Guarantor's obligation to an amount that effectively makes the guarantee worthless.

Even if the guarantees of the Notes remain in force, the remaining amount due and collectible under the guarantee may not be sufficient to pay the Notes in full when due and, even if the liens securing the guarantees related to the Notes remain in force, the value of the Notes Collateral may not be sufficient to satisfy the Guarantors' obligations under the Notes.

Because each Guarantor's liability under its guarantee may be reduced to zero, avoided or released under certain circumstances, you may not receive any payments from some or all of the Guarantors.

Holders of the Notes will have the benefit of the guarantees of Parent and certain of our wholly-owned domestic restricted subsidiaries. The guarantees, however, are limited to the maximum amount that the Guarantors are permitted to guarantee under applicable law. In addition, guarantees provided after the issue date of the Notes may be especially subject to challenge as an avoidable preference under certain circumstances. See "Any future pledge or perfection of a lien on Notes Collateral or future guarantee might be avoidable in bankruptcy or in a state law or other proceeding."

As a result, a Guarantor's liability under its guarantee could be reduced to zero, depending on (among other things) the amount of other obligations of such Guarantor. Furthermore, under the circumstances discussed more fully above, a court under applicable fraudulent conveyance and transfer statutes could void the obligations under a guarantee or further subordinate it to all other obligations of the Guarantor.

As a result, a Guarantor's liability under its guarantee could be materially reduced or eliminated depending upon the amounts of its other obligations and upon applicable laws. In particular, in certain jurisdictions, a guarantee issued by a company that is not in the company's corporate interests, the burden of which exceeds the benefit to the company or which is entered into within a certain period prior to insolvency or bankruptcy, may not be valid and enforceable. It is possible that a Guarantor, a creditor of a Guarantor or the insolvency administrator in the case of an insolvency of a Guarantor may contest the validity and enforceability of the guarantee and that the applicable court may determine the guarantee should be limited or voided. In the event that any guarantees are deemed invalid or unenforceable, in whole or in part, or to the extent that agreed limitations on the guarantee obligation apply, the Notes would be structurally subordinated to all liabilities of the applicable Guarantor.

The Notes will be structurally subordinated to the obligations of the Parent's non-guarantor subsidiaries (other than the Issuer). Your right to receive payment on the Notes could be adversely affected if any of our non-guarantor subsidiaries declares bankruptcy, liquidates or reorganizes.

Some but not all of Parent's subsidiaries will guarantee the Notes. The Parent's foreign subsidiaries, domestic subsidiaries substantially all of the assets of which constitute equity interests of one or more foreign subsidiaries, domestic subsidiaries that are not wholly-owned by Parent or its subsidiaries, subsidiaries that engage in no activities other than receivables financings and similar transactions, subsidiaries designated as "unrestricted subsidiaries" in accordance with the Indenture, subsidiaries that are prohibited from guaranteeing the Notes due to legal or contractual restrictions and certain immaterial subsidiaries will not guarantee the Notes. Furthermore, a subsidiary guarantee of the Notes may be released under the circumstances described under "Description of Notes—Guarantees." The Issuer's obligations under the Notes and the Guarantors' obligations under the Guarantees are structurally subordinated to the obligations of our non-guarantor subsidiaries (other than the Issuer) (or to those of any subsidiary whose guarantee is voided as provided above). Holders of Notes will not have any claim as a creditor against Parent's subsidiaries that are not Guarantors of the Notes (other than the Issuer). Therefore, in the event of any bankruptcy, liquidation or reorganization of a non-guarantor subsidiary, the rights of the holders of Notes to participate in the assets of such non-guarantor subsidiary will rank behind the claims of that subsidiary's creditors, including trade creditors (except to the extent we have a claim as a creditor of such subsidiary) and preferred stockholders of such subsidiaries, if any. For the twelve months ended June 30, 2017, Parent's non-guarantor subsidiaries (other than the Issuer) represented approximately 67% and 90% of our net sales and EBITDA, respectively. In addition, these non-guarantor subsidiaries represented approximately 76% and 40% of our total assets and total liabilities, respectively, as of June 30, 2017.

We may be unable to finance a change of control offer.

If certain change of control events occur, the Issuer may be required to make an offer for cash to purchase the Notes at 101% of their principal amount, plus accrued and unpaid interest and additional interest, if any. However, we cannot assure you that the Issuer will have the financial resources necessary to purchase the Notes upon a change of control or that it will have the ability to obtain the necessary funds on satisfactory terms, if at all. A change of control may result in an event of default under our North American Revolving Credit Agreement and may result in a default under other of our indebtedness that may be incurred in the future.

Investors may not be able to determine when a change of control giving rise to their right to have the Notes repurchased by the Issuer has occurred following a sale of "substantially all" of our assets.

A change of control, as defined in the Indenture, will require the Issuer to make an offer to purchase all outstanding Notes. The definition of change of control includes a phrase relating to the sale, lease or transfer of "all or substantially all" of our assets. There is no precisely established definition of the phrase "substantially all" under applicable law. Accordingly, the ability of a holder of Notes to require the Issuer to purchase its Notes as a result of a sale, lease or transfer of less than all of Parent's or the Issuer's assets to another individual, group or entity may be uncertain.

The Notes may not become, or remain, listed on TISE, and there may not be an active trading market for the Notes, in which case your ability to sell the Notes will be limited.

We expect the Notes to be eligible for trading by "qualified institutional buyers," as defined under Rule 144A, and we intend to list the Notes on TISE. However, we cannot assure you that the Notes will be approved for listing or that such listing will be maintained. The settlement of the Notes is not conditioned on approval of this application. Although no assurance is made as to the liquidity of the Notes as a result of the admission to trading on TISE, failure to be approved for listing, or the delisting of the Notes, as applicable, may have a material effect on a holder's ability to resell the Notes in the secondary market.

The initial purchaser of the Notes has advised us that it intends to make a market in the Notes, as permitted by applicable laws and regulations. However, the initial purchaser is not obligated to make a market in the Notes and, if commenced, they may discontinue their market-making activities at any time without notice. Therefore, an active market for the Notes may not develop or be maintained, which would adversely affect the market price and liquidity of the Notes. In that case, the holders of the Notes may not be able to sell their Notes at a particular time or at a favorable price. Even if an active trading market for the Notes does develop, there is no guarantee that it will continue. Historically, the market for non-investment grade debt has been subject to severe disruptions that have caused substantial volatility in the prices of securities similar to the Notes. The market, if any, for the Notes may experience similar disruptions and any such disruptions may adversely affect the liquidity in that market or the prices at which you may sell your Notes. In addition, subsequent to their initial issuance, the Notes may trade at a discount from their initial offering price, depending upon prevailing interest rates, the market for similar notes, our performance and other factors.

In a lawsuit for payment on the Notes, an investor may bear currency exchange risk.

The Indenture and the Notes will be governed by the laws of the State of New York. Under New York law, a New York state court rendering a judgment on the Notes would be required to render the judgment in euro. However, the judgment would be converted into United States dollars at the exchange rate prevailing on the date of entry of the judgment. Consequently, in a lawsuit for payment on the Notes, investors would bear currency exchange risk until a New York state court judgment is entered, which could be a long time. A federal court sitting in New York with diversity jurisdiction over a dispute arising in connection with the Notes would apply the foregoing New York law.

In courts outside of New York, investors may not be able to obtain a judgment in a currency other than United States dollars. For example, a judgment for money in an action based on the Notes in many other United States federal or state courts ordinarily would be enforced in the

United States only in United States dollars. The date used to determine the rate of conversion of euro into United States dollars would depend upon various factors, including which court renders the judgment and when the judgment is rendered.

Market perceptions concerning the instability of the euro, the potential re-introduction of individual currencies within the Eurozone, or the potential dissolution of the euro entirely, could adversely affect the value of the Notes.

Despite the European Commission's measures to address sovereign debt issues in Europe, concerns persist regarding the debt burden of certain Eurozone countries and their ability to meet future financial obligations, the overall stability of the euro and the suitability of the euro as a single currency given the diverse economic and political circumstances in individual Member States. These and other concerns could lead to the re-introduction of individual currencies in one or more Member States, or, in more extreme circumstances, the possible dissolution of the euro entirely.

Should the euro dissolve entirely, the legal and contractual consequences for holders of euro denominated obligations would be determined by laws in effect at such time. These potential developments, or market perceptions concerning these and related issues, could adversely affect the value of the Notes.

Trading in the clearing systems is subject to minimum denomination requirements.

The terms of the Notes provide that notes will be issued with a minimum denomination of €100,000 and multiples of €1,000 in excess thereof. It is possible that the clearing systems may process trades which could result in amounts being held in denominations smaller than the minimum denominations. If definitive notes are required to be issued in relation to such Notes in accordance with the provisions of the relevant global notes, a holder who does not have the minimum denomination or any integral multiple of €1,000 in excess thereof in its account with the relevant clearing system at the relevant time may not receive all of its entitlement in the form of definitive notes unless and until such time as its holding satisfies the minimum denomination requirement.

Holders of the Notes will not be entitled to registration rights.

The Notes will be a type of security that is informally referred to as "Rule 144A for life." We are not obligated to, nor do we intend to, file a registration statement with the SEC covering the resale of the Notes or to make a registered offer to exchange the Notes for publicly tradable Notes. As a result, for so long as the Notes remain outstanding, they may be transferred or resold only in transactions exempt from the securities registration requirements of federal and applicable state securities laws. See "Notice to Investors."

We are exposed to the risk of increased interest rates.

Our indebtedness under the North American Revolving Credit Agreement and the European Credit Agreement has variable rates of interest, which exposes us to the risk of increased interest rates. If interest rates were to increase, the interest payment obligations under our variable rate indebtedness would increase even if the amount borrowed remained the same which could have a material adverse effect on our business, results of operation or financial condition.

The value of the collateral securing the Notes may not be sufficient to satisfy the Issuer's obligations under the Notes.

Obligations under the Notes will be secured by a first-priority lien on the Notes Collateral, subject to permitted liens. The Notes Collateral is comprised primarily of the equity interests in certain subsidiaries of the Issuer and the Guarantors (including the Parent) and excludes all other assets of the Issuer and the Guarantors. Accordingly, holders of the Notes will have no direct recourse to the assets of the Issuer and the Guarantors and the Notes and the note guarantees will be effectively subordinated to any obligations secured by the assets of the Issuer and/or the Guarantors. By its nature, some or all of the Notes Collateral may be illiquid and may have no readily ascertainable market value. The value of the assets pledged as Notes Collateral for the Notes could be impaired in the future as a result of changing economic conditions, competition or other future trends. No appraisal of the value of the collateral has been made in connection with the transactions contemplated by this offering memorandum and the value of the Notes Collateral at any time is subject to fluctuations that will depend on market and other economic conditions, including the availability of suitable buyers for the collateral. In the event of a foreclosure, liquidation, bankruptcy or similar proceeding, no assurance can be given that the proceeds from any sale or liquidation of the Notes Collateral will be sufficient to pay our obligations under the Notes, in full or at all, after first satisfying our obligations in full under claims that are effectively senior to the Notes, if any. There also can be no assurance that the Notes Collateral will be saleable and, even if saleable, the timing of its liquidation would be uncertain. Accordingly, there may not be sufficient Notes Collateral to pay all or any of the amounts due on the Notes. Any claim for the difference between the amount, if any, realized by the holders of the Notes from the sale of the Notes Collateral securing the Notes and the obligations under the Notes will rank *pari passu* in right of payment with all of the Issuer's and the Guarantors' other senior unsecured indebtedness and other obligations, including trade payables.

In addition, in any United States bankruptcy proceeding with respect to the Issuer or any of the Guarantors, it is possible that we, as debtor in possession, any trustee in bankruptcy, or competing creditors will assert that the fair market value of the Notes Collateral with respect to the Notes on the date of the bankruptcy filing is less than the then-current principal amount of the Notes. Upon a finding by a United States bankruptcy court that the Notes were under-collateralized, the claims in the bankruptcy proceeding with respect to the Notes could be bifurcated between a secured claim in an amount equal to the value of the Notes Collateral and an unsecured claim with respect to the remainder of its claim, which would not be entitled to the benefits of security in the Notes Collateral. The consequences of a finding of under-collateralization would include, among other things, a lack of entitlement on the part of the holders of the Notes to receive post-petition interest and costs, including attorneys' fees or other fees and expenses, and a lack of entitlement on the part of the unsecured portion of the Notes to receive "adequate protection" under United States bankruptcy laws. In addition, if any payments of post-petition interest had been made at any time prior to such a finding of under-collateralization, those payments would be recharacterized by the bankruptcy court as a reduction of the principal amount of the secured claim with respect to the Notes.

Thus, in the event that a bankruptcy case is commenced by or against us, if the value of the Notes Collateral is less than the amount of principal and accrued and unpaid interest on the Notes and all other senior secured obligations, interest may cease to accrue on the Notes from and after the date the bankruptcy petition is filed. In the event of a foreclosure, liquidation, bankruptcy or similar proceeding, we cannot assure you that the proceeds from any sale or liquidation of the Notes Collateral will be sufficient to pay the obligations due under the Notes.

The collateral agent's ability to foreclose will also be limited by the need to meet certain requirements, such as making additional filings. The collateral agent is under no obligation to unilaterally effect these filings. If we fail to obtain these consents or make these filings, the security interests may not be perfected and the holders will not be entitled to realize on the Notes Collateral or any recovery with respect thereto. We cannot assure any holder of the Notes that any such required consents can be obtained on a timely basis or at all. These requirements may limit the number of potential bidders for certain Notes Collateral in any foreclosure and may delay any sale, either of which events may have an adverse effect on the sale price of the Notes Collateral. Therefore, the practical value of realizing on the Notes Collateral may, without the appropriate consents and filings, be limited.

The Indenture will also permit the Issuer and the Guarantors to create additional liens on the Notes Collateral under specified circumstances, some of which liens may be *pari passu* with the liens securing the Notes. Any obligations secured by such liens may further limit the recovery from the realization of the Notes Collateral available to satisfy holders of the Notes. See "Description of Notes—Covenants—Liens."

The terms of the Notes permit, without the consent of the holders of the Notes, various releases of the Notes Collateral securing the Notes and subsidiary guarantees that could be adverse to holders of the Notes.

There are circumstances other than repayment or discharge of the Notes under which the Notes Collateral securing the Notes will be released automatically, without your consent. Under various circumstances, the Notes Collateral securing the Notes and guarantees of the Notes will be released automatically, including:

- upon a sale, transfer or other disposal of such Notes Collateral to a person that is not the Issuer or a Guarantor in a transaction not prohibited under the Indenture;
- with respect to Notes Collateral held by a Guarantor, upon the release of such Guarantor from its note guarantees;
- with respect to Notes Collateral that is capital stock, upon the dissolution of the issuer of such capital stock in accordance with the Indenture; and
- to the extent required pursuant to the terms of any intercreditor agreement, if in effect.

The Indenture will also permit us to designate one or more of our restricted subsidiaries that is a Guarantor of the Notes as an unrestricted subsidiary. If we designate a subsidiary Guarantor as an unrestricted subsidiary for purposes of such Indenture, all of the liens on any Notes Collateral owned by that subsidiary or any of its subsidiaries and any guarantees of the Notes by that subsidiary or any of its subsidiaries will be released under such Indenture. Designation of an unrestricted subsidiary will reduce the aggregate value of the Notes Collateral securing the Notes to the extent that liens on the assets of the unrestricted subsidiary and its subsidiaries are released. In addition, the creditors of any such unrestricted subsidiary and its subsidiaries will have a claim on the assets of the unrestricted subsidiary and its subsidiaries senior to the claim of the holders of the Notes.

Intervening creditors may have a perfected security interest in the Notes Collateral.

The Notes Collateral securing the Notes is subject to liens permitted under the terms of the Indenture, whether arising before, on or after the date the Notes are issued. There is a risk that there may be a creditor whose liens are permitted under the Indenture or other intervening creditor that has a perfected security interest in the Notes Collateral securing the Notes, and if there is such an intervening creditor, the lien of such creditor, whether or not permitted under the Indenture, may be entitled to a higher priority than the liens securing the Notes. The existence of any liens securing intervening creditors, including liens permitted under the Indenture and incurred or perfected prior to the liens securing the Notes, could adversely affect the value of the Notes Collateral securing the Notes as well as the ability of the collateral agent for the Notes to realize or foreclose on such Notes Collateral. We have conducted lien searches to ascertain the existence of any intervening creditors, but we cannot assure holders of the Notes that no intervening creditors exist.

The Notes Collateral will also be subject to any and all exceptions, defects, encumbrances, liens and other imperfections permitted by the Indenture. Any such exceptions, defects, encumbrances, liens and imperfections could adversely affect the value of the Notes Collateral that will secure the Notes and the guarantees of the Notes as well as the ability of the collateral agent for the Notes to realize or foreclose on the Notes Collateral for the benefit of holders of the Notes.

The security interests in the Notes Collateral will be granted to the collateral agent rather than directly to the holders of the Notes and the ability of the collateral agent to enforce certain of the Notes Collateral may be restricted by local law.

The security interests in the Notes Collateral that will secure our obligations under the Notes and the obligations of the Guarantors under the Notes guarantees will not be granted directly to the holders of the Notes but will be granted only in favor of the collateral agent for the Notes. The Indenture will provide that only the collateral agent for the Notes acting at the direction of the Trustee has the right to enforce the security documents. As a consequence, holders of the Notes will not have direct security interests and will not be entitled to take enforcement action in respect of the Notes Collateral securing the Notes, except through the Notes trustee, who will (subject to the provisions of the Indenture) provide instructions to the collateral agent for the Notes in respect of the Notes Collateral.

We will, in most cases, retain control over the Notes Collateral.

Until the occurrence and continuation of an event of default, the security documents generally allow the Issuer and the Guarantors to retain control over, to operate, and to collect, invest and dispose of any income from, the Notes Collateral. These rights may materially adversely affect the value of the Notes Collateral at any time.

The liens on the foreign stock will not be created or perfected under the law governing such foreign stock.

A significant portion of the Notes Collateral consists of 65% of the voting stock and 100% of non-voting stock of first-tier foreign subsidiaries of the Issuer and the Guarantors. Such foreign subsidiaries are organized under the laws of the United Kingdom, France, Denmark, Canada and Germany. The Issuer and the Guarantors will not be required to take any actions to create or perfect liens on such foreign stock under the applicable foreign law of the jurisdiction of organization of such foreign subsidiary. It is uncertain if the liens on such foreign stock created under New York law and perfected under the law of the applicable state of the United States will be enforceable in the jurisdiction of organization of such foreign subsidiary or will be held invalid as a result of the failure to create and perfect such liens under applicable foreign law. In addition, compliance with foreign laws may be required to foreclose on such foreign stock and may slow down or obstruct any foreclosure proceedings with respect to such foreign stock.

Any future pledge or perfection of a lien on Notes Collateral or future guarantee might be avoidable in bankruptcy or in a state law or other proceeding.

Any future pledge of Notes Collateral in favor of the collateral agent for the Notes or any guarantee issued in the future, including security documents or guarantees delivered after the date of the Indenture, might be avoidable by the pledgor or guarantor (as debtor-in-possession) or by its trustee in bankruptcy (or potentially by certain of its other creditors) if certain events or circumstances exist or occur, including, among others, if the pledgor or guarantor is insolvent at the time of the pledge or issuance of the guarantee, the pledge or issuance of the guarantee permits the holders of the Notes to receive a greater recovery than if the pledge or guarantee had not been given and a bankruptcy proceeding in respect of the pledgor or guarantor is commenced within 90 days following the pledge or issuance of the guarantee (or one year if the creditor that benefited is an "insider" under the United States Bankruptcy Code). The same risk applies to perfection of a lien within the applicable period in connection with a pledge granted prior to the commencement of such period. Such pledges and perfection or issuance may also be avoidable in a state law or other proceeding, subject to the timeframes and other terms of applicable law.

Rights of holders of the Notes may be adversely affected by bankruptcy proceedings.

If a bankruptcy case were to be commenced by or against us, the ability of holders of the Notes to collect on the Notes may be significantly impaired. A bankruptcy case may be commenced by us or by certain unsecured or undersecured creditors as provided in the United States Bankruptcy Code.

The right of the collateral agent for the Notes to repossess and dispose of the Notes Collateral securing the Notes upon acceleration is likely to be significantly impaired by federal bankruptcy law if bankruptcy proceedings are commenced by or against us prior to, or possibly even after, the collateral agent for the Notes has repossessed and disposed of the Notes Collateral. Under the United States Bankruptcy Code, the "automatic stay" prohibits a secured creditor, such as the collateral agent for the Notes, from repossessing its security from a debtor in a bankruptcy case, or from disposing of security repossessed from a debtor, without prior bankruptcy court approval (which may not be given under the circumstances).

Moreover, applicable bankruptcy law and/or the bankruptcy court generally permit the debtor to continue to retain and to use of the Notes Collateral, and the proceeds, products, rents, or profits of the Notes Collateral, even though the debtor is in default under the applicable debt instruments, provided that the secured creditor is given "adequate protection."

The meaning of the term "adequate protection" may vary according to circumstances, but it is generally intended to protect the value of the secured creditor's interest in its collateral from diminution as a result of the stay of repossession or disposition or any use of the collateral by the debtor during the pendency of the bankruptcy case. "Adequate protection" may include cash payments or the granting of additional or replacement security, of such type, at such time, and in such amount as the bankruptcy court may determine. The bankruptcy court has broad discretionary powers in all these matters, including the valuation of the Notes Collateral and the nature, accessibility or value of any other Notes Collateral that may be substituted for it. A bankruptcy court may determine that a secured creditor may not require compensation for a diminution in the value of its collateral if the value of the collateral exceeds the debt it secures. In view of the broad discretionary powers of a bankruptcy court and the lack of a precise definition of the term "adequate protection," it is impossible to predict whether or when payments under the Notes could be made following the commencement of a bankruptcy case or the length of the delay in making any such payments, whether or when the collateral agent for the Notes could or would repossess or dispose of the Notes Collateral, the value of the Notes Collateral at the time of the bankruptcy petition or whether or to what extent holders of the Notes would be compensated for any delay in payment of loss of value of the Notes Collateral through the requirement of "adequate protection."

Furthermore, in the event the bankruptcy court determines that the value of the Notes Collateral is not sufficient to repay all amounts due on the Notes, the holders of the Notes would be "undersecured." Federal United States bankruptcy laws do not provide for the payment or accrual of interest, costs and attorneys' fees on the "undersecured" portion of a creditor's claims during a debtor's bankruptcy case nor is a creditor entitled to adequate protection on account of any undersecured portion of its claims.

In the event of a bankruptcy proceeding, the following factors, among others, might bear on recoveries by holders of the Notes:

- a debtor in a bankruptcy case does not have the ability to compel performance of a "financial accommodation," including the funding of any undrawn loans that might be contemplated to fund operations;
- the bankruptcy court may approve debtor-in-possession financing that may be required to be repaid before secured and other creditors are paid;
- other secured creditors may seek, and perhaps receive, relief from the automatic stay to foreclose their respective liens; and
- the cost, delay, and procedures of bankruptcy, including potentially pursuing a reorganization plan, could affect operations, revenues, and the value available for creditors.

Moreover, in a bankruptcy proceeding, the bankruptcy court would have broad discretion to approve (or disapprove) transactions and otherwise take actions that could disadvantage the holders of the Notes. Among other things, any disposition of the Notes Collateral during a bankruptcy case would require permission from the bankruptcy court (which may not be given under the circumstances). Accordingly, there can be no assurances, pending or following the completion of such a proceeding, with respect to the following, among other things: whether and when any payments under the Notes would be made; whether the terms and conditions of the Notes or any rights of the holders of the Notes would be altered or ignored without the consent of holders of Notes; whether holders of the Notes would be able to enforce their rights against the Guarantors under their guarantees; and whether and to what extent holders of Notes would be compensated for any delay in payment or receive any payment at all (or in what form). Furthermore, under certain circumstances, a bankruptcy court could order substantive consolidation of either of the Issuer or a Guarantor with one or more of their affiliates or subsidiaries. We believe that the Issuer and the Guarantors have observed and will observe certain formalities and operating procedures that are generally recognized requirements for maintaining their respective separate existences, and that their respective assets and liabilities can be readily identified as distinct from each other's and from those of their affiliates and subsidiaries.

We cannot assure holders of the Notes, however, that a bankruptcy court would agree. If a bankruptcy court concludes that substantive consolidation of the Issuer or a Guarantor with any affiliate or subsidiary is warranted, holders of the Notes should expect that any payments on account of their claims may be delayed and/or reduced.

Also, it is likely that under the terms of any intercreditor agreement, if in effect, the non-controlling debt holders would be prohibited from objecting following the filing of a bankruptcy petition to any proposed debtor-in-possession financing that is not opposed or objected to by the controlling collateral agent or to the use of the shared cash collateral, subject to certain conditions and limited exceptions. After such a filing, the value of the Notes Collateral could materially deteriorate, and holders of the Notes would be unable to raise an objection.

Lien searches may not reveal all liens on the Notes Collateral.

We cannot guarantee that the lien searches on the Notes Collateral that will secure the Notes will reveal any or all existing liens on such Notes Collateral. Any such existing lien, including undiscovered liens, could be significant, could be prior in ranking to the liens securing the Notes and could have an adverse effect on the ability of the collateral agent to realize or foreclose upon the Notes Collateral securing the Notes.

No lien searches will be conducted in the jurisdiction of organization of any foreign issuers of pledged stock. As a result, no assurance can be given that there does not exist one or more liens securing significant obligations having priority on certain of the Notes Collateral, which liens may prevent or inhibit the collateral agent from foreclosing on the liens securing the Notes and may impair the value of the Notes Collateral.

USE OF PROCEEDS

We estimate the net proceeds from the sale of the Notes to be approximately $450.0 million after the initial purchaser's discount and estimated expenses payable by us. We intend to use the net proceeds from this offering to (a) repay in full all indebtedness outstanding under, and terminate, the Term Loan Facility, (b) repay all current indebtedness outstanding under the North American Revolving Credit Facility (provided that no commitments under the North American Revolving Credit Agreement shall be terminated in connection with the Refinancing, this offering or the related transactions) and (c) to pay related fees and expenses. We intend to use any remaining net proceeds for our general corporate purposes.

The following table summarizes the estimated sources and uses of funds in connection with the offering of Notes hereby and related use of proceeds, assuming such transactions occurred on June 30, 2017. Actual amounts will vary from estimated amounts, depending on several factors, including the actual amount of fees and expenses related to such transactions.

Sources of Funds (in millions)		Uses of Funds (in millions)	
Notes offered hereby(1)	$457.0	Repayment of Term Loan Facility(2)	$338.6
		Repayment of indebtedness outstanding under the North American Revolving Credit Facility(3)	16.3
		Transactions fees and expenses(4)	7.0
		General corporate purposes	95.1
Total	$457.0	Total	$457.0

(1) Represents the principal amount of Notes offered hereby. The principal amount of Notes offered hereby has been translated into United States dollars using an assumed exchange rate of $1.1424 dollars per Euro as of June 30, 2017.

(2) As of June 30, 2017, we had $338.6 million outstanding under our Term Loan Facility (exclusive of unamortized original issue discount and debt issue costs aggregating $3.7 million). The obligations under this facility mature in February 2020. The interest rate on the outstanding borrowings under our Term Loan Facility as of June 30, 2017 was 4.3%.

(3) As of June 30, 2017, we had $16.3 million outstanding and $91.4 million available for borrowing under our North American Revolving Credit Facility. On that date, the interest rate on the outstanding borrowings under the North American Revolving Credit Facility was 5.0%. The Refinancing will not result in the termination of any commitments under the North American Revolving Credit Agreement.

The North American Revolving Credit Facility matures on the earlier of (a) January 20, 2022, or (b) 90 days prior to the maturity date of our Term Loan Facility or of any new term loan constituting a permitted refinancing of the existing term loan. After giving effect to this offering and the use of proceeds related thereto, the maturity date of the North American Revolving Credit Facility will be January 20, 2022.

(4) Consists of our estimate of fees and expenses associated with this offering (including the initial purchaser's discount). All fees and expenses are estimates and actual amounts may differ from those set forth in this offering memorandum.

CAPITALIZATION

The following table shows our historical cash and cash equivalents and consolidated capitalization at June 30, 2017:

- on an actual basis; and
- on an adjusted basis to reflect the completion of this offering and the use of proceeds, as if it had occurred on June 30, 2017.

You should read this table in conjunction with "Use of Proceeds," "Summary Financial Data and Other Information," "Selected Historical Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our historical consolidated financial statements and accompanying notes appearing elsewhere in this offering memorandum.

	As of June 30, 2017	
	Actual	**As Adjusted**
	(In millions)	
Cash and cash equivalents	$ 114.1	$ 209.2
Long-term debt (including current maturities):		
Term Loan Facility(1)	$ 334.9	$ —
North American Revolving Credit Facility(2)	16.3	—
European Credit Facility(3)	—	—
Other indebtedness	3.2	3.2
Notes offered hereby(4)	—	450.0
Total long-term debt (including current maturities)	354.4	453.2
Stockholders' equity:		
Common stock, $0.01 par value; 240.0 million shares authorized; 115.9 million shares issued	1.2	1.2
Additional paid-in capital	1,399.0	1,399.0
Retained deficit(5)	(353.7)	(357.9)
Accumulated other comprehensive loss(6)	(425.7)	(423.9)
Total stockholders' equity	620.8	618.4
Total capitalization	$ 975.2	$1,071.6

(1) Amount is stated net of unamortized original issue discount and debt issuance costs related to the Term Loan Facility aggregating $3.7 million at June 30, 2017.

(2) Amount is exclusive of unamortized deferred financing costs related to the North American Revolving Credit Agreement aggregating $0.2 million at June 30, 2017. Such unamortized deferred financing costs are classified as part of other noncurrent assets on our consolidated balance sheet. As of August 31, 2017, we had $24.6 million outstanding and $81.7 million available for borrowing under our North American Revolving Credit Facility.

(3) Based on the terms of our European Credit Facility and the borrowers' EBITDA over the last twelve months ended June 30, 2017, the full €120.0 million amount of the European Credit Facility ($137.1 million based on the exchange rate as of June 30, 2017 of $1.1424 United States dollars per Euro) is available for borrowing at June 30, 2017. Our European Credit Facility matures in September 2017 and we believe we will be able to obtain an extension of this credit facility to September 2022 in the normal course of business on or prior to its maturity date. We expect to reduce the size of the European Credit Facility from €120.0 million to €90.0 million concurrent with the extension.

(4) Represents the principal amount of the Notes offered hereby. The principal amount of the Notes offered hereby has been translated into United States dollars using an assumed exchange rate of $1.1424 dollars per Euro at June 30, 2017. Such amount is stated net of the initial purchaser's discount and other estimated expenses associated with the note offering aggregating $7.0 million.

(5) Amount as adjusted includes the effect of (i) the write-off of the unamortized original issue discount and deferred financing costs related to the Term Loan Facility aggregating $3.7 million at June 30, 2017 ($2.4 million, net of

income tax benefit) and (ii) the reclassification out of accumulated other comprehensive loss and into earnings of the $1.8 million loss related to our interest rate swap, as discussed in footnote (6) below.

(6) At June 30, 2017, we had a $1.8 million loss, net of income tax benefit, recognized in accumulated other comprehensive loss related to the interest rate swap we had previously entered into as part of our interest rate management strategy. Such interest rate swap is discussed in Note 14 to our Unaudited Condensed Consolidated Financial Statements as of and for the six months ended June 30, 2017 included elsewhere in this offering memorandum. Upon repaying and terminating the Term Loan Facility using a portion of the net proceeds of this offering, we intend to cancel and terminate such interest rate swap. Amount as adjusted includes the effect of reclassifying such $1.8 million loss out of accumulated other comprehensive loss and into earnings (see footnote (5) above).

SELECTED HISTORICAL FINANCIAL DATA

The following tables set forth the selected consolidated financial information and other operating data of Kronos. The selected historical consolidated financial data for the years ended December 31, 2014, 2015 and 2016 and as of December 31, 2015 and 2016 have been derived from our audited consolidated financial statements included elsewhere in this offering memorandum. The selected historical consolidated financial data for the years ended December 31, 2012 and 2013 and as of December 31, 2012, 2013 and 2014 are derived from our audited consolidated financial statements not included in this offering memorandum. The selected historical consolidated financial data as of June 30, 2017 and for the six months ended June 30, 2016 and 2017 have been derived from our unaudited condensed consolidated financial statements included elsewhere in this offering memorandum. The selected historical consolidated financial data as of June 30, 2016 has been derived from our unaudited condensed consolidated financial statements not included in this offering memorandum. The results of operations for the periods presented below are not necessarily indicative of the results that may be expected for any future period.

This information is only a summary and should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated financial statements and the notes thereto and other financial information appearing elsewhere in this offering memorandum.

	Years ended December 31,					Six months ended June 30,	
	2012	2013	2014	2015	2016	2016	2017
	(In millions, except ratios and TiO_2 operating statistics)						
STATEMENTS OF OPERATIONS DATA:							
Net sales	$1,976.3	$1,732.4	$1,651.9	$1,348.8	$1,364.3	$ 674.5	$ 811.2
Cost of sales	1,415.9	1,620.2	1,302.2	1,156.5	1,107.3	578.6	578.0
Gross margin	560.4	112.2	349.7	192.3	257.0	95.9	233.2
Selling, general and administrative expense	183.4	190.4	191.9	178.0	172.6	86.1	99.4
Other operating income (expense):							
Currency transaction gains (losses), net	(1.0)	(3.8)	4.0	(.1)	5.5	4.2	(3.7)
Other operating expense, net	(16.4)	(50.6)	(12.1)	(15.3)	(8.8)	(3.8)	(7.7)
Income (loss) from operations	359.6	(132.6)	149.7	(1.1)	81.1	10.2	122.4
Other income (expense):							
Interest and dividend income	9.0	1.2	1.0	.8	.6	.4	.3
Securities transactions, net	(3.9)	—	—	(12.0)	—	—	—
Loss on prepayment of debt, net	(7.2)	(8.9)	—	—	—	—	—
Interest expense	(26.7)	(19.6)	(17.0)	(18.5)	(20.5)	(10.2)	(9.5)
Income (loss) before income taxes	330.8	(159.9)	133.7	(30.8)	61.2	0.4	113.2
Income tax expense (benefit)	112.3	(57.9)	34.5	142.8	17.9	2.5	(120.1)
Net income (loss)	$ 218.5	$ (102.0)	$ 99.2	$ (173.6)	$ 43.3	$ (2.1)	$ 233.3

	Years ended December 31,					Six months ended June 30,	
	2012	2013	2014	2015	2016	2016	2017
	(In millions, except ratios and TiO_2 operating statistics)						
BALANCE SHEET DATA (at period end):							
Total assets	$2,013.6	$1,610.0	$1,633.1	$1,242.7	$1,179.6	$1,234.4	$1,472.9
Notes payable and long-term debt including current maturities	396.2	183.5	343.6	341.0	339.0	370.1	354.4
Common stockholders' equity	1,062.1	935.1	781.1	461.9	395.0	436.6	620.8
STATEMENTS OF CASH FLOW DATA:							
Net cash provided by (used in):							
Operating activities(1)	$ 83.1	$ 130.4	$ 87.7	$ 52.1	$ 89.6	$ 16.6	$ 101.6
Investing activities(1)	152.4	(67.7)	(61.2)	(47.1)	(53.0)	(23.7)	(26.6)
Financing activities(1)	(34.3)	(292.3)	89.6	(72.1)	(73.3)	(6.7)	(20.4)
TiO_2 OPERATING STATISTICS:							
Sales volume(2)	470	498	496	525	559	287	300
Production volume(2)	469	474	511	528	546	262	286
Production capacity at beginning of year(2)	550	550	555	555	555	555	555
Production rate as a percentage of capacity	85%	86%	92%	95%	98%	96%	100%

(1) Prior period amounts have been reclassified to reflect the change in the statement of cash flow classification of amounts paid in respect of the early redemption of certain indebtedness. As a result, net cash provided by operating activities for the year ended December 31, 2012 increased by $6.2 million, and net cash used by financing activities increased by $6.2 million, as compared to previously reported amounts. In addition, prior period amounts have been reclassified to reflect the change in the statement of cash flow presentation with respect to restricted cash. As a result, net cash provided by investing activities for the year ended December 31, 2012 increased by $2.6 million, and net cash used in investing activities for the years ended December 31, 2013, 2014 and 2015 increased (decreased) by $(.5) million, $7.2 million and $.3 million, respectively, in each case as compared to previously reported amounts. See Note 19 to our Audited Consolidated Financial Statements. Such reclassifications, as they relate to our statements of cash flows for the years ended December 31, 2012 and 2013, are unaudited as such years were not presented in our Audited Consolidated Financial Statements included herein.

(2) Metric tons in thousands.

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

Unless the context requires otherwise, references in this section to our "Consolidated Financial Statements" refer, as applicable, to our audited consolidated financial statements for the year ended December 31, 2016, or our unaudited condensed consolidated financial statements for the six months ended June 30, 2017, included elsewhere in this offering memorandum.

Results of Operations

Business Overview

We are a leading global producer and marketer of value-added TiO_2. TiO_2 is used for a variety of manufacturing applications, including plastics, paints, paper and other industrial products. During 2016 and the first six months of 2017, approximately one-half of our sales volumes were sold into European markets. We believe we are the largest producer of TiO_2 in Europe with an estimated 17% share of European TiO_2 sales volumes in 2016. In addition, we estimate we had a 16% share of North American TiO_2 sales volumes in 2016. Our production facilities are located throughout Europe and North America.

We consider TiO_2 to be a "quality of life" product, with demand affected by gross domestic product, or GDP, and overall economic conditions in our markets located in various regions of the world. Over the long-term, we expect demand for TiO_2 will grow by 2% to 3% per year, consistent with our expectations for the long-term growth in GDP. However, even if we and our competitors maintain consistent shares of the worldwide market, demand for TiO_2 in any interim or annual period may not change in the same proportion as the change in GDP, in part due to relative changes in the TiO_2 inventory levels of our customers. We believe that our customers' inventory levels are influenced in part by their expectation for future changes in market TiO_2 selling prices as well as their expectation for future availability of product. Although certain of our TiO_2 grades are considered specialty pigments, the majority of our grades and substantially all of our production are considered commodity pigment products with price and availability being the most significant competitive factors along with quality and customer service.

The factors having the most impact on our reported operating results are:

- TiO_2 selling prices,
- Our TiO_2 sales and production volumes,
- Manufacturing costs, particularly raw materials such as third-party feedstock ore, maintenance and energy-related expenses, and
- Currency exchange rates (particularly the exchange rate for the United States dollar relative to the euro, the Norwegian krone and the Canadian dollar).

Our key performance indicators are our TiO_2 average selling prices, our level of TiO_2 sales and production volumes and the cost of our third-party feedstock ore. TiO_2 selling prices generally follow industry trends and the selling prices will increase or decrease generally as a result of competitive market pressures.

In addition, our effective income tax rate in both 2015 and 2016 was impacted by certain favorable and unfavorable developments discussed below.

Executive Summary

We reported net income of $233.3 million in the first six months of 2017 as compared to a net loss of $2.1 million in the first six months of 2016. We reported higher net income in 2017 in part due to higher income from operations in 2017 resulting from the favorable effects of higher average selling prices, higher sales and production volumes and lower raw materials and other production costs. In addition, our results in the first six months of 2017 include the recognition of a non-cash deferred income tax benefit as a result of a net decrease in our deferred income tax asset valuation allowance related to our German and Belgian operations ($162.6 million in the year-to-date period).

Our results in the first six months of 2016 include:

- a pre-tax insurance settlement gain of $3.4 million ($2.6 million net of income tax expense), and
- a non-cash deferred income tax expense as a result of a net increase in our deferred income tax asset valuation allowance related to our German and Belgian operations aggregating $2.9 million.

We reported net income of $43.3 million for 2016 as compared to a net loss of $173.6 million for 2015. We reported net income in 2016 as compared to a net loss in 2015 due to higher income from operations in 2016, as well as an aggregate $159.0 million non-cash deferred income tax asset valuation allowance related to our German and Belgian operations recognized in 2015, and an aggregate $12.0 million pre-tax other-than-temporary impairment ("OTTI") charge on our investment in a marketable equity security recognized in 2015. Our income from operations improved in 2016 primarily due to the net impact of higher sales and production volumes and lower average selling prices in 2016, a $21.7 million charge associated with the implementation of certain workforce reductions in 2015, lower raw materials and other production costs in 2016 (including cost savings resulting from workforce reductions implemented in 2015), the recognition of an insurance settlement gain totaling $4.3 million in 2016 from two separate business interruption claims and the net effect of changes in currency exchange rates. Of the $21.7 million charge related to the workforce reductions, $10.8 million was classified as part of cost of sales and $10.9 million was classified in selling, general and administrative expense.

We reported a net loss of $173.6 million for 2015 as compared to net income of $99.2 million for 2014. We reported a net loss in 2015 primarily due to lower income from operations, the recognition of an aggregate $159.0 million non-cash deferred income tax asset valuation allowance related to our German and Belgian operations, the recognition of an aggregate $12.0 million pre-tax OTTI charge on our investment in a marketable equity security, and a $21.7 million charge associated with the implementation of certain workforce reductions. Comparability of our results was also impacted by lower average selling prices in 2015, partially offset by the favorable effects of higher sales volumes, lower manufacturing and other production costs (primarily raw materials) and the net effect of changes in currency exchange rates.

Our net income in 2016 includes:

- a pre-tax insurance settlement gain of $4.3 million ($3.2 million net of income tax expense) recognized in the first, second and fourth quarters,
- the recognition of a net $3.4 million current income tax benefit related to the execution and finalization of an Advance Pricing Agreement between the United States and Canada,

- the recognition of an aggregate $2.2 million non-cash tax benefit as the result of a net decrease in our deferred income tax asset valuation allowance related to our German and Belgian operations, recognized in the second, third and fourth quarters, and
- the recognition of a $2.4 million non-cash income tax expense related to an increase in our reserve for uncertain tax positions, mostly recognized in the fourth quarter.

Our net loss in 2015 includes:

- the recognition of an aggregate non-cash deferred income tax asset valuation allowance related to our German and Belgian operations of $159.0 million, mostly recognized in the second quarter,
- the third quarter recognition of an aggregate pre-tax OTTI loss on our investment in a marketable equity security of $12.0 million ($7.8 million net of income tax benefit), and
- a pre-tax charge of $21.7 million ($18.5 million net of income tax benefit) related to workforce reduction costs, mostly recognized in the second quarter.

Our net income in 2014 includes an aggregate non-cash income tax benefit of $5.1 million related to a net reduction in our reserve for uncertain tax positions (mostly recognized in the second quarter).

Critical Accounting Policies and Estimates

The accompanying "Management's Discussion and Analysis of Financial Condition and Results of Operations" is based upon our Consolidated Financial Statements, which we have prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses during the reported period. On an ongoing basis we evaluate our estimates, including those related to the recoverability of long-lived assets, pension and other postretirement benefit obligations and the underlying actuarial assumptions related thereto, the realization of deferred income tax assets and accruals for litigation, income tax and other contingencies. We base our estimates on historical experience and on various other assumptions which we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the reported amounts of assets, liabilities, revenues and expenses. Actual results may differ significantly from previously-estimated amounts under different assumptions or conditions.

The following critical accounting policies affect our more significant judgments and estimates used in the preparation of our Consolidated Financial Statements:

- *Long-lived assets*—We recognize an impairment charge associated with our long-lived assets, including property and equipment, whenever we determine that recovery of such long-lived asset is not probable. Such determination is made in accordance with the applicable GAAP requirements of Accounting Standard Codification, or ASC, Topic 360-10-35 *Property, Plant and Equipment* and is based upon, among other things, estimates of the amount of future net cash flows to be generated by the long-lived asset and estimates of the current fair value of the asset. Significant judgment is required in estimating such cash flows. Adverse changes in such estimates of future net cash flows or estimates of fair value could result in an inability to recover the carrying value of the long-lived asset, thereby possibly requiring an impairment charge to be recognized in the future. We do not assess our property and equipment for impairment unless certain impairment indicators specified in ASC Topic 360-10-35 are present. We did not evaluate any long-lived assets for impairment during 2016 because no such impairment indicators were present.

- *Benefit plans*—We maintain various defined benefit pension plans and postretirement benefits other than pensions, or OPEB, plans. The amounts recognized as defined benefit pension and OPEB expenses and the reported amounts of pension asset and accrued pension and OPEB costs are actuarially determined based on several assumptions, including discount rates, expected rates of return on plan assets, expected health care trend rates and expected mortality. Variances from these actuarially assumed rates will result in increases or decreases, as applicable, in the recognized pension and OPEB obligations, pension and OPEB expenses and funding requirements. These assumptions are more fully described below under "Defined Benefit Pension Plans" and "OPEB Plans."

- *Income taxes*—We recognize deferred taxes for future tax effects of temporary differences between financial and income tax reporting. Deferred income tax assets and liabilities for each tax-paying jurisdiction in which we operate are netted and presented as either a noncurrent deferred income tax asset or liability, as applicable. We record a valuation allowance to reduce our deferred income tax assets to the amount that is believed to be realized under the more-likely-than-not recognition criteria. While we have considered future taxable income and ongoing prudent and feasible tax planning strategies in assessing the need for a valuation allowance, it is possible that we may change our estimate of the amount of the deferred income tax assets that would more-likely-than-not be realized in the future, resulting in an adjustment to the deferred income tax asset valuation allowance that would either increase or decrease, as applicable, reported net income in the period such change in estimate was made.

  For example, at December 31, 2016, we have substantial net operating loss (NOL) carryforwards in Germany (the equivalent of $638 million for German corporate purposes and $71 million for German trade tax purposes) and in Belgium (the equivalent of $93 million for Belgian corporate tax purposes), all of which have an indefinite carryforward period. As a result, we have net deferred income tax assets with respect to these two jurisdictions, primarily related to these NOL carryforwards. The German corporate tax is similar to the United States federal income tax, and the German trade tax is similar to the United States state income tax. As more fully described below under "Results of Operations—Comparison of Year Ended December 31, 2016 to Year Ended December 31, 2015—Income Tax Expense," at December 31, 2016, we had a deferred income tax asset valuation allowance recognized with respect to such net deferred income tax assets of our Belgian and German operations. As more fully described below under "Results of Operations—Comparison of Six Months Ended June 30, 2017 to Six Months Ended June 30, 2016—Income tax expense (benefit)," at June 30, 2017, we concluded that such deferred income tax asset valuation allowance was no longer required to be recognized with respect to such net deferred income tax assets of our Belgian and German operations.

  We record a reserve for uncertain tax positions where we believe it is more-likely-than-not our tax positions will not prevail with the applicable tax authorities. It is possible that in the future we may change our assessment regarding the probability that our tax positions will prevail that would require an adjustment to the amount of our reserve for uncertain tax positions that could either increase or decrease, as applicable, reported net income in the period the change in assessment was made.

In addition, we evaluate at the end of each reporting period whether or not some or all of the undistributed earnings of our non-United States subsidiaries are permanently reinvested (as that term is defined in GAAP). While we may have concluded in the past that some of such undistributed earnings are permanently reinvested, facts and circumstances can change in the future and it is possible that a change in facts and circumstances, such as a change in the expectation regarding the capital needs of our non-United States subsidiaries or a change in tax law, could result in a conclusion that some or all of such undistributed earnings are no longer permanently reinvested. In such an event, we would be required to recognize a deferred income tax liability in an amount equal to the estimated incremental United States income tax and withholding tax liability that would be generated if all of such previously-considered permanently reinvested undistributed earnings were to be distributed to the United States.

- *Contingencies*—We record accruals for legal and other contingencies when estimated future expenditures associated with such contingencies and commitments become probable and the amounts can be reasonably estimated. However, new information may become available or circumstances (such as applicable laws and regulations) may change, thereby resulting in an increase or decrease in the amount required to be accrued for such matters (and therefore a decrease or increase in reported net income in the period of such change).

Results from operations is impacted by certain of these and other significant judgments and estimates, such as allowance for doubtful accounts, reserves for obsolete or unmarketable inventories, impairment of equity method investments and long-lived assets, defined benefit pension plans and loss accruals. In addition, net income is impacted by the significant judgments and estimates for deferred income tax asset valuation allowances and loss accruals.

Results of Operations

Comparison of Six Months Ended June 30, 2017 to Six Months Ended June 30, 2016

Current industry conditions

Due to the successful implementation of previously-announced price increases, average selling prices began to rise in the second quarter of 2016 and have continued to rise through the first half of 2017. Our average TiO_2 selling prices in the second quarter of 2017 were 20% higher as compared to the second quarter of 2016, and our average selling prices at the end of the second quarter of 2017 were 8% higher than at the end of the first quarter of 2017, and were 12% higher than at the end of 2016, with higher prices in all major markets. We experienced higher sales volumes in the North American and export markets in the first half of 2017 as compared to the same period of 2016, partially offset by lower volumes in the Latin American market.

We operated our production facilities at overall average capacity utilization rates of 100% in the first six months of 2017 compared to approximately 96% in the first six months of 2016. The table below lists our comparative quarterly capacity utilization rates.

	Production Capacity Utilization Rates	
	2016	2017
First quarter	97%	100%
Second quarter	95%	100%

Throughout 2016, we experienced moderation in the cost of TiO_2 feedstock ore procured from third parties. Our cost of sales per metric ton of TiO_2 sold declined throughout 2016 and into the first six months of 2017 primarily due to the moderation in the cost of TiO_2 feedstock ore in 2016. Consequently, our cost of sales per metric ton of TiO_2 sold in the first six months of 2017 was lower than our cost of sales per metric ton of TiO_2 sold in the first six months of 2016 (excluding the effect of changes in currency exchange rates).

	Six months ended June 30,			
	2016		2017	
	(Dollars in millions)			
Net sales	$674.5	100%	$811.2	100%
Cost of sales	578.6	86	578.0	71
Gross margin	95.9	14	233.2	29
Other operating income and expense, net	85.7	12	110.8	14
Income from operations	$ 10.2	2%	$122.4	15%

	2016	2017	% Change
TiO_2 operating statistics:			
Sales volumes*	287	300	5%
Production volumes*	262	286	9%
Percentage change in net sales:			
TiO_2 product pricing			19%
TiO_2 sales volumes			5
TiO_2 product mix/other			(2)
Changes in currency exchange rates			(2)
Total			20%

* Thousands of metric tons

Net sales—Net sales in the first six months of 2017 increased 20%, or $136.7 million, compared to the first six months of 2016 primarily due to the favorable effects of a 19% increase in average TiO_2 selling prices (which increased net sales by approximately $128 million) and a 5% increase in sales volumes (which increased net sales by approximately $34 million). TiO_2 selling prices will increase or decrease generally as a result of competitive market pressures, changes in the relative level of supply and demand as well as changes in raw material and other manufacturing costs.

Our sales volumes increased 5% in the first six months of 2017 as compared to the first six months of 2016 primarily due to higher sales in the North American and export markets, partially offset by lower sales in the Latin American market. Our sales volumes in the first half of 2017 set a new overall record for a first-six-month period. In addition to the impact of changes in average TiO_2 selling prices and sales volumes, we estimate that changes in currency exchange rates decreased our net sales by approximately $15 million as compared to the first six months of 2016.

Cost of sales—Cost of sales decreased $0.6 million in the first six months of 2017 compared to the same period in 2016 primarily due to the net impact of a 5% increase in sales volumes, efficiencies related to a 9% increase in TiO_2 production volumes, lower raw materials and other production costs of approximately $14 million and currency fluctuations (primarily the euro). Our cost of sales as a percentage of net sales decreased to 71% in the first six months of 2017 compared to 86% in the same period of 2016 due to the favorable impact of higher average selling prices, lower raw materials and other production costs and efficiencies related to higher production volumes.

Other operating income and expense, net—Other operating income and expense in the first six months of 2016 includes an insurance settlement gain of $3.4 million related to a 2014 business interruption claim.

Gross margin and income from operations—Income from operations increased by $112.2 million in the first six months of 2017 compared to the first six months of 2016. Income from operations as a percentage of net sales increased to 15% in the first six months of 2017 from 2% in the same period of 2016. This increase was driven by the increase in gross margin, which increased to 29% for the first six months of 2017 compared to 14% for the first six months of 2016. As discussed and quantified above, our gross margin increased primarily due to the effects of higher average selling prices, higher sales and production volumes and lower raw materials and other production costs. We estimate that changes in currency exchange rates decreased income from operations by approximately $13 million in the first six months of 2017 as compared to the same period in 2016.

Other non-operating income (expense)—Interest expense decreased $0.7 million, or 7%, in the first six months of 2017 compared to 2016. We currently expect our interest expense for all of 2017 will be comparable to 2016.

Income tax expense (benefit)—We recognized income tax benefit of $120.1 million in the first six months of 2017 compared to an income tax expense of $2.5 million in the first six months of 2016. The difference is primarily due to the effect of the reversal of our deferred income tax asset valuation allowance associated with our German and Belgian operations in 2017, as discussed below. Our earnings are subject to income tax in various United States and non-United States jurisdictions, and the income tax rates applicable to our pre-tax earnings (losses) of our non-United States operations are generally lower than the income tax rates applicable to our United States operations. Excluding the effect of any increase or decrease in our deferred income tax asset valuation allowance, we would generally expect our overall effective tax rate to be lower than the United States federal statutory tax rate of 35% primarily because of our non-United States operations. Our effective income tax rate in the first six months of 2017, excluding the impact of the reversal of the deferred income tax asset valuation allowances we recognized, was higher than the United States federal statutory rate of 35%, primarily due to the income tax effect associated with the expected repatriation in 2017 of certain of our current-year earnings generated by our European subsidiaries. Our effective income tax rate in the first six months of 2016, excluding the impact of the deferred income tax asset valuation allowances we recognized, was also higher than the United States federal statutory rate of 35%. Although we reported positive pre-tax earnings in the first six months of 2016, we recognized a net income tax benefit in the first six months of 2016, excluding the impact of the deferred income tax asset valuation we recognized, primarily because we are required under ASC 740-270 to compute the interim tax provision by calculating an estimated annual effective tax rate. Because the estimate is based on full year income, the tax rate differences may not have a meaningful relationship to quarterly or year-to-date interim pre-tax income and may produce unusual and unexpected relationships to other tax rate reconciling items. Excluding the impact of the deferred income tax asset valuation allowance we recognized, our effective income tax rate and the net income tax benefit recognized in the first six months of 2016 was not indicative of the effective income tax rate or income tax expense (benefit) we expected for the full year of 2016, in part given the near break-even pre-tax results we recognized in the first six months of 2016. See Note 11 to our Unaudited Condensed Consolidated Financial Statements for a tabular reconciliation of our statutory income tax provision to our actual tax provision.

We have substantial net operating loss (NOL) carryforwards in Germany (the equivalent of $638 million for German corporate purposes and $71 million for German trade tax purposes at

December 31, 2016) and in Belgium (the equivalent of $93 million for Belgian corporate tax purposes at December 31, 2016), all of which have an indefinite carryforward period. As a result, we have net deferred income tax assets with respect to these two jurisdictions, primarily related to these NOL carryforwards. The German corporate tax is similar to the United States federal income tax, and the German trade tax is similar to the United States state income tax. Prior to June 30, 2015, and using all available evidence, we had concluded no deferred income tax asset valuation allowance was required to be recognized with respect to these net deferred income tax assets under the more-likely-than-not recognition criteria, primarily because (i) the carryforwards have an indefinite carryforward period, (ii) we utilized a portion of such carryforwards during the most recent three-year period, and (iii) we expected to utilize the remainder of the carryforwards over the long term. We had also previously indicated that facts and circumstances could change, which might in the future result in the recognition of a valuation allowance against some or all of such deferred income tax assets. However, as of June 30, 2015, and given our operating results during the second quarter of 2015 and our expectations at that time for our operating results for the remainder of 2015, which had been driven in large part by the trend in our average TiO_2 selling prices over such periods as well as the $21.1 million pre-tax charge recognized in the second quarter of 2015 in connection with the implementation of certain workforce reductions, we did not have sufficient positive evidence to overcome the significant negative evidence of having cumulative losses in the most recent twelve consecutive quarters in both our German and Belgian jurisdictions at June 30, 2015 (even considering that the carryforward period of our German and Belgian NOL carryforwards is indefinite, one piece of positive evidence). Accordingly, at June 30, 2015, we concluded that we were required to recognize a non-cash deferred income tax asset valuation allowance under the more-likely-than-not recognition criteria with respect to our German and Belgian net deferred income tax assets at such date. We recognized an additional non-cash deferred income tax asset valuation allowance during the second half of 2015 due to losses recognized by our German and Belgian operations during such period. During 2016, we recognized an aggregate $2.2 million non-cash tax benefit as the result of a net decrease in such deferred income tax valuation allowance, as the impact of utilizing a portion of our German NOLs during such period more than offset the impact of additional losses recognized by our Belgian operations during such period. Such valuation allowance aggregated approximately $173 million at December 31, 2016 ($153 million with respect to Germany and $20 million with respect to Belgium). During the first six months of 2017, we recognized an aggregate non-cash income tax benefit of $12.7 million as a result of a net decrease in such deferred income tax asset valuation allowance, due to utilizing a portion of both the German and Belgian NOLs during such period. We continue to believe we will ultimately realize the full benefit of these German and Belgian NOL carryforwards, in part because of their indefinite carryforward period. As previously disclosed, our ability to reverse all or a portion of either the German or Belgian valuation allowance is dependent on the presence of sufficient positive evidence, such as the existence of cumulative profits in the most recent twelve consecutive quarters or profitability in recent quarters during which such profitability was trending upward throughout such period, and the ability to demonstrate future profitability for a sustainable period. As noted below, we determined such conditions were satisfied at June 30, 2017.

Although our Belgian operations were profitable in the first quarter of 2017 and we utilized a portion of the Belgian NOLs during such period, our Belgian operations continued to have cumulative losses in the most recent twelve quarters at March 31, 2017. Although the results of our German operations had improved during 2016 and the first quarter of 2017, indicating a change in the negative trend in earnings that existed at December 31, 2015, and we utilized a portion of our German NOLs during 2016 and the first quarter of 2017, and we had cumulative income with respect to our German operations for the most recent twelve consecutive quarters at March 31, 2017, the sustainability of such positive trend in earnings had not yet been demonstrated at such date. As previously disclosed, while neither our business as a whole nor any of our principal product groups is seasonal to any significant extent, TiO_2 sales are generally higher in the second and third quarters of the year, due in part to the increase in paint production in the spring to meet demand during the spring and summer painting seasons. While we have some insight into the overall demand expected to be generated by a particular year's paint season and TiO_2 pricing at the end of the first quarter (the start of the paint season), we have much greater insight and certainty regarding overall demand and TiO_2 pricing for a particular year's paint season by the end of the second quarter of the year, in part because some factors, such as weather, can have an impact on both overall demand and pricing each year. Accordingly, at March 31, 2017 we did not have sufficient positive evidence to support a sustainable profit trend and consequently, we did not have sufficient positive evidence under the more-likely-than-not recognition criteria to support reversal of the entire valuation allowance related to our German or Belgian operations at such date. During the second quarter of 2017, our German and Belgian operations continued to be profitable, and both reported levels of profitability higher as compared to the first quarter of 2017. As discussed above, our consolidated results of operations in general, and our German and Belgian operations in particular, were favorably impacted during the quarter by, among other things, continued higher average TiO_2 selling prices and higher sales volumes. Our German operations had cumulative income for the most recent twelve consecutive quarters at June 30, 2017. While our Belgian operations had cumulative losses in the most recent twelve consecutive quarters at June 30, 2017, such operations generated income in both the first and second quarters of 2017, with higher income in the second quarter as compared to the first quarter, the amount of cumulative losses of our Belgian operations for the most recent twelve consecutive quarters was lower as of June 30, 2017 as compared to both March 31, 2017 and December 31, 2016 and we expect to have cumulative profits in the third and fourth quarters. Our production facilities have been operating at near practical capacity utilization rates in the first six months of 2017. In addition, consistent with our expectation regarding our consolidated results of operations for the remainder of 2017 (as discussed below under the "Outlook" subsection), we currently believe it is likely our German and Belgian operations will continue to report improved operating results in 2017 as compared to 2016. Accordingly, at June 30, 2017 we concluded we now have sufficient positive evidence under the more-likely-than-not recognition criteria to support reversal of the entire valuation allowance related to our German and Belgian operations. As discussed below, a large portion of the remaining valuation allowance is reversed as of June 30, 2017, but a portion of the remaining valuation allowance will be reversed during the second half of 2017. Such sufficient positive evidence includes, among other things, the existence of cumulative profits in the most recent twelve consecutive quarters (Germany) or profitability in recent quarters during which such profitability was trending upward throughout such period (Belgium), the ability to demonstrate future profitability in Germany and Belgium for a sustainable period (as supported by, among other things, recent trends in profitability, driven in large part by increases in TiO_2 selling prices, and continued strong demand indicating that such profitability trends will continue in the future), and the indefinite carryforward period for the German and Belgian NOLs. Accordingly, our income tax benefit in the first six months of 2017 includes an aggregate non-cash income tax benefit of $149.9 million related to such reversal at June 30, 2017 ($141.9 million related to Germany, and $8.0 million related to Belgium). Such income tax benefit associated with reversal of the German and Belgian valuation allowance excludes the non-cash income tax benefit of $12.7 million, also recognized in the first six months of 2017, as discussed above. In addition to the above amounts, our deferred income tax asset valuation allowance increased by $9.5 million during the first six months of 2017 as a result of changes in currency exchange rates, which was recognized as part of other comprehensive income (loss).

In accordance with the ASC 740-270 guidance regarding accounting for income taxes at interim dates, the amount of the valuation allowance reversed at June 30, 2017 ($149.9 million) relates to our change in judgment regarding the realizability of the related deferred income tax asset as it relates to future years (i.e. 2018 and after). A change in judgment regarding the realizability of deferred tax assets as it relates to the current year is considered in determining the estimated annual effective tax rate for the year. Accordingly, of the aggregate $173 million deferred income tax asset valuation allowance recognized at December 31, 2016, approximately $163 million has been reversed through June 30, 2017, and the remaining $20 million (which relates to the expected level of profitability of our German and Belgian operations in calendar 2017) will be reversed during the third and fourth quarters of 2017 (such aggregate reversal amount includes the $9.5 million increase to our deferred income tax asset valuation allowance as a result of changes in currency exchange rates recognized as part of other comprehensive income (loss)).

Outlook

During the first half of 2017 we operated our production facilities at 100% of practical capacity. We expect our production volumes to be slightly higher in 2017 as compared to 2016, as our production rates in 2017 will be positively impacted by the implementation of certain productivity-enhancing improvement projects at certain facilities. Assuming global economic conditions do not deteriorate, we expect our 2017 sales volumes to be comparable to 2016 sales volumes. We will continue to monitor current and anticipated near-term customer demand levels and align our production and inventories accordingly.

We experienced moderation in the cost of TiO_2 feedstock ore procured from third parties in 2016. However, the cost of third-party feedstock ore we procured in the first half of 2017 was comparable to slightly higher as compared to the first half of 2016, and such higher cost feedstock ore is expected to be reflected in our results of operations beginning in the third quarter of 2017. We expect our cost of sales per metric ton of TiO_2 sold for the full year of 2017 will be slightly higher than our per-metric ton cost in 2016.

We started 2017 with average selling prices 11% higher than the beginning of 2016, and average selling prices increased by an additional 12% in the first six months of 2017. Industry data indicates that overall TiO_2 inventory held by producers declined significantly during 2016. In addition, we believe most customers hold very low inventories of TiO_2 with many operating on a just-in-time basis. With the strong sales volumes experienced in the first half of 2017, we continue to see evidence of strengthening demand for our TiO_2 products in certain of our primary markets. We and our major competitors have announced price increases, which we began implementing in the second quarter of 2016, as contracts have allowed. The extent to which we will be able to achieve any additional price increases in the near term will depend on market conditions.

Overall, we expect income from operations in 2017 will be higher as compared to 2016, principally as a result of expected higher average selling prices in 2017 as compared to 2016 and to a lesser extent from the favorable effects of anticipated higher production volumes in 2017. In addition, and as discussed above, we recognized a non-cash tax benefit of $162.6 million in the first six months of 2017 (including $157.6 million in the second quarter of 2017) related to our deferred income tax asset valuation allowance associated with our German and Belgian operations, and we expect the remaining valuation allowance of $20 million will be reversed during the third and fourth quarters of 2017.

Due to the constraints of high capital costs and extended lead time associated with adding significant new TiO_2 production capacity, especially for premium grades of TiO_2 products produced from the chloride process, we believe increased and sustained profit margins will be necessary to financially justify major expansions of TiO_2 production capacity required to meet expected future growth in demand. As a result of relative customer inventory levels during the recent past and the resulting adverse effect on global TiO_2 pricing, some industry projects to increase TiO_2 production capacity have been cancelled or deferred indefinitely, and announcements have been made regarding the closure of certain facilities. Given the lead time required for production capacity expansions, a shortage of TiO_2 could occur if economic conditions improve and global demand levels for TiO_2 increase sufficiently.

Our expectations for our future operating results are based upon a number of factors beyond our control, including worldwide growth of gross domestic product, competition in the marketplace, continued operation of competitors, unexpected or earlier-than-expected capacity additions or reductions and technological advances. If actual developments differ from our expectations, our results of operations could be unfavorably affected.

Comparison of Year Ended December 31, 2016 to Year Ended December 31, 2015

	Year ended December 31,			
	2015		2016	
	(Dollars in millions)			
Net sales	$1,348.8	100%	$1,364.3	100%
Cost of sales	1,156.5	86	1,107.3	81
Gross margin	192.3	14	257.0	19
Other operating income and expense, net	193.4	14	175.9	13
Income (loss) from operations	$ (1.1)	—%	$ 81.1	6%

	2015	2016	% Change
TiO_2 operating statistics:			
Sales volumes*	525	559	7%
Production volumes*	528	546	3%
Percentage change in net sales:			
TiO_2 product pricing			(3)%
TiO_2 sales volumes			7
TiO_2 product mix/other			(2)
Changes in currency exchange rates			(1)
Total			1%

* Thousands of metric tons

2016 overview—Due to competitive pressures, our average selling prices decreased throughout 2015 and, to a much lesser extent, into the first quarter of 2016. Our average selling prices at the beginning of 2016 were 17% lower as compared to the beginning of 2015. In the second quarter of 2016, our average selling prices began to rise due to the successful implementation of previously-announced price increases and average selling prices continued to rise through the remainder of 2016. Our average selling prices at the end of 2016 were 10% higher than at the end of 2015, with higher prices in all major markets, most notably in export markets. We experienced higher sales volumes in North American, European and export markets in 2016 as compared to 2015, partially offset by lower sales volumes in the Latin American market in 2016 as compared to 2015.

The following table shows our capacity utilization rates during 2015 and 2016.

	2015	2016
First Quarter	93%	97%
Second Quarter	100%	95%
Third Quarter	95%	100%
Fourth Quarter	92%	100%
Overall	95%	98%

Our production rates in the first and fourth quarters of 2015 were impacted by the implementation of certain productivity-enhancing improvement projects at certain facilities, as well as necessary improvements to ensure continued compliance with our permit regulations, which resulted in longer-than-normal maintenance shutdowns in some instances.

We continued to experience moderation in the cost of TiO_2 feedstock ore procured from third parties in 2015 and 2016. Our cost of sales per metric ton of TiO_2 sold declined throughout 2015 and 2016 due to the moderation in the cost of TiO_2 feedstock and the cost savings achieved from the 2015 implementation of a restructuring plan discussed below. Consequently, our cost of sales per metric ton of TiO_2 sold in 2016 was slightly lower than our cost of sales per metric ton of TiO_2 sold in 2015 (excluding the effect of changes in currency exchange rates).

In the second quarter of 2015, we initiated a restructuring plan designed to improve our long-term cost structure. A portion of such expected cost savings are planned to occur through workforce reductions. During the second, third and fourth quarters of 2015, we implemented certain voluntary and involuntary workforce reductions at certain of our facilities impacting approximately 160 individuals. We recognized an aggregate $21.7 million charge in 2015 (substantially all of which was recognized in the second quarter) for such workforce reductions we had implemented through December 31, 2015, $10.8 million of which is classified as part of cost of sales and $10.9 million of which is classified in selling, general and administrative expense. The charge associated with the workforce reductions implemented in the third and fourth quarters of 2015, which impacted approximately 50 individuals, was not material due to the applicable law affecting such individuals, which generally provides for a short notice period (if any) and the payment of a nominal amount of severance (if any). See Note 13 to our Audited Consolidated Financial Statements.

Net sales—Our net sales increased 1% or $15.5 million in 2016 compared to 2015, primarily due to the net effect of a 7% increase in sales volumes (which increased net sales by approximately $94 million) and a 3% decrease in average TiO_2 selling prices (which decreased net sales by approximately $40 million). TiO_2 selling prices will increase or decrease generally as a result of competitive market pressures, changes in the relative level of supply and demand as well as changes in raw material and other manufacturing costs.

Our sales volumes increased primarily due to higher sales in North American, European and export markets partially offset by lower sales in the Latin American market. Our sales volumes in 2016 set a new overall record for a full-year period. We estimate that changes in currency exchange rates decreased our net sales by approximately $9 million, or 1%, as compared to 2015.

Cost of sales—Cost of sales decreased $49.2 million or 4% in 2016 compared to 2015 due to the net impact of lower raw materials and other production costs of approximately $76 million (primarily caused by the lower third-party feedstock ore costs, as discussed above), approximately $4.6 million in savings resulting from workforce reductions implemented in 2015, a 3% increase in TiO_2 production volumes and currency fluctuations (primarily the euro). In addition, cost of sales in 2015 includes approximately $10.8 million of severance costs related to the workforce reduction plan discussed above.

Our cost of sales as a percentage of net sales decreased to 81% in 2016 compared to 86% in 2015, as the favorable effects of lower raw materials and other production costs, efficiencies related to higher production volumes, and the impact of the $10.8 million workforce reduction charge classified in cost of sales in 2015 and associated cost savings from such workforce reduction realized in 2016 more than offset the unfavorable impact of lower average selling prices, as discussed above.

Other operating income and expense, net—Other operating income and expense, net in 2016 was $175.9 million, a decrease of $17.5 million compared to 2015. Other operating income and expense, net in 2015 included $10.9 million of severance costs related to workforce reductions classified in selling, general and administrative expense. Other operating income and expense, net in 2016 includes the favorable impact of approximately $5.6 million in cost savings realized from the workforce reductions implemented in 2015 along with income aggregating $4.3 million related to insurance settlement gains from two separate business interruption claims.

Gross margin and income (loss) from operations—Income from operations increased by $82.2 million, from a loss from operations of $1.1 million in 2015 to income from operations of $81.1 million in 2016. Income (loss) from operations as a percentage of net sales increased to 6% in 2016 from less than 1% in 2015. This increase was driven by the increase in gross margin, which increased to 19% in 2016 compared to 14% in 2015, as well as the impact of the $10.9 million 2015 workforce reduction charge classified in selling, general and administrative expense and the associated cost savings from such workforce reductions realized in 2016 of $5.6 million, and the income aggregating $4.3 million related to insurance settlement gains from two separate business interruption claims. As discussed and quantified above, our gross margin increased primarily due to the net effect of lower selling prices, lower raw material and other production costs (including 2015 workforce reduction charges of $10.8 million classified as cost of sales and the associated $4.6 million of cost savings from such workforce reduction realized in 2016), higher sales volumes and higher production volumes. We estimate that changes in currency exchange rates increased income from operations by approximately $14 million in 2016 as compared to 2015.

Selling, general and administrative expenses were approximately 13% of net sales in 2016 and 2015.

Other non-operating income (expense)—We recognized a $12.0 million pre-tax impairment charge in the third quarter of 2015 due to other-than-temporary impairment on our investment in a marketable equity security available for sale. See Note 6 to our Audited Consolidated Financial Statements.

Interest expense increased $2.0 million from $18.5 million in 2015 to $20.5 million in 2016 primarily due to the interest rate swap contract which was effective September 30, 2015 and higher average debt levels in 2016. See Note 8 to our Audited Consolidated Financial Statements.

Income tax expense—We recognized income tax expense of $17.9 million in 2016 compared to income tax expense of $142.8 million in 2015. As discussed above, our income tax expense in 2015 includes an aggregate non-cash deferred income tax expense of $159.0 million related to the recognition of a deferred income tax asset valuation for our German and Belgian operations (mostly recognized in the second quarter), while our income tax expense in 2016 includes an aggregate $2.2 million non-cash tax benefit as the result of a net decrease in such deferred income tax valuation allowance. Our earnings are subject to income tax in various United States and non-United States jurisdictions, and the income tax rates applicable to our pre-tax earnings (losses) of our non-United States operations is generally lower than the income tax rates applicable to our United States operations. Our income tax expense in 2016 includes a $3.4 million current income tax benefit related to the execution and finalization of an Advance Pricing Agreement between the United States and Canada. Excluding the effect of any increase or decrease in our deferred income tax asset valuation allowance, we would generally expect our overall effective tax rate to be lower than the United States federal statutory rate of 35% primarily because of our non-United States operations. Our effective income tax rate in 2015, excluding the impact of the deferred income tax asset valuation allowances we recognized, was higher than the United States federal statutory tax rate of 35%, primarily due to a current United States income tax benefit attributable to current year losses of one of our non-United States subsidiaries. Our effective income tax rate in 2016, excluding the impact of the deferred income tax asset valuation allowances we recognized and the change to prior year tax as discussed above, was higher than the United States federal statutory rate of 35% primarily due to a fourth quarter increase in our reserve for uncertain tax positions. See Note 14 to our Audited Consolidated Financial Statements for a tabular reconciliation of our statutory income tax provision to our actual tax provision.

Comparison of Year Ended December 31, 2015 to Year Ended December 31, 2014

	Year ended December 31,			
	2014		2015	
	(Dollars in millions)			
Net sales	$1,651.9	100%	$1,348.8	100%
Cost of sales	1,302.2	79	1,156.5	86
Gross margin	349.7	21	192.3	14
Other operating income and expense, net	200.0	12	193.4	14
Income (loss) from operations	$ 149.7	9%	$ (1.1)	—%

	2014	2015	% Change
TiO_2 operating statistics:			
Sales volumes*	496	525	6%
Production volumes*	511	528	3%
Percentage change in net sales:			
TiO_2 product pricing			(14)%
TiO_2 sales volumes			6
TiO_2 product mix/other			(2)
Changes in currency exchange rates			(8)
Total			(18)%

* Thousands of metric tons

Net sales—Our net sales decreased 18% or $303.1 million in 2015 compared to 2014, primarily due to the net effect of a 14% decrease in average TiO_2 selling prices (which decreased net sales by approximately $231 million) and a 6% increase in sales volumes (which increased net sales by approximately $99 million). TiO_2 selling prices will increase or decrease generally as a result of competitive market pressures, changes in the relative level of supply and demand as well as changes in raw material and other manufacturing costs.

Our sales volumes increased primarily due to higher sales in certain European and export markets, partially offset by lower sales in North American markets. We estimate that changes in currency exchange rates decreased our net sales by approximately $138 million, or 8%, as compared to 2014.

Cost of sales—Cost of sales decreased $145.7 million or 11% in 2015 compared to 2014 due to the net impact of lower raw materials and other production costs of approximately $26 million (primarily caused by the lower third-party feedstock ore costs, as discussed above), a 3% increase in TiO_2 production volumes and currency fluctuations (primarily the euro). In addition, cost of sales in 2015 includes approximately $10.8 million of severance costs related to the workforce reduction plan discussed above.

Our cost of sales as a percentage of net sales increased to 86% in 2015 compared to 79% in 2014, as the unfavorable impact of lower average selling prices and the workforce reduction charge more than offset the favorable effects of lower raw material costs and efficiencies related to higher production volumes, as discussed above.

Gross margin and income (loss) from operations—Income from operations decreased by $150.8 million, from income of $149.7 million in 2014 to a loss from operations of $1.1 million in 2015. Income (loss) from operations as a percentage of net sales decreased to less than 1% in 2015 from 9% in 2014. This decrease was driven by the decline in gross margin, which decreased to 14% in 2015 compared to 21% in 2014, as well as the negative impact of the workforce reduction charge classified as part of other operating expense ($10.9 million). As discussed and quantified above, our gross margin decreased primarily due to the net effect of lower selling prices, workforce reduction costs classified as part of cost of sales ($10.8 million), lower manufacturing costs (primarily raw materials), higher production volumes, and higher sales volumes. We estimate that changes in currency exchange rates increased income from operations by approximately $40 million in 2015 as compared to 2014.

Selling, general and administrative expenses were approximately 13% and 12% of net sales for 2015 and 2014, respectively. As discussed above, the relative increase in 2015 is primarily due to the workforce reduction charge classified as part of selling, general and administrative expense ($10.9 million).

Other non-operating income (expense)—We recognized a $12.0 million pre-tax impairment charge in the third quarter of 2015 due to other-than-temporary impairment on our investment in a marketable equity security available for sale. See Note 6 to our Audited Consolidated Financial Statements.

Interest expense increased $1.5 million from $17.0 million in 2014 to $18.5 million in 2015 primarily due to higher average debt levels mostly offset by lower average interest rates in 2015. See Note 8 to our Audited Consolidated Financial Statements.

Income tax expense—We recognized income tax expense of $142.8 million in 2015 compared to income tax expense of $34.5 million in 2014. As discussed above, our income tax expense in 2015 includes an aggregate non-cash deferred income tax expense of $159.0 million related to the recognition of a deferred income tax asset valuation allowance for our German and Belgian operations (mostly recognized in the second quarter).

In 2014, our income tax expense was favorably impacted by an aggregate non-cash income tax benefit of $5.1 million related to a net reduction in our reserve for uncertain tax positions. Our earnings are subject to income tax in various United States and non-United States jurisdictions, and the income tax rates applicable to our pre-tax earnings (losses) of our non-United States operations are generally lower than the income tax rates applicable to our United States operations. Excluding the impact of the net reduction in our reserve for uncertain tax positions in 2014, our effective tax rate in such period was lower than the United States federal statutory tax rate of 35% primarily due to our non-United States earnings. Our effective income tax rate in 2015, excluding the impact of the deferred income tax asset valuation allowance, was higher than the United States federal statutory tax rate of 35%, primarily due to a current United States income tax benefit attributable to current year losses of one of our non-United States subsidiaries. See Note 14 to our Audited Consolidated Financial Statements for a tabular reconciliation of our statutory income tax provision to our actual tax provision.

Effects of Currency Exchange Rates

We have substantial operations and assets located outside the United States (primarily in Germany, Belgium, Norway and Canada). The majority of our sales from non-United States operations are denominated in currencies other than the United States dollar, principally the euro, other major European currencies and the Canadian dollar. A portion of our sales generated from our non-United States operations is denominated in the United States dollar (and consequently our non-United States operations will generally hold United States dollars from time to time). Certain raw materials used worldwide, primarily titanium-containing feedstocks, are purchased primarily in United States dollars, while labor and other production costs are purchased primarily in local currencies. Consequently, the translated United States dollar value of our non-United States sales and operating results are subject to currency exchange rate fluctuations which may favorably or unfavorably impact reported earnings and may affect the comparability of period-to-period operating results. In addition to the impact of the translation of sales and expenses over time, our non-United States operations also generate currency transaction gains and losses which primarily relate to (i) the difference between the currency exchange rates in effect when non-local currency sales or operating costs (primarily United States dollar denominated) are initially accrued and when such amounts are settled with the non-local currency, (ii) changes in currency exchange rates during time periods when our non-United States operations are holding non-local currency (primarily United States dollars), and (iii) relative changes in the aggregate fair value of currency forward contracts held from time to time. As discussed in Note 18 to our Audited Consolidated Financial Statements and Note 14 to our Unaudited Condensed Consolidated Financial Statements, we periodically use currency forward contracts to manage a portion of our currency exchange risk, and relative changes in the aggregate fair value of any currency forward contracts we hold from time to time serves in part to mitigate the currency transaction gains or losses we would otherwise recognize from the first two items described above.

Overall, we estimate that fluctuations in currency exchange rates had the following effects on our sales and income from operations for the periods indicated.

	Impact of changes in currency exchange rates six months ended June 30, 2017 vs June 30 2016				
	Transaction gains/losses recognized			Translation gain/loss-impact of rate changes	Total currency impact 2017 vs 2016
	2016	2017	Change		
	(In millions)				
Impact on:					
Net sales	$—	$—	$—	$(15)	$(15)
Income from operations	4	(4)	(8)	(5)	(13)

The $15 million reduction in net sales (translation loss) was caused primarily by a strengthening of the United States dollar relative to the euro, as our euro-denominated sales were translated into fewer United States dollars in 2017 as compared to 2016. The strengthening of the United States dollar relative to the Canadian dollar and the Norwegian krone in 2017 did not have a significant effect on the reported amount of our net sales, as a substantial portion of the sales generated by our Canadian and Norwegian operations are denominated in the United States dollar.

The $13 million net decrease in income from operations comprised the following:

- Approximately $8 million from net currency transaction losses caused primarily by relative changes in currency exchange rates at each applicable balance sheet date between the United States dollar and the euro, Canadian dollar and the Norwegian krone, which causes increases or decreases, as applicable, in United States dollar-denominated receivables and payables and United States dollar currency held by our non-United States operations, and
- Approximately $5 million of net currency translation losses caused primarily by a strengthening of the United States dollar relative to the euro, as such translation had a negative effect on income from operations in 2017 as compared to 2016, as the negative impact of the stronger United States dollar on euro-denominated sales more than offset the favorable effect of euro-denominated operating costs being translated into fewer United States dollars in 2017 as compared to 2016, along with the effects of a slight strengthening of the United States dollar relative to the Canadian dollar and the Norwegian krone in 2017 as compared to 2016.

Impact of changes in currency exchange rates—2016 vs. 2015

	Transaction gains/(losses) recognized			Translation gain/loss-impact of rate changes	Total currency impact 2016 vs. 2015
	2015	2016	Change		
			(In millions)		
Impact on:					
Net sales	$—	$—	$—	$(9)	$ (9)
Income from operations	—	6	6	8	14

The $9 million reduction in net sales (translation loss) was caused primarily by a strengthening of the United States dollar relative to the euro, as our euro-denominated sales were translated into fewer United States dollars in 2016 as compared to 2015. The strengthening of the United States dollar relative to the Canadian dollar and the Norwegian krone in 2016 did not have a significant effect on the reported amount of our net sales, as a substantial portion of the sales generated by our Canadian and Norwegian operations are denominated in the United States dollar.

The $14 million increase in income from operations was comprised of the following:

- Approximately $6 million from net currency transaction gains primarily caused by a strengthening of the United States dollar relative to the euro, Norwegian krone and Canadian dollar, as United States dollar-denominated receivables and United States dollar currency held by our non-United States operations became equivalent to a greater amount of local currency in 2016 as compared to 2015, and
- Approximately $8 million from net currency translation gains caused primarily by a strengthening of the United States dollar relative to the Canadian dollar and the Norwegian krone, as their local currency-denominated operating costs were translated

into fewer United States dollars in 2016 as compared to 2015 (and such translation, as it related to the United States dollar relative to the euro, had a negative effect on income from operations in 2016 as compared to 2015, as the negative impact of the stronger United States dollar on euro-denominated sales more than offset the favorable effect of euro-denominated operating costs being translated into fewer United States dollars in 2016 compared to 2015).

Impact of changes in currency exchange rates—2015 vs. 2014

	Transaction gains/(losses) recognized			Translation gain/loss-impact of rate changes	Total currency impact 2015 vs. 2014
	2014	2015	Change		
			(In millions)		
Impact on:					
Net sales	$—	$—	$—	$(138)	$(138)
Income from operations	4	—	(4)	44	40

The $138 million reduction in net sales (translation loss) was caused primarily by a strengthening of the United States dollar relative to the euro, as our euro-denominated sales were translated into fewer United States dollars in 2015 as compared to 2014. The strengthening of the United States dollar relative to the Canadian dollar and the Norwegian krone in 2015 did not have a significant effect on the reported amount of our net sales, as a substantial portion of the sales generated by our Canadian and Norwegian operations are denominated in the United States dollar.

The $40 million increase in income from operations comprised the following net effects:

- A reduction in the amount of net currency transaction gains during the two periods of approximately $4 million. Such net currency transaction gains (losses) result primarily from United States dollar-denominated receivables and United States dollar currency held by our non-United States operations, which are translated into the applicable local currency at each balance sheet date. During 2014, a relative strengthening of the United States dollar relative to the euro and the Norwegian krone gave rise to a net $4 million currency transaction gain, whereas we recognized a nominal currency transaction loss during 2015, and
- Approximately $44 million from net currency translation gains caused primarily by a strengthening of the United States dollar relative to the Canadian dollar and the Norwegian krone, as their local currency-denominated operating costs were translated into fewer United States dollars in 2015 as compared to 2014. Overall, the strengthening of the United States dollar relative to the euro in 2015 did not have a significant impact on our income from operations, as the reduction in net sales caused by such strengthening was substantially offset by the effect of our euro-denominated operating costs being translated into fewer United States dollars.

Liquidity and Capital Resources

Consolidated Cash Flows

Operating activities

Trends in cash flows as a result of our operating activities (excluding the impact of significant asset dispositions and relative changes in assets and liabilities) are generally similar to trends in our earnings. In addition to the impact of the operating, investing and financing cash flows discussed below, changes in the amount of cash, cash equivalents and restricted cash we report from year to year can be impacted by changes in currency exchange rates, since a portion of our cash, cash equivalents and restricted cash is held by our non-United States subsidiaries. For example, during 2016, relative changes in currency exchange rates resulted in a $5.3 million decrease in the reported amount of our cash, cash equivalents and restricted cash compared to an $8.5 million decrease in 2015 and a $10.0 million decrease in 2014.

Cash provided by operating activities was $101.6 million in the first six months of 2017 compared to $16.6 million in the first six months of 2016. This $85.0 million increase in the amount of cash provided was primarily due to the net effects of the following:

- higher income from operations in 2017 of $112.2 million,
- higher amount of net cash used associated with relative changes in our inventories, receivables, payables and accruals in 2017 of $26.0 million as compared to 2016,
- higher cash paid for taxes of $5.3 million due to our improved earnings, and
- higher net distributions from our TiO_2 manufacturing joint venture in 2017 of $1.8 million, primarily due to the timing of the joint venture's working capital needs.

Cash provided by operating activities was $89.6 million in 2016 compared to $52.1 million in 2015. This $37.5 million increase in the amount of cash provided was primarily due to the net effects of the following:

- higher income from operations in 2016 of $82.2 million,
- a higher amount of net cash used associated with relative changes in our inventories, receivables, payables and accruals in 2016 of $34.0 million as compared to 2015,
- lower net distributions from our TiO_2 manufacturing joint venture in 2016 of $2.9 million, primarily due to the timing of the joint venture's working capital needs, and
- higher cash paid for income taxes in 2016 of $5.2 million due to increased profits.

Cash provided by operating activities was $52.1 million in 2015 compared to $87.7 million in 2014. This $35.6 million decrease was primarily due to the net effects of the following:

- lower income from operations in 2015 of $150.8 million,
- lower cash used in 2015 of $122.6 million associated with relative changes in our inventories, receivables, prepaids, payables and accruals,
- lower net cash paid for income taxes in 2015 of $16.1 million due to decreased profits,
- lower net distributions from our TiO_2 joint venture in 2015 of $4.1 million, primarily due to the timing of the joint venture's working capital needs, and
- higher cash paid for interest in 2015 of $1.9 million, primarily due to higher average debt levels mostly offset by lower average interest rates on borrowings.

Changes in working capital are affected by accounts receivable and inventory changes. As shown below:

- Our average days sales outstanding, or DSO, increased slightly from December 31, 2016 to June 30, 2017, primarily as a result of relative changes in the timing of collections.
- Our average days sales outstanding, or DSO, was slightly lower from December 31, 2015 to December 31, 2016, primarily as a result of relative changes in the timing of collections.

- Our average days sales in inventory, or DSI, decreased from December 31, 2016 to June 30, 2017 principally due to higher sales volumes in the second quarter of 2017 compared to the fourth quarter of 2016 while production volumes were comparable.
- Our average days sales in inventory, or DSI, decreased from December 31, 2015 to December 31, 2016, due to lower inventory volumes and lower inventory raw material costs.

For comparative purposes, we have also provided comparable prior year numbers below. Our DSO's will generally average around 65 days throughout the year.

	December 31, 2015	June 30, 2016	December 31, 2016	June 30, 2017
DSO	66 days	66 days	65 days	68 days
DSI	80 days	55 days	71 days	52 days

	December 31, 2014	December 31, 2015	December 31, 2016
DSO	61 days	66 days	65 days
DSI	76 days	80 days	71 days

Investing activities

Our capital expenditures of $23.7 million and $26.6 million in the first six months of 2016 and 2017, respectively, were primarily to maintain and improve the cost effectiveness of our manufacturing facilities. In addition, approximately $5.4 million and $8.7 million, respectively, of such capital expenditures relate to the implementation of a new accounting and manufacturing system.

Our capital expenditures were $61.2 million in 2014, $47.1 million in 2015 and $53.0 million in 2016. Capital expenditures are primarily incurred to maintain and improve the cost effectiveness of our manufacturing facilities. In addition, approximately $18.1 million ($13.4 million in 2016) of our capital expenditures during the past two years relates to the implementation of a new accounting and manufacturing software system. Our capital expenditures during the past three years include an aggregate of approximately $30.9 million (including $11.7 million in 2016) for our ongoing environmental protection and compliance programs.

Financing activities

During the first six months of 2017, we:

- paid quarterly dividends to stockholders aggregating $34.8 million,
- borrowed a net $16.3 million under our North American Revolving Credit Facility ($160.8 million of gross borrowings and $144.5 million of gross repayments), and
- repaid $1.8 million on our term loan.

During 2016, we:

- paid quarterly dividends to stockholders aggregating $69.5 million,
- borrowed $266.2 million under our revolving North American Revolving Credit Facility and subsequently repaid $266.2 million, and
- repaid $3.5 million on our term loan.

During 2015, we paid quarterly dividends aggregating $69.5 million.

During 2014, we:

- borrowed $348.3 million on our new term loan and subsequently repaid $2.6 million,
- repaid $170.0 million under our note payable with Contran,
- borrowed $81.0 million on our revolving North American credit facility and subsequently repaid $92.1 million,
- borrowed $1.1 million from a Canadian economic development agency, and
- paid quarterly dividends to stockholders aggregating $69.5 million.

In August 2017, our board of directors declared a third quarter 2017 regular quarterly dividend of $0.15 per share, payable September 21, 2017 to stockholders of record as of September 5, 2017.

Outstanding debt obligations and borrowing availability

At June 30, 2017, our consolidated debt comprised:

- $338.6 million aggregate borrowing under our term loan ($334.9 million carrying amount, net of unamortized original issue discount and debt issuance costs) due in February 2020,
- $16.3 million outstanding on our North American Revolving Credit Facility, and
- approximately $3.2 million of other indebtedness.

Our North American Revolving Credit Facility and European Credit Facility and our Term Loan Facility contain a number of covenants and restrictions which, among other things, restrict our ability to incur additional debt, incur liens, pay dividends or merge or consolidate with, or sell or transfer substantially all of our assets to, another entity, and contains other provisions and restrictive covenants customary in lending transactions of this type. Certain of our credit agreements contain provisions which could result in the acceleration of indebtedness prior to their stated maturity for reasons other than defaults for failure to comply with typical financial or payment covenants. For example, certain credit agreements allow the lender to accelerate the maturity of the indebtedness upon a change of control (as defined in the agreement) of the borrower. In addition, certain credit agreements could result in the acceleration of all or a portion of the indebtedness following a sale of assets outside the ordinary course of business. Our European Credit Agreement also requires the maintenance of certain financial ratios, and one of such requirements is based on the ratio of net debt to the last twelve months EBITDA of the borrowers. The terms of all of our debt instruments are discussed in Note 8 to our Audited Consolidated Financial Statements. We are in compliance with all of our debt covenants at June 30, 2017. We believe that we will be able to continue to comply with the financial covenants contained in our Credit Facilities through their maturity.

In January 2017, we extended the maturity date of our North American Revolving Credit Facility to the earlier of (i) January 2022 or (ii) 90 days prior to the maturity date of our existing Term Loan Facility (or 90 days prior to the maturity date of any indebtedness incurred in a permitted refinancing of such existing Term Loan Facility). Our European Credit Facility matures in September 2017 and we believe we will be able to obtain an extension of this credit facility to September 2022 in the normal course of business on or prior to its maturity date. We expect to reduce the size of the European Credit Facility from €120.0 million to €90.0 million concurrent with the extension.

At June 30, 2017, we had approximately $91.4 million available for additional borrowing under our North American Revolving Credit Facility. Based on the terms of our European Credit Facility (including the net debt to EBITDA financial test discussed above) and the borrowers' EBITDA over the last twelve months ended June 30, 2017, the full €120.0 million amount of the European Credit Facility ($137.1 million based on the exchange rate as of June 30, 2017 of $1.1424 United States dollars per Euro) is available for borrowing at June 30, 2017. We could borrow all available amounts under each of our Credit Facilities without violating our existing debt covenants.

Our assets consist primarily of investments in operating subsidiaries, and our ability to service parent-level obligations, including our Term Loan Facility, depends in part upon the distribution of earnings of our subsidiaries, whether in the form of dividends, advances or payments on account of intercompany obligations or otherwise. Our Term Loan Facility is collateralized by, among other things, a first priority lien on (i) 100% of the common stock of certain of our United States wholly-owned subsidiaries, (ii) 65% of the common stock or other ownership interest of our Canadian subsidiary (Kronos Canada, Inc.) and certain first-tier European subsidiaries (Kronos Titan GmbH and Kronos Denmark ApS) and (iii) a $395.7 million unsecured promissory note issued by Kronos International, Inc., which will be satisfied in connection with the repayment of the Term Loan Facility. The Term Loan Facility is also collateralized by a second priority lien on our United States assets which collateralize our North American Revolving Credit Facility. Our North American Revolving Credit Facility is collateralized by, among other things, a first priority lien on the borrower's trade receivables and inventories. Our European Credit Facility is collateralized by, among other things, the accounts receivable and inventories of the borrowers plus a limited pledge of all the other assets of the Belgian borrower.

Liquidity

Our primary source of liquidity on an ongoing basis is cash flows from operating activities which is generally used to (i) fund capital expenditures, (ii) repay any short-term indebtedness incurred for working capital purposes and (iii) provide for the payment of dividends. From time-to-time we will incur indebtedness, generally to (i) fund short-term working capital needs, (ii) refinance existing indebtedness or (iii) fund major capital expenditures or the acquisition of other assets outside the ordinary course of business. We will also from time-to-time sell assets outside the ordinary course of business and use the proceeds to (i) repay existing indebtedness, (ii) make investments in marketable and other securities, (iii) fund major capital expenditures or the acquisition of other assets outside the ordinary course of business or (iv) pay dividends.

The TiO_2 industry is cyclical, and changes in industry economic conditions significantly impact earnings and operating cash flows. Changes in TiO_2 pricing, production volumes and customer demand, among other things, could significantly affect our liquidity.

We routinely evaluate our liquidity requirements, alternative uses of capital, capital needs and availability of resources in view of, among other things, our dividend policy, our debt service, our capital expenditure requirements and estimated future operating cash flows. As a result of this process, we have in the past and may in the future seek to reduce, refinance, repurchase or restructure indebtedness, raise additional capital, repurchase shares of our common stock, modify our dividend policy, restructure ownership interests, sell interests in our subsidiaries or other assets, or take a combination of these steps or other steps to manage our liquidity and capital resources. Such activities have in the past and may in the future involve related companies. In the normal course of our business, we may investigate, evaluate, discuss and engage in acquisition, joint venture, strategic relationship and other business combination opportunities in the TiO_2 industry. In the event of any future acquisition or joint venture opportunity, we may consider using then-available liquidity, issuing our equity securities or incurring additional indebtedness.

Based upon our expectation for the TiO_2 industry and anticipated demands on cash resources, we expect to have sufficient liquidity to meet our short term obligations (defined as the twelve-month period ending June 30, 2018) and our long-term obligations (defined as the five-year period ending June 30, 2022, our time period for long-term budgeting). If actual developments differ from our expectations, our liquidity could be adversely affected.

Cash, cash equivalents, restricted cash and marketable securities

At June 30, 2017 we had:

	Held by		
	U.S. entities	Non-U.S. entities	Total
		(In millions)	
Cash and cash equivalents	.3	115.1	115.4
Restricted cash	—	1.3	1.3
Noncurrent marketable securities	5.2	—	5.2

Stock repurchase program

At June 30, 2017, we have 1,951,000 shares available for repurchase under a stock repurchase program authorized by our board of directors. See Note 15 to our Audited Consolidated Financial Statements.

Capital expenditures

We intend to spend approximately $65 million primarily to maintain and improve our existing facilities during 2017 (including the $26.6 million we have spent in the first six months of 2017), including approximately $14 million in the area of environmental compliance, protection and improvement, and $13 million related to the implementation of a new accounting and manufacturing system. Our capital expenditures in the area of environmental compliance, protection and improvement include expenditures which are primarily focused on increased operating efficiency but also result in improved environmental protection, such as lower emissions from our manufacturing plants. Capital spending for 2017 is expected to be funded through cash on hand or borrowing under our existing Credit Facilities.

Off-balance sheet financing

Other than operating lease commitments disclosed in Note 17 to our Audited Consolidated Financial Statements, we are not party to any material off-balance sheet financing arrangements.

Related Party Transactions

We are party to certain transactions with related parties. See "Certain Relationships and Related Party Transactions" and Note 16 to our Audited Consolidated Financial Statements. It is our policy to engage in transactions with related parties on terms, in our opinion, no less favorable to us than could be obtained from unrelated parties.

Commitments and Contingencies

See Notes 14 and 17 to our Audited Consolidated Financial Statements and Note 13 to our Unaudited Condensed Consolidated Financial Statements for a description of certain income tax examinations currently underway, certain legal proceedings and other commitments.

Recent Accounting Pronouncements

See Note 19 to our Audited Consolidated Financial Statements and Note 15 to our Unaudited Condensed Consolidated Financial Statements.

Debt and Other Contractual Commitments

As more fully described in the Notes to the Audited Consolidated Financial Statements, we are a party to various debt, lease and other agreements which contractually and unconditionally commit us to pay certain amounts in the future. See Notes 8, 16, 17 and 18 to our Audited Consolidated Financial Statements. The timing and amount shown for our commitments in the table below are based upon the contractual payment amount and the contractual payment date for such commitments. The following table summarizes such contractual commitments of ours and our consolidated subsidiaries as of December 31, 2016.

	Payment due date				
Contractual commitment	**2017**	**2018/ 2019**	**2020/ 2021**	**2022 and after**	**Total**
			(In millions)		
Indebtedness:					
Principal(1)	$ 3.6	$ 8.3	$331.2	$ .7	$ 343.8
Interest payments(2)	17.2	34.0	2.2	—	53.4
Operating leases	10.8	11.3	7.6	23.3	53.0
Long-term supply contracts for the purchase of TiO_2 feedstock(3)	326.5	278.9	—	—	605.4
Long-term service and other supply contracts(4)	49.9	73.0	22.9	12.2	158.0
Fixed asset acquisitions	17.1	—	—	—	17.1
Estimated tax obligations(5)	8.3	—	—	—	8.3
	$433.4	$405.5	$363.9	$36.2	$1,239.0

(1) At December 31, 2016, a significant portion of the amount shown for indebtedness relates to our term loan ($340.4 million at December 31, 2016 which includes $4.5 million unamortized original issue discount and debt issuance costs). The timing and amount shown for principal payments on our term loan is based on the mandatory contractual principal repayment schedule, and assumes no voluntary prepayments. See "Quantitative and Qualitative Disclosures About Market Risk" below and Note 8 to the Audited Consolidated Financial Statements.

(2) The amounts shown for interest payments relate to outstanding variable-rate indebtedness, and reflect the net impact of the associated interest rate swap. Interest payments assume that variable-rate indebtedness remains outstanding until maturity.

(3) Our contracts for the purchase of TiO_2 feedstock contain fixed quantities that we are required to purchase, or specify a range of quantities within which we are required to purchase based on our feedstock requirements. The pricing under these agreements is generally negotiated quarterly or semi-annually. The timing and amount shown for our commitments related to the supply contracts for TiO_2 feedstock are based upon our current estimate of the quantity of material that will be purchased in each time period shown, the payment that would be due based upon such estimated purchased quantity and an estimate of the prices for the various suppliers which is primarily based on first half 2017 pricing. The actual amount of material purchased and the actual amount that would be payable by us, may vary from such estimated amounts. Our obligation for the purchase of TiO_2 feedstock is more fully described in Note 17 to our Audited Consolidated Financial Statements and below in "Business—Raw Materials." The amounts shown in the table above include the feedstock ore requirements from contracts we entered into through February 2017.

(4) The amounts shown for the long-term service and other supply contracts primarily pertain to agreements we have entered into with various providers of products or services which help to run our plant facilities (electricity, natural gas, etc.), utilizing December 31, 2016 exchange rates. See Note 17 to our Audited Consolidated Financial Statements.
(5) The amount shown for estimated tax obligations is the consolidated amount of income taxes payable at December 31, 2016 (including our reserve for uncertain tax positions classified as a current liability at such date), which are assumed to be paid during 2017.

The above table does not reflect:

- Any amounts we might pay to fund our defined benefit pension plans and OPEB plans, as the timing and amount of any such future fundings are unknown and dependent on, among other things, the future performance of defined benefit pension plan assets, interest rate assumptions and actual future retiree medical costs. We expect to be required to contribute an aggregate of approximately $15 million to our defined benefit pension plans and OPEB plans during 2017. Such defined benefit pension plans and OPEB plans are discussed below in greater detail. See Note 10 to our Audited Consolidated Financial Statements.
- Any amounts we might pay to settle any of our uncertain tax positions classified as a noncurrent liability, as the timing and amount of any such future settlements are unknown and dependent on, among other things, the timing of tax audits. See Note 14 to our Audited Consolidated Financial Statements; and
- Any amounts we might pay to acquire TiO_2 from our TiO_2 manufacturing joint venture, as the timing and amount of such purchases are unknown and dependent on, among other things, the amount of TiO_2 produced by the joint venture in the future and the joint venture's future cost of producing such TiO_2. However, the table does include amounts related to our share of the joint venture's ore requirements necessary to produce TiO_2 for us. See Note 5 to our Audited Consolidated Financial Statements.

We occasionally enter into raw material supply arrangements to mitigate the short-term impact of future increases in raw material costs. While these arrangements do not necessarily commit us to a minimum volume of purchase, they generally provide for stated unit prices based upon achievement of specified volume purchase levels. This allows us to stabilize raw material purchase prices to a certain extent, provided the specified minimum monthly purchase quantities are met.

Defined Benefit Pension Plans

We maintain various defined benefit pension plans in the United States, Europe and Canada. See Note 10 to our Audited Consolidated Financial Statements.

Under defined benefit pension plan accounting, defined benefit pension plan expense, pension assets and accrued pension costs are each recognized based on certain actuarial assumptions. These assumptions are principally the assumed discount rate, the assumed long-term rate of return on plan assets and the assumed increase in future compensation levels. We recognize the full funded status of our defined benefit pension plans as either an asset (for overfunded plans) or a liability (for underfunded plans) in our Consolidated Balance Sheet.

We recognized consolidated defined benefit pension plan expense of $21.8 million in 2014, $23.4 million in 2015 and $22.0 million in 2016. Certain non-United States employees are covered by plans in their respective countries, principally in Germany, Canada and Norway. Participation in the defined benefit pension plan in Germany was closed to new participants effective in 2005. German employees hired beginning in 2005 participate in a new plan in which the retirement benefit is based upon the amount of employee and employer contributions to the plan, but for which in accordance with German law the employer guarantees a minimum rate of return on invested assets and a guaranteed indexed lifetime benefit payment after retirement based on the participant's account balance at the time of retirement. In accordance with GAAP, the new pension plan is accounted for as a defined benefit plan, principally because of such guaranteed minimum rate of return and guaranteed lifetime benefit payment. Participation in the defined benefit plan in Canada with respect to hourly and salaried workers was closed to new participants in December 2013 and 2014, respectively, and existing hourly and salaried plan participants will no longer accrue additional defined pension benefits after December 2013 and 2014, respectively. Our United States plan was closed to new participants in 1996, and existing participants no longer accrued any additional benefits after that date. The amount of funding requirements for these defined benefit pension plans is generally based upon applicable regulations (such as the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), in the United States) and will generally differ from pension expense for financial reporting purposes. We made contributions to all of our plans which aggregated $20.1 million in 2014, $17.2 million in 2015 and $15.5 million in 2016.

The discount rates we use for determining defined benefit pension expense and the related pension obligations are based on current interest rates earned on long-term bonds that receive one of the two highest ratings given by recognized rating agencies in the applicable country where the defined benefit pension benefits are being paid. In addition, we receive third-party advice about appropriate discount rates and these advisors may in some cases use their own market indices. We adjust these discount rates as of each December 31 valuation date to reflect then-current interest rates on such long-term bonds. We use these discount rates to determine the actuarial present value of the pension obligations as of December 31 of that year. We also use these discount rates to determine the interest component of defined benefit pension expense for the following year.

At December 31, 2016, approximately 69%, 17%, 8% and 3% of the projected benefit obligations related to our plans in Germany, Canada, Norway and the United States, respectively. We use several different discount rate assumptions in determining our consolidated defined benefit pension plan obligation and expense. This is because we maintain defined benefit pension plans in several different countries in Europe and North America and the interest rate environment differs from country to country.

We used the following discount rates for our defined benefit pension plans:

	Discount rates used for:		
	Obligations at December 31, 2014 and expense in 2015	**Obligations at December 31, 2015 and expense in 2016**	**Obligations at December 31, 2016 and expense in 2017**
Germany	2.3%	2.3%	1.8%
Canada	3.8%	3.9%	3.7%
Norway	2.3%	2.8%	2.5%
United States	3.8%	4.1%	3.9%

The assumed long-term rate of return on plan assets represents the estimated average rate of earnings expected to be earned on the funds invested or to be invested in the plans' assets provided to fund the benefit payments inherent in the projected benefit obligations. Unlike the discount rate, which is adjusted each year based on changes in current long-term interest rates, the assumed long-term rate of return on plan assets will not necessarily change based upon the actual short-term performance of the plan assets in any given year. Defined benefit pension expense each year is based upon the assumed long-term rate of return on plan assets for each plan, the actual fair value of the plan assets as of the beginning of the year and an estimate of the amount of contributions to and distributions from the plan during the year. Differences between the expected return on plan assets for a given year and the actual return are deferred and amortized over future periods based either upon the expected average remaining service life of the active plan participants (for plans for which benefits are still being earned by active employees) or the average remaining life expectancy of the inactive participants (for plans for which benefits are not still being earned by active employees).

At December 31, 2016, approximately 56%, 25%, 13% and 4% of the plan assets related to our plans in Germany, Canada, Norway and the United States, respectively. We use several different long-term rates of return on plan asset assumptions in determining our consolidated defined benefit pension plan expense. This is because the plan assets in different countries are invested in a different mix of investments and the long-term rates of return for different investments differ from country to country.

In determining the expected long-term rate of return on plan asset assumptions, we consider the long-term asset mix (e.g. equity vs. fixed income) for the assets for each of our plans and the expected long-term rates of return for such asset components. In addition, we receive third-party advice about appropriate long-term rates of return. All of the assets of our United States plan are invested in the Combined Master Retirement Trust (CMRT), a collective investment trust sponsored by Contran Corporation to permit the collective investment by certain master trusts which fund certain employee benefits sponsored by Contran and certain of its affiliates, including us. Such assumed asset mixes are discussed in Note 10 to our Audited Consolidated Financial Statements.

Our pension plan weighted average asset allocations by asset category were as follows:

	December 31, 2016			
	Germany	Canada	Norway	CMRT
Equity securities and limited partnerships	20%	37%	12%	58%
Fixed income securities	71	63	59	36
Real estate	8	—	9	—
Other	1	—	20	6
Total	100%	100%	100%	100%

	December 31, 2015			
	Germany	Canada	Norway	CMRT
Equity securities and limited partnerships	20%	36%	12%	56%
Fixed income securities	70	56	62	38
Real estate	9	—	9	—
Other	1	8	17	6
Total	100%	100%	100%	100%

We regularly review our actual asset allocation for each non-US plan and will periodically rebalance the investments in each plan to more accurately reflect the targeted allocation when considered appropriate. The CMRT trustee and investment committee do not maintain a specific target asset allocation in order to achieve their objectives, but instead they periodically change the asset mix of the CMRT based upon, among other things, advice they receive from third-party advisors and their expectations regarding potential returns for various investment alternatives and what asset mix will generate the greatest overall return.

Our assumed long-term rates of return on plan assets for 2014, 2015 and 2016 were as follows:

	2014	2015	2016
Germany	4.3%	4.3%	3.5%
Canada	5.5%	5.8%	5.2%
Norway	3.8%	3.8%	3.3%
United States	7.5%	7.5%	7.5%

We currently expect to use the same long-term rate of return on plan asset assumptions in 2017 as we used in 2016 for purposes of determining the 2017 defined benefit pension plan expense.

To the extent that a plan's particular pension benefit formula calculates the pension benefit in whole or in part based upon future compensation levels, the projected benefit obligations and the pension expense will be based in part upon expected increases in future compensation levels. For all of our plans for which the benefit formula is so calculated, we generally base the assumed expected increase in future compensation levels upon average long-term inflation rates for the applicable country.

In addition to the actuarial assumptions discussed above, the amount of recognized defined benefit pension expense and the amount of net pension asset and net pension liability will vary based upon relative changes in currency exchange rates.

A reduction in the assumed discount rate generally results in an actuarial loss, as the actuarially-determined present value of estimated future benefit payments will increase. Conversely, an increase in the assumed discount rate generally results in an actuarial gain. In addition, an actual return on plan assets for a given year that is greater than the assumed return on plan assets results in an actuarial gain, while an actual return on plan assets that is less than the assumed return results in an actuarial loss. Other actual outcomes that differ from previous assumptions, such as individuals living longer or shorter than assumed in mortality tables, which are also used to determine the actuarially-determined present value of estimated future benefit payments, changes in such mortality tables themselves or plan amendments, will also result in actuarial losses or gains. These amounts are recognized in other comprehensive income. In addition, any actuarial gains generated in future periods would reduce the negative amortization effect of any cumulative unrecognized actuarial losses, while any actuarial losses generated in future periods would reduce the favorable amortization effect of any cumulative unrecognized actuarial gains.

During 2016, all of our defined benefit pension plans generated a combined net actuarial loss of approximately $38.0 million. This actuarial loss resulted primarily from the decrease in discount rates from December 31, 2015 to December 31, 2016, and an actual return on plan assets during 2016 less than the expected return.

Based on the actuarial assumptions described above and our current expectation for what actual average currency exchange rates will be during 2017, we expect our defined benefit pension expense will approximate $27 million in 2017. In comparison, we expect to be required to contribute approximately $15 million to such plans during 2017.

As noted above, defined benefit pension expense and the amounts recognized as accrued pension costs are based upon the actuarial assumptions discussed above. We believe all of the actuarial assumptions used are reasonable and appropriate. However, if we had lowered the assumed discount rate by 25 basis points for all plans as of December 31, 2016, our aggregate projected benefit obligations would have increased by approximately $28.9 million at that date and our defined benefit pension expense would be expected to increase by approximately $1.8 million during 2017. Similarly, if we lowered the assumed long-term rate of return on plan assets by 25 basis points for all of our plans, our defined benefit pension expense would be expected to increase by approximately $1.0 million during 2017.

OPEB Plans

Certain of our subsidiaries in the United States and Canada currently provide certain health care and life insurance benefits for eligible retired employees. Under other postretirement employee benefits (OPEB) accounting, OPEB expense and accrued OPEB costs are based on certain actuarial assumptions, principally the assumed discount rate and the assumed rate of increases in future health care costs. We recognize the full unfunded status of our OPEB plans as a liability. See Note 10 to the Audited Consolidated Financial Statements for a discussion of the consolidated OPEB cost we recognized during the last three years, the amount of our accrued OPEB costs, and the associated actuarial assumptions utilized.

Based on such actuarial assumptions and our current expectation for what actual average currency exchange rates will be during 2017, we expect our consolidated OPEB expense will be nil in 2017. In comparison, we expect to be required to make approximately $0.4 million of contributions to such plans during 2017.

We believe that all of the actuarial assumptions used are reasonable and appropriate. However, if we had lowered the assumed discount rate by 25 basis points for all plans as of December 31, 2016, our aggregate projected benefit obligations would have increased approximately $0.2 million at that date and our OPEB cost during 2016 would not be materially impacted. Similarly, a one percent assumed change in health care trend rates for all plans would not materially impact our OPEB costs.

Operations Outside the United States

As discussed above, we have substantial operations located outside the United States for which the functional currency is not the United States dollar. As a result, the reported amount of our assets and liabilities related to our non-United States operations, and therefore our consolidated net assets, will fluctuate based upon changes in currency exchange rates. At December 31, 2016, we had substantial net assets denominated in the euro, Canadian dollar and Norwegian krone.

Quantitative and Qualitative Disclosures about Market Risk

General

We are exposed to market risk from changes in interest rates, currency exchange rates, equity security and raw materials prices.

Interest Rates

At December 31, 2016, our variable-rate term loan comprised the majority of our aggregate indebtedness. The following table presents principal amounts and weighted average interest rates for our aggregate outstanding indebtedness at December 31, 2015 and 2016. See Note 8 to our Audited Consolidated Financial Statements.

	Indebtedness Amount		Year-end interest rate	Maturity date
	Carrying amount	Fair value		
	(In millions)			
December 31, 2016				
Variable rate indebtedness—term loan	$335.9	$334.6	4.0%	2020
December 31, 2015				
Variable rate indebtedness—term loan	$338.0	$309.5	4.0%	2020

As part of our interest rate risk management strategy, in 2015 we entered into a pay-fixed/receive-variable interest rate swap contract to minimize our exposure to volatility in the benchmark LIBOR interest rate as it relates to our forecasted outstanding variable-rate indebtedness. As a result of this swap the amount of interest expense we will incur is fixed at the swap rate, consequently a change in LIBOR rate will not impact the amount of interest expense recognized. See Note 18 to our Audited Consolidated Financial Statements for a discussion of this interest rate swap.

Currency Exchange Rates

We are exposed to market risk arising from changes in currency exchange rates as a result of manufacturing and selling our products worldwide. Earnings are primarily affected by fluctuations in the value of the United States dollar relative to the euro, the Canadian dollar, the Norwegian krone and the United Kingdom pound sterling.

The majority of our sales from non-United States operations are denominated in currencies other than the United States dollar, principally the euro, other major European currencies and the Canadian dollar. A portion of our sales generated from our non-United States operations is denominated in the United States dollar (and consequently our non-United States operations will generally hold United States dollars from time to time). Certain raw materials used worldwide, primarily titanium-containing feedstocks, are purchased primarily in United States dollars, while labor and other production costs are purchased primarily in local currencies. Consequently, the translated United States dollar value of our non-United States sales and operating results are subject to currency exchange rate fluctuations which may favorably or unfavorably impact reported earnings. In addition to the impact of the translation of sales and expenses over time, our non-United States operations also generate currency transaction gains and losses which primarily relate to (i) the difference between the currency exchange rates in effect when non-local currency sales or operating costs (primarily United States dollar denominated) are initially accrued and when such amounts are settled with the non-local currency, (ii) changes in currency exchange rates during time periods when our non-United States operations are holding non-local currency (primarily United States dollars), and (iii) relative changes in the aggregate fair value of currency forward contracts held from time to time.

We periodically use currency forward contracts to manage a very nominal portion of currency exchange rate risk associated with trade receivables denominated in a currency other than the holder's functional currency or similar exchange rate risk associated with future sales. We have not entered into these contracts for trading or speculative purposes in the past, nor do we currently anticipate entering into such contracts for trading or speculative purposes in the future. We are not party to any currency forward contracts at December 31, 2016. See Note 18 to our Audited Consolidated Financial Statements and Note 14 to our Unaudited Condensed Consolidated Financial Statements.

Marketable Security Prices

We are exposed to market risk due to changes in prices of the marketable securities which we own. In this regard, during 2015, we recorded a $12.0 million pre-tax impairment charge due to other-than-temporary impairment on our investment in a marketable security available for sale. See Note 6 to our Audited Consolidated Financial Statements. The fair value of securities which includes investments in publicly-traded shares of related parties was $2.4 million and $6.0 million, respectively, at December 31, 2015 and December 31, 2016. The potential change in the aggregate fair value of these investments, assuming a 10% change in prices, would be approximately $0.2 million and $0.6 million, respectively, at December 31, 2015 and December 31, 2016.

Raw Materials

We are exposed to market risk from changes in commodity prices relating to our raw materials. As discussed above we generally enter into long-term supply agreements for certain of our raw material requirements. Many of our raw material contracts contain fixed quantities we are required to purchase, or specify a range of quantities within which we are required to purchase. Raw material pricing under these agreements is generally negotiated quarterly or semi-annually depending upon the suppliers. For certain raw material requirements we do not have long-term supply agreements either because we have assessed the risk of the unavailability of those raw materials and/or the risk of a significant change in the cost of those raw materials to be low, or because long-term supply agreements for those raw materials are generally not available.

Other

We believe there may be a certain amount of incompleteness in the sensitivity analyses presented above. For example, the hypothetical effect of changes in exchange rates discussed above ignores the potential effect on other variables which affect our results of operations and cash flows, such as demand for our products, sales volumes and selling prices and operating expenses. Accordingly, the amounts presented above are not necessarily an accurate reflection of the potential losses we would incur assuming the hypothetical changes in exchange rates were actually to occur.

The above discussion and estimated sensitivity analysis amounts include forward-looking statements of market risk which assume hypothetical changes in currency exchange rates. Actual future market conditions will likely differ materially from such assumptions. Accordingly, such forward-looking statements should not be considered to be projections by us of future events, gains or losses.

BUSINESS

Overview

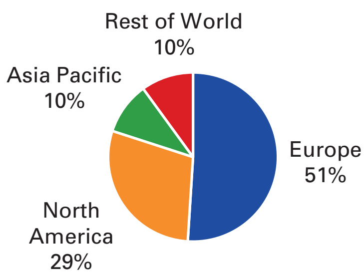
We are a leading global producer and marketer of value-added titanium dioxide pigments, or TiO_2, a base industrial product used in a wide range of applications. We offer our customers a broad portfolio of products that include over 40 different TiO_2 pigment grades under the Kronos® trademark, which improve whiteness, brightness, opacity and durability to meet customers' specific requirements. Including our predecessors, we have produced and marketed TiO_2 in North America and Europe for over 100 years and we believe we have developed considerable expertise and efficiency in the manufacture, sale, shipment and service of our products. We, along with our distributors and agents, sell and provide technical services for our products to approximately 4,000 customers in 100 countries with the majority of sales in Europe, North America and Asia Pacific. For the twelve months ended June 30, 2017, we generated $1,501 million in sales and $234 million in EBITDA.

TiO_2 is a white inorganic pigment used in a wide range of products for its exceptional durability and its ability to impart whiteness, brightness and opacity. TiO_2 is a critical component of everyday applications, such as coatings, plastics and paper, as well as many specialty products such as inks, food and cosmetics. TiO_2 is widely considered to be superior to alternative white pigments in large part due to its hiding power (or opacity), which is the ability to cover or mask other materials effectively and efficiently. TiO_2 is designed, marketed and sold based on specific end-use applications.

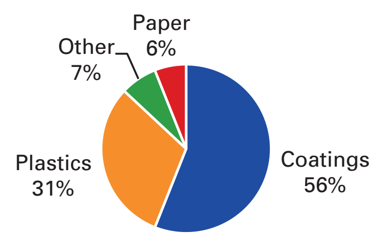
TiO_2 is the largest commercially used whitening pigment because it has a high refractive rating, giving it more hiding power than any other commercially produced white pigment. In addition, TiO_2 has excellent resistance to interaction with other chemicals, good thermal stability and resistance to ultraviolet degradation. Although there are other white pigments on the market, we believe there are no effective substitutes for TiO_2 because no other white pigment has the physical properties for achieving comparable opacity and brightness or can be incorporated in as cost-effective a manner. Pigment extenders such as kaolin clays, calcium carbonate and polymeric opacifiers are used together with TiO_2 in a number of end-use markets. However, these products are not able to duplicate the opacity performance characteristics of TiO_2 and we believe these products are unlikely to have a significant impact on the use of TiO_2.

The table below shows our approximate TiO_2 sales volume by geographic region and end use for the year ended December 31, 2016:

Sales volumes percentages by geographic region



Sales volumes percentages by end-use



We are one of the five largest global producers and marketers of TiO_2, with approximately 9% of reported industry production in 2016. We estimate that we and our four principal competitors comprise approximately 57% of the world's production. We have a broad and well-balanced portfolio of TiO_2 product offerings and core technologies and, unlike some competitors, have the capability to produce TiO_2 through both the chloride and sulfate process. This dual manufacturing capability enables us to meet our customers' diverse needs and allows us flexibility in end market applications, thereby improving profitability.

The chloride process is a continuous process in which chlorine is used to extract rutile TiO_2. The chloride process produces less waste than the sulfate process because much of the chlorine is recycled and feedstock bearing higher titanium content is used. The chloride process also has lower energy requirements and is less labor-intensive than the sulfate process, although the chloride process requires a higher-skilled labor force. The chloride process produces an intermediate base pigment with a wide range of properties. The chloride process is the preferred form to produce TiO_2 pigments for use in coatings and plastics, the two largest end-use markets.

The sulfate process is a batch process in which sulfuric acid is used to extract the TiO_2 from ilmenite or titanium slag. After separation from the impurities in the ore (mainly iron), the TiO_2 is precipitated and calcined to form an intermediate base pigment ready for sale or can be upgraded through finishing treatments. The sulfate process is preferred for use in selected paper products, ceramics, rubber tires, man-made fibers, food products, pharmaceuticals and cosmetics, some of which generate higher profit margins.

Some of the principal applications for our products include the following:

TiO_2 for coatings—Our TiO_2 is used to provide opacity, durability, tinting strength and brightness in industrial coatings, as well as coatings for commercial and residential interiors and exteriors, automobiles, aircraft, machines, appliances, traffic paint and other special purpose coatings. The amount of TiO_2 used in coatings varies widely depending on the opacity, color and quality desired. In general, the higher the opacity requirement of the coating, the greater the TiO_2 content.

TiO_2 for plastics—We produce TiO_2 pigments that improve the optical and physical properties in plastics, including whiteness and opacity. TiO_2 is used to provide opacity in items such as containers and packaging materials, and vinyl products such as windows, door profiles and siding. TiO_2 also generally provides hiding power, neutral undertone, brightness and surface durability for housewares, appliances, toys, computer cases and food packages. TiO_2's high brightness along with its opacity, is used in some engineering plastics to help mask their undesirable natural color. TiO_2 is also used in masterbatch, which is a concentrate of TiO_2 and other additives and is one of the largest uses for TiO_2 in the plastics end-use market. In masterbatch, the TiO_2 is dispersed at high concentrations into a plastic resin and is then used by manufacturers of plastic containers, bottles, packaging and agricultural films.

TiO_2 for paper—Our TiO_2 is used in the production of several types of paper, including laminate (decorative) paper, filled paper and coated paper to provide whiteness, brightness, opacity and color stability. Although we sell our TiO_2 to all segments of the paper end-use market, our primary focus is on the TiO_2 grades used in paper laminates, where several layers of paper are laminated together using melamine resin under high temperature and pressure. The top layer of paper contains TiO_2 and plastic resin and is the layer that is printed with decorative patterns. Paper laminates are used to replace materials such as wood and tile for such applications as counter tops, furniture and wallboard. TiO_2 is beneficial in these applications because it assists in preventing the material from fading or changing color after prolonged exposure to sunlight and other weathering agents.

TiO_2 for other applications—We produce TiO_2 to improve the opacity and hiding power of printing inks. TiO_2 allows inks to achieve very high print quality while not interfering with the technical requirements of printing machinery, including low abrasion, high printing speed and high temperatures. Our TiO_2 is also used in textile applications where TiO_2 functions as an opacifying and delustering agent. In man-made fibers such as rayon and polyester, TiO_2 corrects an otherwise undesirable glossy and translucent appearance. Without the presence of TiO_2, these materials would be unsuitable for use in many textile applications.

Our TiO_2 business is enhanced by the following three complementary businesses, which comprised approximately 7% of our net sales in 2016:

- We own and operate two ilmenite mines in Norway pursuant to a governmental concession with an unlimited term. Ilmenite is a raw material used directly as a feedstock by some sulfate-process TiO_2 plants. We also sell ilmenite ore to third parties, some of whom are our competitors, and we sell an ilmenite-based specialty product to the oil and gas industry. The mines have estimated ilmenite reserves that we expect, based on internal estimates, to last at least 50 years.
- We manufacture and sell iron-based chemicals, which are co-products and processed co-products of the sulfate and chloride process TiO_2 pigment production. These co-product chemicals are marketed through our Ecochem division and are primarily used as treatment and conditioning agents for industrial effluents and municipal wastewater as well as in the manufacture of iron pigments, cement and agricultural products.
- We manufacture and sell titanium oxychloride and titanyl sulfate, which are side-stream specialty products from the production of TiO_2. Titanium oxychloride is used in specialty applications in the formulation of pearlescent pigments, production of electroceramic capacitors for cell phones and other electronic devices. Titanyl sulfate productions are used in pearlescent pigments, natural gas pipe and other specialty applications.

We operate facilities throughout North America and Europe, including the only sulfate process plant in North America. In addition, Kronos Louisiana, Inc., one of our subsidiaries, operates the most recent greenfield chloride process plant in the western world, Lake Charles, Louisiana, in a manufacturing joint venture with Huntsman P&A Investments LLC ("HPA"). Kronos Louisiana, Inc. and HPA each own a 50% interest in the joint venture and, unless otherwise agreed, Kronos Louisiana, Inc. and HPA share in production from the plant equally pursuant to separate offtake agreements. We are required to purchase one half of the TiO_2 produced by the joint venture. All costs and capital expenditures are shared equally with HPA with the exception of feedstock (purchased natural rutile ore or slag) and packaging costs for the pigment grades produced. We also own and operate the only ilmenite mines in Western Europe, enabling the Company to 100% vertically integrate its European sulfate process manufacturing operations. We use a wide range of titanium-containing feedstock which can be shipped efficiently and economically to our various manufacturing facilities to maintain cost competitiveness. The Company also has the ability to efficiently and economically ship pigment to fast growing regions such as Asia / Pacific and Central & South America. As a result of recent strategic initiatives and investments we have made, we have expanded our marketing efforts in these export markets and expect to benefit from ongoing economic growth and development in these areas of the world.

Our production capacity in 2016 was 555,000 metric tons, approximately three-fourths of which was from the chloride production process. The following table presents the division of our current manufacturing capacity by plant location and type of manufacturing process:

Facility	Description	% of capacity by TiO_2 manufacturing process	
		Chloride	Sulfate
Leverkusen, Germany	TiO_2 production, chloride and sulfate process, co-products	29	5
Nordenham, Germany	TiO_2 production, sulfate process, co-products	—	11
Langerbrugge, Belgium	TiO_2 production, chloride process, co-products, titanium chemicals products	16	—
Fredrikstad, Norway	TiO_2 production, sulfate process, co-products	—	6
Varennes, Canada	TiO_2 production, chloride and sulfate process, slurry facility, titanium chemicals products	16	3
Lake Charles, LA, US(1)	TiO_2 production, chloride process	14	—
Hauge i Dalane, Norway	Ilmenite mines	—	—
Total TiO_2		75%	25%

(1) We operate the Lake Charles facility in a joint venture with Huntsman P&A Investments LLC (HPA) (a wholly-owned subsidiary of Tioxide Group, of which Venator Materials PLC owns 100% and is the ultimate parent), and the amount indicated in the table above represents the share of TiO_2 produced by the joint venture to which we are entitled. See Note 5 to our Audited Consolidated Financial Statements and "—TiO_2 Manufacturing Joint Venture."

During the first half of 2017, we operated our production facilities at 100% of practical capacity. We expect our production volumes to be slightly higher in 2017 as compared to 2016, as our production rates in 2017 will be positively impacted by the implementation of certain productivity-enhancing improvement projects at certain facilities. We believe it is reasonably likely we will set a new company record for production volumes in 2017.

TiO_2 industry overview

Based on TZMI price estimates for 2016, global TiO_2 sales generated approximately $12.5 billion in revenues industry-wide, which equated to approximately 6.0 million metric tons of material. The market for TiO_2 is extremely competitive, and we compete primarily on the basis of product quality, technical service, price, and the availability of high performance pigment grades. Pricing is largely a product of negotiation between suppliers and their respective customers. Cost advantages are typically driven by scale of plants, proprietary process technology, production know-how and environmental regulations and, to a lesser extent, type of feedstock, source of energy, and cost of local labor.

The primary raw materials used in sulfate and chloride process TiO_2 are titanium-containing feedstock (including ilmenite, rutile, chloride and sulfate slag and synthetic rutile). The global market for titanium-bearing ores is diverse in terms of supplier options, and the market is structured by short and long-term contracts with market-based pricing subject to ongoing negotiations throughout each year, often on a quarterly basis. In the past we have been, and we expect that we will continue to be, successful in obtaining short-term and long-term extensions to titanium-bearing ore supply contracts prior to their expiration. We believe there is more than ample global supply of titanium containing feedstock ore, and do not currently expect any difficulties in procuring sufficient quantities of ore necessary to operate our plants for the foreseeable future. Additionally, we have structured a portion of our feedstock contracts with pricing mechanisms in an attempt to reduce earnings volatility through all cycles. These procurement dynamics allow us to be flexible in response to pricing fluctuations and quantity obligations. Our vertically integrated structure in the sulfate production business provides further protection by allowing us to capture margin despite broader variability in pricing.

As a critical component of everyday applications such as coatings, plastics, paper, and other specialty products, TiO_2 is considered a “quality of life” product, and demand has generally been driven by global economic activity and GDP per capita. There is currently no effective substitute for TiO_2 because no other white pigment has the physical properties capable of achieving comparable opacity and brightness in a cost-effective manner. As such, customer demands for TiO_2 generally increase with rising standards of living in various regions of the world. Our customers also differentiate their finished products based on product quality which drives increased demand for TiO_2, because of its superior performance attributes. According to industry estimates, TiO_2 consumption has grown at a compound annual growth rate of approximately 3% since 1990. Per capita consumption of TiO_2 in Western Europe and the United States far exceeds that in other areas of the world, and these regions are expected to continue to be the largest consumers of TiO_2 on a per capita basis. Markets for TiO_2 are generally increasing in South America, Eastern Europe, the Asia Pacific region and China and we believe these are significant markets where we expect continued growth as economies in these regions continue to develop and quality-of-life products, including TiO_2, experience greater demand.

Historically, the TiO_2 industry has been highly sensitive to supply and demand dynamics. Changes in TiO_2 consumption levels and available production capacity result in changes to TiO_2 industry operating rates and have a direct impact on our profitability. During 2010 and 2011, TiO_2 demand reached levels that approximated estimated industry capacity, leading to a period of supply shortage and peak profitability. Beginning in 2012, the TiO_2 industry experienced decreased sales and production volumes as the majority of TiO_2 producers and consumers undertook inventory de-stocking initiatives in response to global economic weakness and uncertainty. As demand weakened, TiO_2 industry operating rates declined, leading to declines in selling prices. At the same time, industry contracts for the procurement of feedstock ore generally switched from contracts with long-term fixed pricing mechanisms to pricing mechanisms more generally based on spot pricing. This transition was accompanied by significant increases in the cost of feedstock ore, which also led to reduced profitability until feedstock ore costs began to moderate beginning in 2015. Between 2013 and 2014, the TiO_2 industry was characterized by flat sales volumes driven primarily by low demand and widespread destocking efforts. Profitability across the industry continued to lag in 2015 and the first quarter of 2016 as producers experienced low utilization rates despite demand recovering. Since the first quarter of 2016, however, inventory levels and consumption patterns have stabilized and the industry has begun to see improvement in pricing as a result of growing demand levels and continued capacity rationalization. This positive momentum is expected to continue, driving additional upside relative to historically normalized price and margin levels.

Although overall industry demand is expected to continue to strengthen through 2017 as a result of improving worldwide economic conditions, we do not expect any other significant efforts will be undertaken by us or our principal competitors to further increase capacity via new TiO_2 plants or brownfield expansions in Europe or North America in the foreseeable future. Due to the constraints of high capital costs and extended lead time associated with adding significant new TiO_2 production capacity, especially for premium grades of TiO_2 products produced from the chloride process, we believe increased and sustained profit margins will be necessary to financially justify major expansions of TiO_2 production capacity required to meet expected future growth in demand. As a result of relative customer inventory levels during the recent past and the resulting adverse effect on global TiO_2 pricing, some industry projects to increase TiO_2 production capacity have been cancelled or deferred indefinitely, and announcements have been made regarding the closure of certain facilities. Given the lead time required for production capacity expansions, a shortage of TiO_2 could occur if economic conditions improve and global demand levels for TiO_2 increase sufficiently.

Competitive strengths

Well-Positioned to Capitalize on TiO_2 *Market Strength and Economic Growth*

We are well-positioned to benefit from the ongoing improvement in the TiO_2 industry cycle as demonstrated by our recent results. Industry data suggests that global TiO_2 demand will have increased by approximately 9% between 2015 and 2017 while net production capacity increased by approximately 4%, creating an environment favorable for TiO_2 price increases. The TiO_2 markets are in the process of returning to more normalized levels following a period of reduced demand during the 2012—2014 time period, as discussed above. Various TiO_2 key demand drivers are projected to remain strong, supporting continued sector strengthening. The Leading Indicator of Home Remodeling Activity is forecasted to increase 6.7% in 2017 and 2.0% per year through 2025; expected global GDP growth rates for 2017 and 2018 are 3.5% and 3.6%, respectively; end-use demand for coatings and plastics remain strong with IHS Chemical projecting 4.0% and 3.4% CAGRs for 2016-2021, respectively. If prices continue to increase in and beyond 2017, and as capacity utilization increases globally, TiO_2 margins are expected to increase to more historically normalized levels.

We started 2017 with average selling prices 10% higher than the beginning of 2016, and average selling prices increased by an additional 12% in the first half of 2017. Despite recent pricing momentum, prices remain significantly below prior peak levels. Following industry-wide increases in production volumes in 2016, most western TiO_2 producers are running near 100% of practical capacity and TiO_2 inventory levels have declined significantly at both the producer and customer level. With the strong sales volumes experienced in the first half of 2017, we continue to see evidence of strengthening demand for TiO_2 products in our primary markets. TZMI projects future TiO_2 price increases, reflecting continued positive industry outlook.

In addition to our efforts to maximize profitability, current market conditions have allowed us to execute new long-term supply contracts with strategic customers to mitigate future volatility in pricing levels. We have exposure to both emerging and mature markets, and believe that our geographic mix positions us to take advantage of significant growth opportunities. We have invested in commercial, and sales and marketing resources in export markets by investing in distribution centers and by making a broad strategic commitment to building and firmly entrenching our presence in those areas. In order to do so, we have made efforts to improve these regional customer relationships, and have proactively shifted sales volumes to export customers in order to continue to strengthen our presence. We believe that long-term volumes in these geographies will drive value for the overall business through all cycles.

Leading Market Position Anchored in World Class Products and Production Technology

We are one of the top five global producers of TiO_2, the second largest TiO_2 producer in Europe and the largest chloride process TiO_2

Approximately 75% of our production capacity utilizes the chloride process, which is closely guarded by the major western producers due to its technological advantages in many applications. In addition to the process know-how, the chloride process requires significant capital investments for greenfield expansions, uninterrupted power supplies and highly skilled labor forces, all of which have prevented emerging market participants from building meaningful chloride process capabilities. Additionally, the chloride process produces a high volume, high grade pigment, while providing lower total conversion costs through higher pigment yield, less waste, lower energy requirements and lower labor costs. Our typical chloride process cost structure is comprised of approximately 49% feedstock, 28% fixed cost, 9% utilities and 14% other raw materials. Since some of the traditional incentives for manufacturers to locate in China, such as relatively lower labor costs, are not as important for the chloride process, and the chloride process requires a stable, uninterrupted power supply (which may not be as prevalent in China as other parts of the world), the incentive for Chinese competitors to invest in chloride process technology is lessened. Therefore, western producers collectively produce approximately 90% of the world's total chloride production, which we believe is superior in quality to Chinese TiO_2, that is virtually all based on sulfate production processes and is typically used in different applications. Many coatings and plastics applications, which comprise over 80% of industry demand by volume, typically require the highest quality TiO_2 that is only produced by the major western producers. We have world-class facilities throughout North America and Europe, including the most recent greenfield plant in the western world and the only sulfate process plant in North America.

We and our predecessors have produced and marketed TiO_2 in North America and Europe, our primary markets, for over 100 years. We believe the stability of our ownership structure (since 1986) provides multiple points of differentiation versus our competitors. Building on our history of innovation, we maintain a dedicated team of scientists, chemists, process engineers, and technicians. We offer a broad portfolio of products that include over 40 different grades of TiO_2 for plastics and coatings by leveraging our dual chloride / sulfate process capabilities, in addition to continuously improving the quality of existing grades through our technical support department. Since 2012, we have added 4 new grades for pigments and other applications. We have increased production capacity by approximately 9.0% over the past ten years through innovative de-bottlenecking requiring only moderate capital expenditures, and it is reasonably likely we will set a new company record for production volumes in 2017. Unlike most competitors, all of our chloride process plants utilize the same technology, which enables improvements to be efficiently implemented in all plants at minimal cost. The aforementioned investments have enhanced Kronos' ability to achieve economies of scale benefits.

Vertically Integrated Production Process; Security of Feedstock Supply

Our raw material procurement capabilities and vertically integrated sulfate production configuration distinguish us from many of our peers. The primary raw materials used in the TiO_2 sulfate production process are titanium-containing feedstock, primarily ilmenite or purchased sulfate grade slag and sulfuric acid. While sulfuric acid is widely available, titanium containing feedstock used in the sulfate process is distributed by a limited number of suppliers principally in Norway, Canada, Australia, India South Africa, and China. We are one of the few vertically integrated producers of sulfate-process pigments, with 100% vertical integration in our sulfate business in Europe (representing 22% of total production capacity). We own and operate two ilmenite mines in Norway which supplied all of our feedstock requirements for our European sulfate process plants and 93% of total feedstock needs for our sulfate process pigment plants globally in 2016. Based on internal estimates, we expect these reserves to last over 50 years, thereby meeting European feedstock requirements into the foreseeable future.

Historically, sales to third parties have ranged from 45% to 70% of our ilmenite ore production, providing a natural hedge to fluctuations in feedstock prices. We have also established long-term relationships with third-party ore suppliers that provide a secure source of feedstock for all chloride process facilities, as well as the sulfate process line in Varennes, Quebec (which is not serviced by our Norwegian sources). We source feedstock from multiple suppliers, and over 70% of our third party chloride process feedstock requirements are purchased under long-term contracts (the remainder of our chloride process feedstock ore requirements are currently provided under contracts with a term of one year or less which are subject to renewal). We have a proven track record of securing sufficient feedstock to operate our plants due to our relationships with these suppliers and others. If approved, the proposed merger of Tronox and Cristal will result in only three material buyers of chloride process feedstock in the market (as Tronox's internal feedstock ore sources would be expected to cover the majority of the needs of the combined entity), while the market is served by numerous suppliers. In addition, we have developed manufacturing processes that allow waste material from the sulfate TiO_2 production to be converted into profitable iron-based chemical co-products instead of being disposed, which helps us avoid additional expense.

Diversified Blue Chip Customer Base with Long-Term Relationships

We sell to a diverse, blue chip customer base and benefit from long-standing relationships with top tier clients in all relevant end-markets. By leveraging a cross-functional, value-add technical service offering and direct sales force, we have developed strong connections with over 4,000 customers in 100 countries. Notably, we have minimal customer concentration risk; in 2016, no customer accounted for more than 10% of total sales and the largest 10 customers accounted for only 33% of total sales. The average tenure of our top tier customers exceeds 10 years.

The Company continues to strengthen its customer relationships by working directly with customers to monitor the success of its products in their end-use applications, evaluate the need for improvements in product and process technology and identify opportunities to develop new product solutions.

Longstanding Track Record of Prudent Balance Sheet Management

Our management team has demonstrated a consistent ability to efficiently service our debt through earnings volatility, while preserving operating flexibility. These efforts have allowed us to maintain a strong liquidity position, while maintaining a conservative amount of debt as a percentage of total enterprise value. At the same time, we continue to invest in the business through capital expenditures to maintain existing infrastructure and execute incremental projects, including cost-cutting initiatives and de-bottlenecking projects. While we use excess cash flow to pay dividends to shareholders, management has shown commitment to capital discipline. During the global recession, for example, we suspended all dividends for seven quarters to conserve cash and ensure the Company was in solid financial condition. Our balance sheet conservatism is in-line with our long-term ownership structure.

Seasoned Management Team with Exceptional Industry Expertise

Our management team is composed of individuals with deep industry experience and strong leadership capabilities. Members of the management team boast an average of over 15 years of experience with the Company (ranging from 5 to 29 years). In addition to a corporate leadership function that provides strategic direction in finance, legal, accounting, marketing services and other areas, we rely on an operational leadership team, comprised of the most senior operations managers, to oversee complex facility operations. The combination of these leadership mechanisms ensures seamless execution of our strategy.

Strategies

Maximize Cash Flow Generation

We manage our operations to maximize cash flow generation across economic cycles through our disciplined focus on asset utilization, optimization of working capital and low ongoing capital expenditures. As a result, we have consistently generated positive cash from operations despite historical TiO_2 sector volatility.

Our cost structure is optimized at full production levels and as such, we target production levels at 100% of practical capacity, subject to market demand. Our goal is to achieve these targets by ensuring we have maximum product demand and reliable production assets, The flexibility associated with our chloride and sulfate process capabilities and our vast and diverse product portfolio allow us to shift into different end markets beyond coatings and plastics depending on demand trends, thereby helping us to maintain relatively high production capacity utilization rates. We intend to continue production rates in-line with recent levels.

We actively manage our working capital balances by optimizing manufacturing schedules, increasing inventory turnover and reducing finished goods and raw materials inventory. Our vertical integration in Europe enables us to further harmonize the raw material and pigment production schedules. Our working capital balances typically act as a counter balance to our earnings results in order to smooth cash generation through the cycle.

We plan to make capital expenditures required to maintain and improve the overall performance, safety and reliability of our manufacturing asset base as well as implement new accounting and manufacturing systems. We intend to optimize capital spending on growth and cost reduction projects.

Continue to Drive Operational Efficiencies Across the Enterprise

Our management team is focused on driving continuous improvement in our cost structure and process productivity improvements in order to grow shareholder value. Historically, we have taken decisive action in response to industry conditions, undertaken proactive efforts to mitigate fixed cost inflation, and made disciplined investments in production capabilities to support our growth. We regularly seek opportunities for further improvements across our Company.

In 2015 we initiated a restructuring plan designed to improve our long-term cost structure, which resulted in approximately $19 million of annual cost savings. These workforce reductions did not negatively impact our ability to operate our production facilities at their practical capacity rates, as evidenced by the production levels we achieved in 2016 and our anticipated record production in 2017. Through careful planning and an organizational re-design, we are in the process of implementing other cost reduction initiatives throughout the organization that are expected to generate additional savings through 2020 and beyond, with minimal to no impact on our operational and commercial capabilities.

We also actively invest in process productivity improvements. We have increased our production capacity by a CAGR of 2.0% since 1995 through innovative production de-bottlenecking and process engineering enhancements without any brownfield or greenfield investments since 1992. Unlike most competitors, all of our chloride process plants utilize the same technology, which enables improvements to be efficiently implemented in all plants at minimal costs. We continue to seek opportunities to increase our production capacity through high return capital investments.

Maintain Strong Customer Focus

Our customer strategy is aimed at developing and maintaining strong customer relationships with new and existing accounts. We work to maintain close relationships with the key decision makers, through in-depth and frequent in-person meetings. We endeavor to extend these commercial and technical relationships to multiple levels within our customers' organization using our experienced direct sales force and technical service group to accomplish this objective. We believe this has helped build customer loyalty to Kronos and strengthened our competitive position vs. our competitors. Close cooperation and strong customer relationships enable us to stay closely attuned to trends in our customers' businesses. Where appropriate, we work in conjunction with our customers to solve formulation or application problems by modifying specific product properties or developing new pigment grades

Our marketing strategy is also aimed at working directly with customers to monitor the success of our products in their end-use applications, evaluate the need for improvements in product and process technology and identify opportunities to develop new product solutions for our customers. Our marketing staff closely coordinates with our sales force and technical specialists to ensure that the needs of our customers are met, and to help develop and commercialize new grades where appropriate. We focus our sales and marketing efforts on those geographic and end-use segments where the Company can realize higher selling prices. This focus includes continuously reviewing and optimizing our customer and product portfolios.

TiO_2 Manufacturing Joint Venture

Kronos Louisiana, Inc., one of our subsidiaries, and Huntsman P&A Investments LLC, an indirect subsidiary of Venator Materials PLC ("HPA") each own a 50% interest in a manufacturing joint venture, Louisiana Pigment Company, L.P., or LPC. LPC owns and operates a chloride-process TiO_2 plant located in Lake Charles, Louisiana. We and HPA share production from the plant equally pursuant to separate offtake agreements, unless we and HPA otherwise agree (such as in 2015, when we purchased approximately 52% of the production from the plant).

A supervisory committee directs the business and affairs of the joint venture, including production and output decisions. This committee is composed of four members, two of whom we appoint and two of whom HPA appoints. Two general managers manage the operations of the joint venture acting under the direction of the supervisory committee. We appoint one general manager and HPA appoints the other.

The joint venture is not consolidated in our financial statements, because we do not control it. We account for our interest in the joint venture by the equity method. The joint venture operates on a break-even basis and therefore we do not have any equity in earnings of the joint venture. We are required to purchase one half of the TiO_2 produced by the joint venture. All costs and capital expenditures are shared equally with HPA with the exception of feedstock (purchased natural rutile ore or slag) and packaging costs for the pigment grades produced. Our share of net costs is reported as cost of sales as the TiO_2 is sold. See Notes 5 and 16 to our Audited Consolidated Financial Statements.

Raw Materials

The primary raw materials used in chloride process TiO_2 are titanium-containing feedstock (purchased natural rutile ore or slag), chlorine and coke. Chlorine is available from a number of suppliers, while petroleum coke is available from a limited number of suppliers. Titanium-containing feedstock suitable for use in the chloride process is available from a limited but increasing number of suppliers principally in Australia, South Africa, Canada, India and the United States. We purchase chloride process grade slag from Rio Tinto Iron and Titanium Limited under a long-term supply contract that expires at the end of 2018, subject to two-year renewal periods if both parties agree. We also purchase upgraded slag from Rio Tinto Iron and Titanium Limited under a long-term supply contract that expires at the end of 2019. We purchase natural rutile ore under contracts primarily from Iluka Resources, Limited and Sierra Rutile Limited, and rutile ore under contracts with Sibelco Australia, all of which expire in 2017. In the past we have been, and we expect that we will continue to be, successful in obtaining short-term and long-term extensions to these and other existing supply contracts prior to their expiration. We expect the raw materials purchased under these contracts, and contracts that we may enter into, will meet our chloride process feedstock requirements over the next several years.

The primary raw materials used in sulfate process TiO_2 are titanium-containing feedstock, primarily ilmenite or purchased sulfate grade slag and sulfuric acid. Sulfuric acid is available from a number of suppliers. Titanium-containing feedstock suitable for use in the sulfate process is available from a limited number of suppliers principally in Norway, Canada, Australia, India and South Africa. As one of the few vertically-integrated producers of sulfate process TiO_2, we operate two rock ilmenite mines in Norway, which provided all of the feedstock for our European sulfate process TiO_2 plants in 2016. We expect ilmenite production from our mines to meet our European sulfate process feedstock requirements for the foreseeable future. For our Canadian sulfate process plant, we purchase sulfate grade slag primarily from Rio Tinto Fer et Titane Inc. under a supply contract that renews annually, subject to termination upon twelve months written notice. We expect the raw materials purchased under these contracts, and contracts that we may enter into, to meet our sulfate process feedstock requirements over the next several years.

Many of our raw material contracts contain fixed quantities we are required to purchase, or specify a range of quantities within which we are required to purchase. The pricing under these agreements is generally negotiated quarterly.

The following table summarizes our raw materials purchased or mined in 2016.

Production process/raw material	**Raw materials procured or mined**
	(In thousands of metric tons)
Chloride process plants:	
Purchased slag or rutile ore	477
Sulfate process plants:	
Ilmenite ore mined and used internally	335
Purchased slag	26

Competition

The TiO_2 industry is highly competitive. We compete primarily on the basis of price, product quality, technical service and the availability of high performance pigment grades. Since TiO_2 is not a traded commodity, its pricing is largely a product of negotiation between suppliers and their respective customers. Although certain TiO_2 grades are considered specialty pigments, the majority of our grades and substantially all of our production are considered commodity pigments with price and availability being the most significant competitive factors along with quality and customer service. During 2016, we had an estimated 9% share of worldwide TiO_2 sales volume, and based on sales volumes, we believe we are the leading seller of TiO_2 in several countries, including Germany.

Our principal competitors are The Chemours Company, or Chemours (which was spun-off from E.I. du Pont de Nemours & Co. into a separate publicly-traded d46s sdJ2ac1f

Germany. These individuals have the responsibility for improving our chloride and sulfate production processes, improving product quality and strengthening our competitive position by developing new applications. Our expenditures for these activities were approximately $19 million in 2014, $16 million in 2015 and $13 million in 2016. We expect to spend approximately $15 million on research and development in 2017.

We continually seek to improve the quality of our grades and have been successful at developing new grades for existing and new applications to meet the needs of our customers and increase product life cycles. Since the beginning of 2012, we have added four new grades for pigments and other applications.

Patents, Trademarks, Trade Secrets and Other Intellectual Property Rights

We have a comprehensive intellectual property protection strategy that includes obtaining, maintaining and enforcing our patents, primarily in the United States, Canada and Europe. We also protect our trademark and trade secret rights and have entered into license agreements with third parties concerning various intellectual property matters. We have also from time to time been involved in disputes over intellectual property.

Patents—We have obtained patents and have numerous patent applications pending that cover our products and the technology used in the manufacture of our products. Our patent strategy is important to us and our continuing business activities. In addition to maintaining our patent portfolio, we seek patent protection for our technical developments, principally in the United States, Canada and Europe. United States Patents are generally in effect for 20 years from the date of filing. Our United States patent portfolio includes patents having remaining terms ranging from less than one year to 20 years.

Trademarks and trade secrets—Our trademarks, including Kronos®, are covered by issued and/or pending registrations, including in Canada and the United States. We protect the trademarks that we use in connection with the products we manufacture and sell and have developed goodwill in connection with our long-term use of our trademarks. We conduct research activities in secret and we protect the confidentiality of our trade secrets through reasonable measures, including confidentiality agreements and security procedures, including data security. We rely upon unpatented proprietary knowledge and continuing technological innovation and other trade secrets to develop and maintain our competitive position. Our proprietary chloride production process is an important part of our technology and our business could be harmed if we fail to maintain confidentiality of our trade secrets used in this technology.

Employees

As of December 31, 2016, we employed the following number of people:

Europe	1,850
Canada	365
United States(1)	45
Total	2,260

(1) Excludes employees of our Louisiana joint venture.

Certain employees at each of our production facilities are organized by labor unions. In Europe, our union employees are covered by master collective bargaining agreements for the chemical industry that are generally renewed annually. In Canada, our union employees are covered by a collective bargaining agreement that expires in June 2018. At December 31, 2016, approximately 87% of our worldwide workforce is organized under collective bargaining agreements. It is possible that there could be future work stoppages or other labor disruptions that could materially and adversely affect our business, results of operations, financial position or liquidity.

Regulatory and Environmental Matters

Our operations and properties are governed by various environmental laws and regulations, which are complex, change frequently and have tended to become stricter over time. These environmental laws govern, among other things, the generation, storage, handling, use and transportation of hazardous materials; the emission and discharge of hazardous materials into the ground, air or water; and the health and safety of our employees. Certain of our operations are, or have been, engaged in the generation, storage, handling, manufacture or use of substances or compounds that may be considered toxic or hazardous within the meaning of applicable environmental laws and regulations. As with other companies engaged in similar businesses, certain of our past and current operations and products have the potential to cause environmental or other damage. We have implemented and continue to implement various policies and programs in an effort to minimize these risks. Our policy is to comply with applicable environmental laws and regulations at all our facilities and to strive to improve our environmental performance. It is possible that future developments, such as stricter requirements in environmental laws and enforcement policies, could adversely affect our operations, including production, handling, use, storage, transportation, sale or disposal of hazardous or toxic substances or require us to make capital and other expenditures to comply, and could adversely affect our consolidated financial position and results of operations or liquidity.

Our United States manufacturing operations are governed by federal, state and local environmental and worker health and safety laws and regulations. These include the Resource Conservation and Recovery Act, or RCRA, the Occupational Safety and Health Act, the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, the Toxic Substances Control Act and the Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act, or CERCLA, as well as the state counterparts of these statutes. Some of these laws hold current or previous owners or operators of real property liable for the costs of cleaning up contamination, even if these owners or operators did not know of, and were not responsible for, such contamination. These laws also assess liability on any person who arranges for the disposal or treatment of hazardous substances, regardless of whether the affected site is owned or operated by such person. Although we have not incurred and do not currently anticipate any material liabilities in connection with such environmental laws, we may be required to make expenditures for environmental remediation in the future.

While the laws regulating operations of industrial facilities in Europe vary from country to country, a common regulatory framework is provided by the European Union, or the EU. Germany and Belgium are members of the EU and follow its initiatives. Norway is not a member but generally patterns its environmental regulatory actions after the EU.

At our sulfate plant facilities in Germany, we recycle spent sulfuric acid either through contracts with third parties or at our own facilities. In addition, at our German locations we have a contract with a third-party to treat certain sulfate-process effluents. At our Norwegian plant, we ship spent acid to a third party location where it is used as a neutralization agent. These contracts may be terminated by either party after giving three or four years advance notice, depending on the contract.

From time to time, our facilities may be subject to environmental regulatory enforcement under United States and non-United States statutes. Typically we establish compliance programs to resolve these matters. Occasionally, we may pay penalties. To date such penalties have not involved amounts having a material adverse effect on our consolidated financial position, results of operations or liquidity. We believe that all of our facilities are in substantial compliance with applicable environmental laws.

Our capital expenditures related to ongoing environmental compliance, protection and improvement programs, including capital expenditures which are primarily focused on increased operating efficiency but also result in improved environmental protection such as lower emissions from our manufacturing facilities, were $11.7 million in 2016 and are currently expected to be approximately $14 million in 2017.

Ownership of Kronos Worldwide, Inc.

At June 30, 2017, approximately 50% of our common stock was owned by Valhi, Inc. and approximately 30% was owned by a wholly-owned subsidiary of NL Industries, Inc. Valhi also owns approximately 83% of NL Industries' outstanding common stock. A wholly-owned subsidiary of Contran Corporation held approximately 93% of Valhi's outstanding common stock. As discussed in Note 1 to our Audited Consolidated Financial Statements, Lisa K. Simmons and Serena Simmons Connelly may be deemed to control Contran, Valhi, NL and us.

MANAGEMENT

Directors and Executive Officers of Parent

Set forth below is certain biographical information regarding the Parent's directors and executive officers as of the date of this offering memorandum.

Name	Age	Position(s)
Robert D. Graham	61	Vice Chairman of the Board, President and Chief Executive Officer
James Buch	56	Chief Operating Officer
Benjamin R. Corona	56	President, Global Sales Management
Brian W. Christian	38	Executive Vice President
Kelly D. Luttmer	53	Executive Vice President and Chief Tax Officer
Andrew B. Nace	52	Executive Vice President
Gregory M. Swalwell	60	Executive Vice President and Chief Financial Officer
Clarence B. Brown, III	48	Vice President, General Counsel and Secretary
Steven S. Eaton	58	Vice President and Director of Internal Control over Financial Reporting
Bryan A. Hanley	36	Vice President and Treasurer
Tim C. Hafer	55	Vice President and Controller
Janet G. Keckeisen	61	Vice President, Corporate Strategy and Investor Relations
Patricia A. Kropp	57	Vice President, Director of Global Human Resources
H. Joseph Maas	65	Vice President, Marketing Development and Communication
Courtney J. Riley	51	Vice President, Environmental Affairs
John A. Sunny	54	Vice President and Chief Information Officer
Keith R. Coogan	64	Director
Loretta J. Feehan	61	Director and non-executive Chair of the Board
John E. Harper	55	Director
Cecil H. Moore, Jr.	77	Director
General Thomas P. Stafford	86	Director
Dr. R. Gerald Turner	71	Director
Dr. C. Kern Wildenthal	75	Director

Robert D. Graham has served on our board of directors since 2016. Mr. Graham has served as our vice chairman of the board since May 2017, and as our president and chief executive officer since January 2017. He served as our chairman of the board from January 2017 to May 2017. He served as our executive vice president from 2009 to January 2017, our chief administrative officer from 2012 to 2013, our general counsel from 2003 to 2012 and as our vice president from 2003 to 2009. He currently serves as vice chairman of the board, president and chief executive officer of NL and Valhi and as executive vice president of CompX. He also serves as president and chief legal officer of Contran. He has served as a director of Contran, Valhi, and CompX since 2016, and as a director of NL since 2014. Mr. Graham has served with various companies related to us and Contran since 2002.Mr. Graham has extensive experience with our business. He also has senior executive, operating, corporate governance, finance and financial accounting oversight experience with us and from other publicly and privately held entities related to us for which he currently serves or formerly served.

James M. Buch, has served as our chief operating officer since December 2015. He served as our chief operating officer—global commercial from 2014 to December 2015. Previously, he served TIMET as its vice president from 2006 to 2011 and as its executive vice president, commercial from 2011 to 2013.

Benjamin R. Corona has served as our president, global sales management since 2012. In 2012, he served as our president, North American and export sales and marketing. He also served as our president, North American sales and marketing from 2008 to 2012 and from 2005 to 2008 as our vice president, marketing. He has served in various marketing positions with us since 2004.

Brian W. Christian has served as our executive vice president since February 2016. He served as our vice president, strategic business development from 2011 to February 2016, and as our manager of strategic and financial planning from 2009 to 2011. He currently serves as senior vice president of Contran. Mr. Christian has served in strategic and financial planning positions (including officer positions) with companies related to us and Contran since 2006.

Kelly D. Luttmer has served as our chief tax officer since 2016 and as our executive vice president since 2014. She previously served as our global tax director from 2011 to 2016. She served as our vice president from 2004 to 2014 and our tax director from 2003 to 2011. She currently serves as executive vice president and chief tax officer of NL, CompX, Valhi and Contran. Ms. Luttmer has served in tax accounting positions (including officer positions) with various companies related to us and Contran since 1989.

Andrew B. Nace has served as our executive vice president since January 2017. He previously served as our vice president from 2013 to January 2017 and as our vice president and general counsel in 2013. He currently serves as executive vice president of NL and Kronos Worldwide, as executive vice president and general counsel of Contran and Valhi, and as vice president of CompX. Mr. Nace has served as legal counsel to companies related to us and Contran since 2003.

Gregory M. Swalwell has served as our executive vice president and chief financial officer since 2009 and as our vice president, finance and chief financial officer from 2004 to 2009. He currently serves as executive vice president and chief financial officer of NL, executive vice president, chief financial officer and chief accounting officer of Contran and Valhi and executive vice president of CompX. Mr. Swalwell has served in accounting and financial positions (including officer positions) with various companies related to us and Contran since 1988.

Clarence B. Brown, III has served as our vice president and general counsel since May 2015 and as our secretary since May 2017. He served as our vice president from 2013 to 2015. He has served as NL's vice president since 2015 and as NL's secretary since May 2017. Mr. Brown has served in legal and corporate secretarial positions (including officer positions) with various companies related to us and Contran since 2007.

Steven S. Eaton has served as our vice president and director of internal control over financial reporting since May 2015. He currently serves as vice president and director of internal control over financial reporting for CompX, NL and Valhi. Mr. Eaton has served in internal audit positions (including officer positions) with various companies related to us and Contran since 2006.

Bryan A. Hanley has served as our vice president and treasurer since August 2017. He currently serves as vice president and treasurer of Contran, NL, Valhi and CompX. Mr Hanley served as assistant treasurer from June 2010 to April 2013 and then as assistant treasurer and director, investor relations for Pier 1 Imports, Inc., a global importer of decorative home furnishings and gifts from May 2013 to August 2017.

Tim C. Hafer has served as our vice president and controller since 2006. Mr. Hafer has served in financial accounting positions with various companies related to us and Contran since 1999.

Janet G. Keckeisen has served as our vice president, corporate strategy and investor relations since 2013. She served as our vice president, investor relations from 2011 to 2013. She currently serves as vice president—corporate strategy and investor relations of Valhi. Ms. Keckeisen has served in accounting and financial positions with various companies related to us and Contran since 2007.

Patricia A. Kropp has served as our vice president, director of global human resources since May 2015. Previously, she served as our director of global human resources from April 2015 to May 2015. She served as compensation and benefits director for Heartland Automotive Services, Inc. (d.b.a. Jiffy Lube) from 2014 to 2015. Previously she was director, global compensation and benefits of TIMET from 2008 to 2013.

H. Joseph Maas has served as our vice president – marketing development and communication since January 2016. He served as our president, commercial strategy from 2014 to January 2016. He served as our president, global sales and marketing from 2012 to 2014. From 2004 to 2012, he served as our president, sales and marketing. He served as our senior vice president, sales and marketing from 2003 to 2004. From 1985 to 2003, Mr. Maas served as our director of marketing and later as our vice president of marketing. From 1978 to 2003, Mr. Maas held several positions in commercial development, marketing and planning for various divisions of NL (Rheox and Spencer Kellogg).

Courtney J. Riley has served as our vice president, environmental affairs since 2013. She currently serves as president of NL, as executive vice president, environmental affairs of Valhi and as senior vice president, environmental affairs of Contran. Ms. Riley has served in legal and environmental affairs positions (including officer positions) with various companies related to us and Contran since 2009.

John A. Sunny has served as our vice president and chief information officer since May 2015. He served as our vice president, information technology from 2013 to May 2015. He currently serves as vice president—information technology of Valhi and Contran. Mr. Sunny has served in information technology positions (including officer positions) with various companies related to us and Contran since 2003.

Keith R. Coogan has served on our board of directors since 2004. From 2010 through 2013, Mr. Coogan served as a director of Softchoice Corporation, a Canadian corporation whose common stock at the time was traded on the Toronto Stock Exchange, which is a business-to-business direct marketer in North America of technology products and solutions. He served on the audit committee and management resources and compensation committee of Softchoice. From 2007 to 2009, Mr. Coogan served as president and chief executive officer of Pomeroy IT Solutions, Inc., an information technology services and solutions provider. From 2002 to 2006, Mr. Coogan served as chief executive officer of Software Spectrum, Inc., a global business-to-business software services provider that Level 3 Communications, Inc. sold to Insight Enterprises Inc. in 2006. From 1991 to 2002, Software Spectrum was a publicly held corporation. From 1990 to 2002, he served in various other executive officer positions with Software Spectrum, including vice president of finance and operations and chief operating officer. Mr. Coogan was a director of Software Spectrum from 1998 to 2006, Pomeroy from 2007 to 2009 and CompX from 2002 to 2006. Since 2016, Mr. Coogan has served as a director and on the audit and management development and compensation committees of NL. Mr. Coogan is a member of our audit committee and our management development and compensation committee. Mr. Coogan has over twelve years of experience on our board of directors and audit committee and eleven years of experience on our management development and compensation committee, and approximately one year of experience on NL's board of directors and audit and management development and compensation committees. He also has senior executive, operating, corporate governance, finance and financial accounting experience from other publicly and privately held entities for which he currently serves or formerly served.

Loretta J. Feehan has served as a director of us, CompX, NL and Valhi since 2014, and served as our non-executive chair of the board since May 2017. She also currently serves as the non-executive chair of the board of CompX, NL and Valhi. She is a certified public accountant who consults on financial and tax matters. She served as a tax partner with Deloitte and Touche LLP in the Denver office until 1992 primarily serving corporate clients. She now has her own consulting practice serving a variety of businesses and individual clients. Ms. Feehan also teaches continuing education courses to tax practitioners around the country. Ms. Feehan has been a financial advisor to Serena Simmons Connelly and Lisa K. Simmons since prior to 2012. Ms. Feehan has three years of experience as a director of us, CompX, NL and Valhi. She has over 38 years of financial and tax accounting and auditing experience, certain years of which were as a partner of one the largest international accounting firms.

John E. Harper has served on our board of directors since 2016. Mr. Harper is currently a private investor. He previously served as vice president and chief financial officer of Dell Services, a business unit of the global information technology company Dell, Inc., from 2009 to 2014. Prior to the 2009 acquisition of Perot Systems Corporation, a worldwide provider of information technology services and business solutions, by Dell, he worked for 16 years with Perot Systems, most recently as their chief financial officer. Before joining Perot Systems, he worked for nine years in the audit practice of Ernst & Young LLP, serving a number of industries including technology, manufacturing, education and oil and gas. From 2015 to November 2016, Mr. Harper served as a director and chairman of the audit committee and member of the compensation committee of Rackspace Hostings, Inc., a world leader in the managed cloud segment of the business information technology market. Since May 2016, he has served as a director and on the audit committee of NL. He is a member of our audit committee. Mr. Harper has one year of experience on the boards of directors and audit committees of Kronos Worldwide and NL. He also has senior executive, operating, corporate governance, finance, financial accounting and auditing experience from one of the largest independent international public accounting firms and from other publicly held entities for which he currently serves or formerly served.

Cecil H. Moore, Jr. has served on our board of directors since 2003. Mr. Moore is currently a private investor and retired from KPMG LLP in 2000 after 37 years in which he served in various capacities with the public accounting firm. Among other positions, he served as managing partner of the firm's Dallas, Texas office from 1990 to 1999. Prior to 1990, Mr. Moore was partner-in-charge of the audit and accounting practice of the firm's Dallas, Texas office for 12 years. From 2014 to 2016, Mr. Moore served as a director and chairman of the audit committee of Sizmek Inc., a former publically held on-line advertising business that was spun-off in 2014 by Digital Generation, Inc. From prior to 2012 to 2014, he served as a director and chairman of the audit committee of Digital Generation, Inc., a former publicly held provider of digital technology services to media outlets. From 2003 until 2009, Mr. Moore served as a director and chairman of the audit committee of Perot Systems. He is the chairman of our audit committee. Since prior to 2012, he has served as a director and on the audit committee of NL. Since March 2016, he has served as a director and as the chairman of the audit committee of CompX. Mr. Moore has over thirteen years of experience on the boards of directors and audit committees of Kronos Worldwide and NL. He also has senior executive, operating, corporate governance, finance, financial accounting and auditing experience from one of the largest independent international public accounting firms and from other publicly held entities for which he currently serves or formerly served.

General Thomas P. Stafford *(retired)* has served on our board of directors since 2013. Gen. Stafford was selected as an astronaut in 1962, piloted Gemini VI in 1965 and commanded Gemini IX in 1966. In 1969, Gen. Stafford was named Chief of the Astronaut Office and was the Apollo X commander for the first lunar module flight to the moon. He commanded the Apollo-Soyuz joint mission with the Soviet cosmonauts in 1975. He served as a Lieutenant General as the United States Air Force Deputy Chief of Staff for Research and Development and Acquisition and retired in 1979. After his retirement, he became chairman of Gibraltar Exploration Limited, an oil and gas exploration and production company, and served in that position from 1979 to 1984, when he joined General Technical Services, Inc., a consulting firm. In 1982, Gen. Stafford founded Stafford, Burke and Hecker, Inc., a Washington-based consulting firm and served the firm until 2005. Gen. Stafford has more recently served as an advisor to a number of government agencies including the National Aeronautics and Space Administration (NASA) and the Air Force Material Command. He is currently chairman of the NASA Advisory Council Task Force on the International Space Station Program, and also served as co-chairman of the Stafford-Covey NASA Space Shuttle Return to Flight Task Group. Gen. Stafford has received many honors and decorations including the Congressional Space Medal of Honor. He was elected to the National Academy of Engineering in 2014. He serves as a member of our management development and compensation committee and our audit committee. He has served as a director of NL since prior to 2012 and is the chairman of each of NL's audit committee and management development and compensation committee. Gen. Stafford has four years of experience on our board of directors, audit committee and management development and compensation committee. He also has senior executive, operating, corporate governance, finance and financial accounting oversight experience from various government entities and from other publicly and privately held entities for which he currently serves or formerly served.

Dr. R. Gerald Turner has served on our board of directors since 2003. He has served since 1995 as president of Southern Methodist University in Dallas, Texas. He held previous executive and administrative positions at the University of Mississippi, the University of Oklahoma and Pepperdine University. He has served on the board of directors and compensation committee of J.C. Penney Company, Inc. since 1995 and since 2001 as a trustee of the American Beacon Funds and American Beacon Select Funds, each a registered management investment company. Dr. Turner is a member of our audit committee and chairman of our management development and compensation committee. Dr. Turner has over thirteen years of experience on our board of directors, audit committee and management development and compensation committee. He also has senior executive, operating, corporate governance, finance and financial accounting oversight experience from a large, non-profit, private educational institution for which he currently serves and from other publicly held entities for which he currently serves or formerly served.

Dr. C. Kern Wildenthal has served on our board of directors since 2012. Dr. Wildenthal currently serves as a consultant for several medical centers and foundations. From 2013 to 2016, Dr. Wildenthal served as president of Children's Medical Center Foundation, a foundation that supports and promotes Children's Medical Center Dallas, and executive vice president of Children's Medical Center Dallas, a pediatric hospital. Previously, he served from 2008 to 2012 as president of the Southwestern Medical Foundation, a foundation that supports and promotes The University of Texas Southwestern Medical Center. From 1986 to 2008, he served as president of The University of Texas Southwestern Medical Center, a medical school that is part of The University of Texas System. He is a member of our audit committee. Dr. Wildenthal has five years of experience on our board of directors, audit committee and management development and compensation committee. He also has senior executive, operating, corporate governance, finance and financial accounting oversight experience from large, non-profit, health services institutions for which he currently serves or formerly served.

Directors and Executive Officers of the Issuer

The executive officers of the Parent also serve as the executive officers of the Issuer. The members of the board of directors of the Issuer are Gregory M. Swalwell, Ulrich Kabelac and Hans Jürgen Theus. Messrs. Kabelac and Theus are German citizens.

Ulrich Kabelac has served on the Issuer’s board of directors since 2014 and as the Issuer’s controller since 2008. Mr. Kabelac has served in financial accounting positions with the Issuer since 2003.

Hans Jürgen Theus has served on the Issuer’s board of directors since 2016 and as the Issuer’s vice president, purchasing since 2011. Mr. Theus has served in purchasing and managerial positions with the Issuer since 2001.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Related Party Transaction Policy

From time to time, we engage in transactions with affiliated companies. Pursuant to Parent's Policy Regarding Related Party Transactions, or RPT Policy, all related party transactions (as defined in the RPT Policy) to which we are or are proposed to be a party are approved or ratified by our audit committee (unless another committee of our board of directors composed solely of independent directors, or all of the independent directors of our board, shall have approved or ratified the related party transaction). For certain ongoing related party transactions to which we are a party (referred to as ordinary course of business related party transactions), such approval or ratification shall occur no less frequently than once a year. The RPT Policy is available on our website at *www.kronostio2.com* under the corporate governance section.

During 2016, our audit committee reviewed, adopted and ratified the following ordinary course of business related party transactions to which we are a party in accordance with the terms of such RPT Policy:

- *Risk Management Program*—a program pursuant to which Contran and certain of its subsidiaries and related entities, including us, as a group purchase third-party insurance policies and risk management services, with the costs thereof apportioned among the participating companies;
- *Tax Sharing Agreement*—the cash payments for income taxes periodically paid by us to Valhi or received by us from Valhi, as applicable, and related items pursuant to the terms of our tax sharing agreement with Valhi (such tax sharing agreement being appropriate, given that we and our qualifying subsidiaries are members of the consolidated United States federal income tax return, and certain state and local jurisdiction income tax returns, of which Contran is the parent company);
- *Cash Management Loans*—our unsecured revolving credit facility with Valhi, which provides for loans by us to Valhi of up to $60 million; and
- *Data Recovery Program*—a program pursuant to which Contran and certain of its subsidiaries and related entities, including us, as a group share third-party information technology data recovery services, with the costs thereof apportioned among the participating companies.

Each of these ordinary course of business related party transactions, and the actions taken by the audit committee in fulfilling its duties and responsibilities under the RPT Policy, are more fully described below. Our audit committee was not required to approve and ratify the fee we paid to Contran in 2016 under our intercorporate services agreement with Contran, because such intercorporate services fee is approved by all of the independent directors of our board, as more fully described below. During 2016, we were not a party to any other related party transactions (ordinary course of business related party transactions or otherwise) requiring approval or ratification under the RPT Policy.

Relationships with Related Parties

Lisa K. Simmons and Serena Simmons Connelly may be deemed to control us. We and other entities that may be deemed to be controlled by or related to Ms. Simmons and Ms. Connelly sometimes engage in the following:

- intercorporate transactions, such as guarantees, management, expense and insurance sharing arrangements, tax sharing agreements, joint ventures, partnerships, loans, options, advances of funds on open account and sales, leases and exchanges of assets, including securities issued by both related and unrelated parties; and

- common investment and acquisition strategies, business combinations, reorganizations, recapitalizations, securities repurchases and purchases and sales (and other acquisitions and dispositions) of subsidiaries, divisions or other business units, which transactions have involved both related and unrelated parties and have included transactions that resulted in the acquisition by one related party of an equity interest in another related party.

We periodically consider, review and evaluate and understand that Contran and related entities periodically consider, review and evaluate such transactions. Depending upon the business, tax and other objectives then relevant and restrictions under indentures and other agreements, it is possible that we might be a party to one or more of such transactions in the future. In connection with these activities, we may consider issuing additional equity securities or incurring additional indebtedness. Our acquisition activities have in the past and may in the future include participation in acquisition or restructuring activities conducted by other companies that may be deemed to be related to Ms. Simmons and Ms. Connelly.

Certain directors or executive officers of CompX, Contran, NL or Valhi also serve as our directors or executive officers. Such relationships may lead to possible conflicts of interest. These possible conflicts of interest may arise under circumstances in which such companies may have adverse interests. In such an event, we implement such procedures as are appropriate for the particular transaction, and consistent with the provisions of the RPT Policy.

Intercorporate Services Agreements

We and certain related companies have entered into intercorporate services agreements (“ISAs”). Under the ISAs, employees of one company provide certain services, including executive officer services, to the other company on an annual fixed fee basis. The services rendered under the ISAs may include executive, management, financial, internal audit, accounting, tax, legal, insurance, real estate management, environmental management, risk management, treasury, human resources, technical, consulting, administrative, office, occupancy and other services as required from time to time in the ordinary course of the recipient’s business. The fees paid pursuant to the ISAs are generally based upon an estimated percentage of the time devoted by employees of the provider of the services to the business of the recipient and the employer’s cost related to such employees, which includes the expense for the employees’ compensation and an overhead component that takes into account other employment related costs. Generally, each of the ISAs renews on a quarterly basis subject to termination by either party pursuant to a written notice delivered 30 days prior to the start of the next quarter. Because of the number of companies related to Contran and us, we believe we benefit from cost savings and economies of scale gained by not having certain management, financial, legal, tax, real estate and administrative staffs duplicated at each company, thus allowing certain individuals to provide services to multiple companies. With respect to a publicly held company that is a party to an ISA, the ISA and the related aggregate annual charge are approved by the independent directors of the company after receiving the recommendation from the company’s management development and compensation committee as well as the concurrence of the chief financial officer.

In 2016, we paid Contran fees of approximately $15.2 million for its services under our ISA with Contran, including amounts for the services of our named executive officers. In 2017, we expect to pay Contran fees of approximately $15.7 million for its services under this ISA, including the services of certain of our named executive officers that are employees of Contran. We also paid director compensation and expenses directly to Mr. Bobby D. O'Brien, our former Chairman of the Board and Chief Executive Officer, for his service as a director, prior to his resignation on January 20, 2017.

Risk Management Program

We and Contran participate in a combined risk management program. Pursuant to the program, Contran and certain of its subsidiaries and related entities, including us and certain of our subsidiaries and related entities, as a group, purchase insurance policies and risk management services. The program apportions its costs among the participating companies. Tall Pines Insurance Company ("Tall Pines") and EWI Re, Inc. ("EWI") provide for or broker the insurance policies. Tall Pines purchases reinsurance for substantially all of the risks it underwrites. EWI also provides claims and risk management services and, where appropriate, engages certain third-party risk management consultants. Tall Pines is a captive insurance company wholly owned by Valhi. EWI is a reinsurance brokerage and risk management company wholly owned by NL. Tall Pines purchases reinsurance from third-party insurance carriers with an A.M. Best Company rating of generally at least an "A-" (excellent) for substantially all of the risks it underwrites. Consistent with insurance industry practices, Tall Pines and EWI receive commissions from insurance and reinsurance underwriters and/or assess fees for the policies that they provide or broker.

With respect to certain of such jointly owned insurance policies, it is possible that unusually large losses incurred by one or more insureds during a given policy period could leave the other participating companies without adequate coverage under that policy for the balance of the policy period. As a result, and in the event that the available coverage under a particular policy would become exhausted by one or more claims, Contran and certain of its subsidiaries and affiliates, including us, have entered into a loss sharing agreement under which any uninsured loss arising because the available coverage had been exhausted by one or more claims will be shared ratably amongst those entities that had submitted claims under the relevant policy. We believe the benefits in the form of reduced premiums and broader coverage associated with the group coverage for such policies justify the risk associated with the potential for any uninsured loss.

During 2016, we paid Tall Pines and EWI in the aggregate approximately $9.2 million, including approximately $2.4 million paid by Louisiana Pigment Company, L.P., a partnership of which one of our wholly owned subsidiaries and a subsidiary of Venator Materials PLC Corporation each owns 50%. These amounts principally represent payments for insurance premiums, including premiums or fees paid to Tall Pines and commissions or fees paid to EWI. These amounts also include payments to insurers or reinsurers through EWI for the reimbursement of claims within our applicable deductible or retention ranges that such insurers and reinsurers paid to third parties on our behalf, as well as amounts for claims and risk management services and various other third-party fees and expenses incurred by the program. We expect these relationships with Tall Pines and EWI will continue in 2017.

In October 2016, our management made a presentation to our audit committee regarding our participation in the combined risk management program. Among other things during such presentation, the committee was informed of the following (in addition to the matters described above):

- the premiums for all of the insurance and reinsurance policies are set by third parties (the underwriters for the insurance or reinsurance carriers bearing the risk), without any markup by Tall Pines or EWI;

- the method by which the insurance premiums are allocated among the companies participating in the risk management program is generally the same as the basis used by the insurance or reinsurance carriers to establish the premiums for such insurance/reinsurance (*i.e.* the dominant premium factor, which is the factor that has the greatest impact on the premium, such as revenues, payroll or employee headcount);
- EWI provides claims and risk management services to each of the companies participating in the risk management program, including us, and where appropriate EWI engages third-party risk management consultants;
- the commissions received by Tall Pines and EWI from the insurance or reinsurance underwriters, and the fees assessed for the policies they so provide or broker, are in amounts equal to the commissions or fees which would be received by third-party brokers or underwriters;
- the insurance coverages provided to us by the risk management program are sufficient and adequate for our purposes;
- the benefits to our participating in the risk management program include, among others, (a) the ability to obtain broader coverage, with strong/solvent underwriters, at a reduced cost as compared to the coverage and cost that would be available if we were to purchase insurance by itself, (b) the greater spread of risk among the companies participating in the risk management program, (c) the ability to obtain centralized premium and claim reporting, and (d) the ability to have access to the experienced risk management personnel of EWI, including in the areas of loss controls and claims processing; and
- the "cost of risk" metric, as defined by the Risk and Insurance Management Society, or RIMS, for the Contran group is lower as compared to the cost of risk as reflected in a recent RIMS benchmark survey for certain groups of companies comparable to the Contran group.

As part of such presentations, our chief financial officer, after consultation with other members of our management, advised the committee of his belief that our participation in the risk management program, including the allocation of its costs among us and the other entities participating in the risk management program, is fair and reasonable to us, and is on terms no less favorable than we could otherwise obtain from unrelated parties, and provided the committee with his recommendation that the committee approve, adopt and ratify our participation in the risk management program in all respects.

After considering the information contained in the presentations, including the recommendation of our chief financial officer, and following further discussion and review by the audit committee, our audit committee determined that our participation in the risk management program is fair and reasonable to us, and is on terms no less favorable than we could otherwise obtain from unrelated parties, in each case based on the collective business judgment and experience of members of the committee, and the committee approved, adopted and ratified our participation in the risk management program in all respects.

Tax Matters

We and our qualifying subsidiaries are members of the consolidated United States federal tax return of which Contran is the parent company, which we refer to as the "Contran Tax Group." We are also a party to a tax sharing agreement with Contran and Valhi. As a member of the Contran Tax Group and pursuant to the tax sharing agreement, we and our qualifying subsidiaries compute our provision for United States income taxes on a separate company basis using tax elections made by Contran. Pursuant to the tax sharing agreement and using tax elections made by Contran, we make payments to or receive payments from Valhi in amounts we would have paid to or received from the United States Internal Revenue Service had we not been a member of the Contran Tax Group but instead had been a separate taxpayer. Refunds are limited to amounts previously paid under the tax sharing agreement. We and our qualifying subsidiaries are also a part of consolidated tax returns filed by Contran in certain United States state jurisdictions, and the terms of the tax sharing agreement also apply to state payments to these jurisdictions.

Under applicable law, we, as well as every other member of the Contran Tax Group, are each jointly and severally liable for the aggregate federal income tax liability of Contran and the other companies included in the group for all periods in which we are included in the group. Under our tax sharing agreement, Valhi has agreed to indemnify us for any liability for income taxes of the Contran Tax Group in excess of our tax liability previously computed and paid by us in accordance with the tax sharing agreement.

Under certain circumstances, tax regulations could require Contran to treat items differently than we would have treated them on a stand-alone basis. In such instances, accounting principles generally accepted in the United States of America require us to conform to Contran's tax elections. For 2016, and pursuant to our tax sharing agreement, we made net cash payments for income taxes to Valhi of approximately $0.8 million.

In February 2016, our management made a presentation to our audit committee regarding our tax sharing agreement with Contran and Valhi. Among other things during such presentation, the committee was informed of the following (in addition to the matters described above):

- the tax sharing agreement is consistent with accounting principles generally accepted in the United States of America, and consistent with applicable law and regulations; and
- our income tax accounts are included in the scope of the annual audit of our consolidated financial statements performed by PwC, and PwC makes periodic reports to the committee regarding income tax matters related to us.

As part of such presentation, our chief financial officer and our chief tax officer advised the committee of their belief that the terms of the tax sharing agreement are consistent with the terms of applicable law and regulations, and are fair and reasonable to us, and are on terms no less favorable than would be present if we were not a party to the tax sharing agreement, and provided the committee with their recommendation that the committee approve, adopt and ratify the tax sharing agreement in all respects.

After considering the information contained in the presentations, including the recommendation of our chief financial officer and our chief tax officer, and following further discussion and review by the audit committee, our audit committee determined that the terms of the tax sharing agreement are on terms no less favorable than would be present if we were not a party to the tax sharing agreement, in each case based on the collective business judgment and experience of members of the committee, and the committee approved, adopted and ratified the tax sharing agreement in all respects.

Related Party Loans for Cash Management Purposes

From time to time, loans and advances are made between us and various related parties pursuant to term and demand notes. These loans and advances are entered into principally for cash management purposes pursuant to our cash management program. When we loan funds to related parties, we are generally able to earn a higher rate of return on the loan than we would earn if the funds were invested in other instruments. While certain of such loans may be of a lesser credit quality than cash equivalent instruments otherwise available to us, we believe that we have evaluated the credit risks involved, and that those risks are reasonable and reflected in the terms of the applicable loans. When we have outstanding indebtedness, we may still decide to enter into a loan to a related party either because the interest rate on the loan to the related party is at a higher rate of return as compared to the interest rate we are paying on our outstanding indebtedness, or the funds we would be loaning to the related party would not otherwise be used to paydown the outstanding indebtedness (such as, for example, in the case when the outstanding indebtedness has a maturity longer than the maturity of the loan to the related party). When we borrow from related parties, we are generally able to pay a lower rate of interest than we would pay if we borrowed from unrelated parties.

During 2016, we had an unsecured revolving promissory note with Valhi whereby we agreed to loan Valhi up to $60 million. Our loan to Valhi, as amended, bears interest at the prime rate plus 1.00%, payable quarterly and all principal and unpaid interest due on demand, but in any event no earlier than December 31, 2018. The principal amount of our outstanding loans to Valhi at any time is at our discretion. During 2016, we had no outstanding loans to Valhi under this promissory note, and we received unused commitment fees from Valhi under this note of approximately $0.4 million.

In February 2017, our management made a presentation to our audit committee regarding our loan to Valhi. Among other things during such presentation, the committee was informed of the following (in addition to the matters described above):

- While Valhi has not borrowed any amounts in the last two years, we receive an unused commitment fee of 50 basis points per annum, payable quarterly;
- The interest rate we would earn on any outstanding borrowings by Valhi would be higher than the rate of return we would earn on any of our funds available for investment;
- The interest rate we would earn on any outstanding borrowings by Valhi would be an interest rate no less than (and generally greater than) the interest rate which a lender would be earning under either our North American Revolving Credit Facility or the revolving credit facility of two of our competitors; and
- Any amounts we might loan to Valhi would not otherwise be used to paydown the outstanding balance of our term loan indebtedness, in part since the maturity date of such term loan is over two years in excess of the maturity date of our loan to Valhi.

As part of such presentation, our chief financial officer, after consultation with our treasurer and other members of our management, advised the committee of his belief that the terms of our loan to Valhi are fair and reasonable to us, and are on terms no less favorable than we could otherwise obtain from unrelated parties, and provided the committee with his recommendation that the committee approve, adopt and ratify our loan to Valhi in all respects.

After considering the information contained in the presentation, including the recommendation of our chief financial officer, and following further discussion and review by the audit committee, our audit committee determined that the terms of our loan to Valhi are fair and reasonable to us, and are on terms no less favorable than we could otherwise obtain from unrelated parties, in each case based on the collective business judgment and experience of members of the committee, and the committee approved, adopted and ratified our loan to Valhi in all respects.

Data Recovery Program

We and Contran participate in a combined information technology data recovery program that Contran provides from a data recovery center that it established. Pursuant to the program, Contran and certain of its subsidiaries and related entities, including us and certain of our subsidiaries and related entities, as a group share information technology data recovery services. The program apportions its costs among the participating companies. We paid Contran $0.1 million for such services in 2016. We expect that this relationship with Contran will continue in 2017.

In February 2017, our management made a presentation to our audit committee regarding our participation in the combined data recovery program. Among other things during such presentation, the committee was informed of the following (in addition to the matters described above):

- The third-party cost of the data recovery program is passed through to the companies participating in the data recovery program, including us, without markup;
- Such third-party cost is allocated to the companies participating in the data recovery program, including us, based on the number of information technology data racks used by each of the companies participating in the data recovery program;
- The back-up site made available to us under the data recovery program is sufficient and adequate for our purposes; and
- The benefits to our participating in the data recovery program include, among others, the ability to share in the cost of a third-party, off-site data recovery center at a reduced cost as compared to the cost to be incurred if we were to obtain a third-party, off-site data recovery center by ourselves, as well as the shared administration of the third-party, off-site data recovery center as compared to the cost of administering such a site by ourselves.

As part of such presentation, our chief financial officer, after consultation with other members of our management, advised the committee of his belief that our participation in the data recovery program, including the allocation of its costs among us and the other entities participating in the data recovery program, is fair and reasonable to us, and is on terms no less favorable than we could otherwise obtain from unrelated parties, and provided the committee with his recommendation that the committee approve, adopt and ratify our participation in the data recovery program in all respects.

After considering the information contained in the presentation, including the recommendation of our chief financial officer, and following further discussion and review by the audit committee, our audit committee determined that our participation in the data recovery program is fair and reasonable to us, and is on terms no less favorable than we could otherwise obtain from unrelated parties, in each case based on the collective business judgment and experience of members of the committee, and the committee approved, adopted and ratified our participation in the data recovery program in all respects.

DESCRIPTION OF OTHER INDEBTEDNESS

The following is a description of our material indebtedness, other than the Notes offered hereby. The following summaries are qualified in their entirety by reference to the credit and security agreements to which each summary relates, copies of which are available upon request.

Revolving credit facilities

North American Revolving Credit Facility—In June 2012, we executed the North American Revolving Credit Agreement, which governs the $125 million North American Revolving Credit Facility. As amended, the North American Revolving Credit Facility matures on the earlier of (i) January 30, 2022 or (ii) 90 days prior to the maturity date of the Term Loan Facility (or the maturity date of any new term loan constituting a permitted refinancing of the existing Term Loan Facility). Based on the February 2020 maturity date of our existing Term Loan Facility, the maturity date of the North American Revolving Credit Facility is currently November 2019. After giving effect to this offering and the use of proceeds related thereto, the maturity date of the North American Revolving Credit Agreement will be January 20, 2022. We intend to use a portion of the proceeds of this offering to repay amounts currently outstanding under the North American Revolving Credit Facility (without terminating any commitments thereunder).

Borrowings under the North American Revolving Credit Facility are available for our general corporate purposes and are based on formula-determined amounts of eligible accounts and inventories of certain of our North American subsidiaries less any outstanding letters of credit up to $15 million issued under the North American Revolving Credit Facility (with revolving borrowings by our Canadian subsidiary limited to $25 million). Any amounts outstanding under the North American Revolving Credit Facility bear interest, at our option, at LIBOR plus a margin ranging from 1.5% to 2.0% or at the applicable base rate, as defined in the agreement, plus a margin ranging from .5% to 1.0%. The North American Revolving Credit Facility is collateralized by, among other things, a first priority lien on the borrowers' trade receivables and inventories. The North American Revolving Credit Facility contains a number of covenants and restrictions which, among other things, restricts the borrowers' ability to incur additional debt, incur liens, pay dividends or merge or consolidate with, or sell or transfer all or substantially all of their assets to, another entity, contains other provisions and restrictive covenants customary in lending transactions of this type and under certain conditions requires the maintenance of a specified financial covenant (fixed charge coverage ratio, as defined in the North American Revolving Credit Agreement) to be at least 1.0 to 1.0. We had no borrowings or repayments under the North American Revolving Credit Facility during 2015. During 2016, we borrowed $266.2 million and repaid $266.2 million under the North American Revolving Credit Facility. During the first six months of 2017, we borrowed $160.8 million and repaid $144.5 million under the North American Revolving Credit Facility. At June 30, 2017 we had approximately $16.3 million outstanding and $91.4 million available for borrowing under the North American Revolving Credit Facility.

European Credit Facility—Our operating subsidiaries in Germany, Belgium, Norway and Denmark have a €120 million secured revolving bank credit facility that matures on September 27, 2017. We expect to extend the maturity date of the European Credit Facility to September 2022 on or prior to its maturity date. We expect to reduce the size of the European Credit Facility from €120 million to €90 million concurrent with the extension. We may denominate borrowings in euros, Norwegian kroner or United States dollars. Outstanding borrowings bear interest at LIBOR (as defined in the European Credit Agreement) (or, in relation to any loan in euro, EURIBOR (as defined in the European Credit Agreement)) plus 1.90%. The

European Credit Facility is collateralized by the accounts receivable and inventories of the borrowers, plus a limited pledge of all of the other assets of the Belgian borrower. The European Credit Facility contains certain restrictive covenants that, among other things, restrict the ability of the obligors to incur debt, incur liens, pay dividends or merge or consolidate with, or sell or transfer all or substantially all of the assets to, another entity, and requires the maintenance of certain financial ratios. In addition, the European Credit Facility contains customary cross-default provisions with respect to other debt and obligations of Parent and its subsidiaries. We had no borrowings or repayments under the European Credit Facility during 2015, 2016 and the first six months of 2017, and at June 30, 2017, there were no outstanding borrowings under the European Credit Facility. Our European Credit Facility requires the maintenance of certain financial ratios, including the ratio of net secured debt to EBITDA (as defined in the European Credit Agreement) of the borrowers, the guarantors and their subsidiaries for the relevant twelve month period and the ratio of net financial debt to consolidated equity at the end of the applicable period. Based on the terms of our European Credit Facility (including the net secured debt to EBITDA financial test discussed above) and the borrowers' EBITDA over the last twelve month period ended June 30, 2017, the full €120.0 million amount of the European Credit Facility ($137.1 million based on the exchange rate as of June 30, 2017 of $1.1424 United States dollars per Euro) is available for borrowing at June 30, 2017.

Term loan

In February 2014, we entered into the $350 million Term Loan Facility. The Term Loan Facility currently bears interest, at our option, at the LIBOR Rate (as defined in the credit agreement that governs the Term Loan Facility) (with LIBOR no less than 1.0%) plus 3.00%, or the Base Rate (as defined in the credit agreement that governs the Term Loan Facility) plus 2.00%. The Term Loan Facility matures on February 18, 2020. We intend to use a portion of the proceeds of this offering to repay in full all indebtedness outstanding under, and terminate, the Term Loan Facility, including the unsecured promissory note issued by our wholly-owned subsidiary, Kronos International, Inc.

See Note 18 to our Audited Consolidated Financial Statements and Note 14 to our Unaudited Condensed Consolidated Financial Statements for a discussion of the interest rate swap we entered into in the third quarter of 2015 pursuant to our interest rate risk management strategy. We expect to cancel and terminate the interest rate swap concurrent with completing this offering and repaying and terminating the Term Loan Facility.

Upon repaying and terminating the Term Loan Facility using a portion of the net proceeds of this offering, the unamortized original issue discount and debt issuance costs associated with the Term Loan Facility will be charged to expense. In addition, concurrent with cancelling and terminating the interest rate swap, the amount we have recognized in accumulated other comprehensive income (loss) associated with the interest rate swap will be reclassified out of accumulated other comprehensive income (loss) and also charged to expense. At June 30, 2017, we had a $1.8 million loss, net of income tax benefit, recognized in accumulated other comprehensive income (loss) related to the interest rate swap.

DESCRIPTION OF NOTES

General

Certain capitalized terms used in this description are defined under the subheading "—Certain Definitions." In this description, (i) the terms "*we*," "*our*" and "*us*" each refer to Kronos Worldwide, Inc. and its consolidated Subsidiaries, (ii) the term "*Parent*" refers only to Kronos Worldwide, Inc. and not any of its Subsidiaries and (iii) the term "*Issuer*" refers to the Kronos International, Inc., which will be the issuer of the Notes (as defined below).

The Issuer will issue €400,000,000 in aggregate principal amount of 3.750% senior secured notes due 2025 (the "*Notes*") under an indenture to be dated September 13, 2017 (the "*Indenture*") among the Issuer, the Guarantors, Deutsche Bank Trust Company Americas, as trustee (the "*Trustee*"), Deutsche Bank Trust Company Americas, as collateral agent (the "*Collateral Agent*"), and Deutsche Bank Trust Company as paying agent, registrar and transfer agent. The Notes will be issued in a private transaction that is not subject to the registration requirements of the Securities Act. See "Notice to Investors." The terms of the Notes include those stated in the Indenture.

Application has been made for the Notes to be listed on The International Stock Exchange ("*TISE*"). The Issuer can provide no assurance that this application will be granted. Consummation of the offering of the Notes is not contingent upon obtaining such listing.

The following description is only a summary of the material provisions of the Indenture and the Security Documents, does not purport to be complete and is qualified in its entirety by reference to the provisions thereof, including the definitions therein of certain terms used below. We urge you to read the Indenture and the Security Documents because they, and not this description, define your rights as a Holder of the Notes. You may request copies of the Indenture and the Security Documents at our address set forth under the heading "Summary—Corporate Information."

Brief Description of Notes

The Notes will mature on September 15, 2025.

The Notes will be:

- senior secured obligations of the Issuer;
- secured on a first-priority basis, equally and ratably with all obligations of the Issuer under any future Permitted Additional Notes Priority Debt, by Liens on the Notes Collateral, subject to Permitted Liens, as described under "—Collateral and Security";
- effectively junior to all of the Issuer's existing and future Indebtedness that is secured by assets other than the Notes Collateral, to the extent of the value of such assets;
- *pari passu* in right of payment to all existing and future senior Indebtedness of the Issuer;
- effectively senior to all of the Issuer's existing and future Indebtedness that is either secured by the Notes Collateral on a junior-priority basis relative to the Notes or unsecured, in each case, to the extent of the value of the Notes Collateral;
- senior in right of payment to all existing and future Subordinated Indebtedness of the Issuer;

- structurally subordinated to all existing and future Indebtedness of each of the Parent's existing and future Subsidiaries (other than the Issuer) that do not guarantee the Notes; and
- unconditionally guaranteed by the Guarantors pursuant to the Guarantees.

Guarantees

The Parent and Parent's current and future domestic Wholly Owned Subsidiaries (other than the Issuer) will guarantee the Notes, subject to the terms of the release provisions of their Guarantees. None of our Foreign Subsidiaries or any other Excluded Subsidiary will guarantee the Notes.

Each of the Guarantees will be:

- a general secured obligation of each Guarantor;
- *pari passu* in right of payment with all senior Indebtedness of each such Guarantor, including Indebtedness of such Guarantor under the North American Revolving Credit Agreement;
- secured on a first-priority basis, equally and ratably with all obligations of such Guarantor under any future Permitted Additional Notes Priority Debt, by Liens on the Notes Collateral from time to time owned by such Guarantor, subject to Permitted Liens, as described under "—Collateral and Security";
- effectively junior to all of such Guarantor's existing and future Indebtedness (including the Indebtedness incurred pursuant to the North American Revolving Credit Agreement) that is secured by assets other than the Notes Collateral, to the extent of the value of such assets;
- effectively senior to all of such Guarantor's existing and future Indebtedness that is either secured by the Notes Collateral on a junior-priority basis relative to the Notes or unsecured, in each case, to the extent of the value of the Notes Collateral held by such Guarantor;
- senior in right of payment to all existing and future Subordinated Indebtedness of each such Guarantor; and
- structurally subordinated to all existing and future Indebtedness of each of the Parent's existing and future Subsidiaries (other than the Issuer) that do not guarantee the Notes.

Not all of Parent's Subsidiaries will guarantee the Notes. In the event of a bankruptcy or similar proceeding of any Non-Guarantor Subsidiary, such Non-Guarantor Subsidiary will pay the holders of its debt and its trade creditors before it will be able to distribute any of its assets to the Issuer.

The obligations of each Subsidiary Guarantor under its Guarantee will be limited to the extent enforceable as necessary to prevent such Guarantee from constituting a fraudulent conveyance or transfer under applicable law or case law (including legal restrictions to make distributions or to provide other benefits to direct or indirect shareholders) or as necessary to recognize certain defenses generally available to guarantors, including voidable preference, financial assistance, corporate purpose, capital maintenance or similar laws, regulations or defenses affecting the rights of creditors generally or other considerations under applicable law.

If a Guarantee were rendered voidable, it could be subordinated by a court to all other indebtedness (including guarantees and other contingent liabilities) of the applicable Guarantor, and, depending on the amount of such indebtedness, such Guarantor's liability on its Guarantee could be reduced to zero. See "Risk Factors—Risks Related to our Indebtedness, the Notes and the Guarantees—Federal and state fraudulent transfer and conveyance statutes and similar laws may permit courts, under specific circumstances, to avoid the Notes, the guarantees and/or security interests related to the Notes, to require noteholders to return payments received from us or the guarantors, and to take other actions detrimental to the noteholders."

Any Guarantor that makes a payment under its Guarantee will be entitled upon payment in full of all guaranteed obligations under the Indenture to a contribution from each other Guarantor in an amount equal to such other Guarantor's pro rata portion of such payment based on the respective net assets of all the Guarantors at the time of such payment determined in accordance with GAAP.

The Indenture will provide that each Guarantor may consolidate with, amalgamate or merge with or into or sell all or substantially all of its assets to the Issuer or another Guarantor without limitation, or with other Persons upon the terms and conditions set forth in the Indenture. See "—Certain Covenants—Merger, Consolidation or Sale of All or Substantially All Assets."

A Guarantee by a Subsidiary Guarantor shall provide by its terms that it shall be automatically and unconditionally released and discharged upon:

(1)(a) any sale, exchange, disposition or transfer (including through consolidation, merger or otherwise) of (x) the Capital Stock of such Subsidiary Guarantor, after which such Subsidiary Guarantor is no longer a Subsidiary of Parent, or (y) all or substantially all the assets of such Subsidiary Guarantor, which sale, exchange, disposition or transfer in each case is made in compliance with the Indenture;

(b) in the case of any Restricted Subsidiary that after the Issue Date is required to guarantee the Notes pursuant to the covenant described under "—Certain Covenants—Future Guarantors," the release, discharge or termination of the guarantee by such Subsidiary Guarantor of the guarantee of other Indebtedness which resulted in the creation of such Guarantees, except a release, discharge or termination by or as a result of payment under such guarantee of such other Indebtedness;

(c) the permitted designation of any Restricted Subsidiary that is a Subsidiary Guarantor as an Unrestricted Subsidiary in accordance with the provisions set forth under "—Certain Covenants—Limitation on Restricted Payments" and the definition of "Unrestricted Subsidiary";

(d) the consolidation or merger of any Subsidiary Guarantor with and into the Issuer or another Guarantor that is the surviving Person in such consolidation or merger, or upon the liquidation of such Subsidiary Guarantor following the transfer of all of its assets to the Issuer or another Guarantor; or

(e) the Issuer exercising its legal defeasance option or covenant defeasance option as described under "—Legal Defeasance and Covenant Defeasance" or the Issuer's obligations under the Indenture being discharged in accordance with the terms of the Indenture; and

(2) if the Issuer requests the Trustee to acknowledge such release, the Issuer delivering to the Trustee an Officer's Certificate of such Subsidiary Guarantor, Parent or the Issuer and an Opinion of Counsel, each stating that all conditions precedent provided for in the Indenture relating to such transaction have been complied with.

Ranking

The payment of the principal of, premium, if any, and interest, if any, on the Notes and the payment of any Guarantee will rank *pari passu* in right of payment to all senior Indebtedness of the Issuer or the relevant Guarantor, as the case may be, including, to the extent applicable, the obligations of the Issuer and such Guarantor under the North American Revolving Credit Agreement.

The Notes will be effectively senior to all of the Issuer's and each Guarantor's existing and future Indebtedness that is either secured by the Notes Collateral on a junior-priority basis relative to the Notes or unsecured, in each case, to the extent of the value of the Notes Collateral (subject to Permitted Liens on such Notes Collateral). The Notes and Guarantees will be effectively subordinated to any existing or future Indebtedness of the Issuer and any Guarantor that is secured by Liens on assets that do not constitute a part of the Notes Collateral to the extent of the value of such assets. On an as adjusted basis, after giving effect to this offering and the application of the net proceeds thereof as described under the heading "Use of Proceeds," as of June 30, 2017, we would have had $453.2 million in aggregate principal amount of consolidated indebtedness outstanding, $450.0 million of which relates to the Notes (such amount being based on the exchange rate as of June 30, 2017 of $1.1424 United States dollars per Euro and stated net of the initial purchaser's discount and other estimated expenses associated with the notes offering aggregating $7.0 million) and $3.2 million of which relates to other unsecured Indebtedness. On an as adjusted basis, after giving effect to this offering and the application of the net proceeds thereof, as of June 30, 2017, there would be no amounts outstanding under either the North American Revolving Credit Agreement or the European Credit Agreement.

In addition, as of the same date, on an as adjusted basis, after giving effect to this offering and the application of the net proceeds thereof as described under the heading "Use of Proceeds," we would have had approximately $91.4 million of availability under our North American Revolving Credit Agreement and €120 million ($137.1 million based on the exchange rate as of June 30, 2017 of $1.1424 United States dollars per Euro) of availability under our European Credit Agreement. Our European Credit Facility matures in September 2017 and we believe we will be able to obtain an extension of the European Credit Facility to September 2022 in the normal course of business on or prior to its maturity date. As part of such extension, we expect to reduce the size of the European Credit Facility from €120.0 million to €90.0 million concurrent with the extension. The Notes will be structurally subordinated to existing and future Indebtedness of our Non-Guarantor Subsidiaries, to the extent of the assets of such Non-Guarantor Subsidiaries. For the twelve months ended June 30, 2017, the Non-Guarantor Subsidiaries represented approximately 67% and 90% of our net sales and EBITDA, respectively. Such Non-Guarantor Subsidiaries represented approximately 76% and 40% of our total assets and total liabilities, respectively, as of June 30, 2017. On an as adjusted basis, after giving effect to this offering and the application of the net proceeds thereof as described under the heading "Use of Proceeds," as of June 30, 2017, our Non-Guarantor Subsidiaries would have had $3.2 million of total Indebtedness outstanding, all of which will be structurally senior to the Notes.

Although the Indenture will contain limitations on the amount of additional Indebtedness that the Parent and its Restricted Subsidiaries (including, for the avoidance of doubt, the Issuer) may incur, under certain circumstances the amount of such Indebtedness could be substantial and, in any case, such Indebtedness may be senior secured indebtedness or structurally senior indebtedness. See "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock."

Paying Agent and Registrar for the Notes

The Issuer will maintain one or more paying agents (each, a "*Paying Agent*") for the Notes. The initial Paying Agent will be Deutsche Bank Trust Company Americas.

The Issuer will also maintain one or more registrars (each, a "*Registrar*"). The initial Registrar will be Deutsche Bank Trust Company Americas. The Registrar will maintain a register reflecting ownership of Definitive Registered Notes (as defined under "Book-Entry, Delivery and Form") outstanding from time to time and will make payments on and facilitate transfer of Definitive Registered Notes on behalf of the Issuer.

The Issuer may change the Paying Agents or the Registrars without prior notice to the holders of Notes.

Transfer and Exchange

A Holder may transfer or exchange Notes in accordance with the Indenture. The Registrar and the Trustee may require a Holder to furnish appropriate endorsements and transfer documents in connection with a transfer of Notes. Holders will be required to pay all taxes due on transfer. The Issuer is not required to transfer or exchange any Note selected for redemption. Also, the Issuer is not required to transfer or exchange any Note for a period of 15 days before the sending of a notice of redemption.

Principal, Maturity and Interest

The Issuer will initially issue €400,000,000 in aggregate principal amount of Notes. The Issuer may issue additional Notes (the "*Additional Notes*") under the Indenture from time to time after this offering subject to compliance with the covenant described below under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock." Unless the context requires otherwise, references to "Notes" for all purposes of the Indenture and this "Description of Notes" include any Additional Notes.

The Issuer will issue Notes in minimum denominations of €100,000 and integral multiples of €1,000 in excess thereof.

Principal of, premium, if any, and interest on the Notes will be payable at the office or agency of the Issuer maintained for such purpose or, at the option of the Issuer, payment of interest may be made through the paying agent by check mailed to the Holders at their respective addresses set forth in the register of Holders; *provided* that all payments of principal, premium, if any, and interest with respect to the Notes represented by one or more global notes registered in the name of or held by Euroclear or Clearstream, as applicable, or their respective nominee will be made by wire transfer of immediately available funds to the accounts specified by the Holder or Holders thereof.

Interest on the Notes will accrue at the rate of 3.750% per annum and be payable in cash. Interest on the Notes will be payable semi-annually in arrears on each March 15 and September 15, commencing on March 15, 2018. The Issuer will make each interest payment to the Holders of record of the Notes at the close of business on the immediately preceding March 1 and September 1. Interest on the Notes will accrue from the most recent date to which interest has been paid with respect to such Notes, or if no interest has been paid with respect to such Notes, from the date of original issuance thereof. Interest will be computed on the basis of a 360-day year comprised of twelve 30-day months. The Notes will mature on September 15, 2025.

Collateral and Security

The Notes and the Guarantees will be secured by first-priority security interests in the Notes Collateral (as defined below), subject to certain Permitted Liens. The Liens on the Notes Collateral that will secure the Notes and the Guarantees will be granted under certain Security Documents in favor of the Collateral Agent for the benefit of the Holders of the Notes, the Trustee and the Collateral Agent, as well as the holders of any Permitted Additional Notes Priority Debt. The "*Notes Collateral*" consists of the following assets of the Issuer and the Guarantors:

(1) 100% of issued and outstanding Capital Stock of each existing and future Domestic Subsidiary that is directly owned by the Issuer or any Guarantor (it being understood that, as of the Issue Date, there is no existing Domestic Subsidiary owned by the Issuer);

(2) 65% of the issued and outstanding voting Capital Stock and 100% of the issued and outstanding non-voting Capital Stock of (x) each CFC Holding Company that is directly owned by the Issuer or any Guarantor and (B) each Foreign Subsidiary that is directly owned by the Issuer or any Guarantor;

(3) all dividends, cash, options, warrants, rights, instruments, distributions, returns of capital or principal, income, interest, profits and other property, interests (debt or equity) or proceeds, including as a result of a split, revision, reclassification or other like change of any of the assets referred to in the foregoing clauses (1) through (2), from time to time received, receivable or otherwise distributed to the Issuer or a Guarantor in respect of or in exchange for any or all of the assets referred to in the foregoing clauses (1) through (2);

(4) all books and records evidencing, relating to, or referring to any of the foregoing (excluding books and records evidencing, relating to, or referring to the collateral securing Indebtedness incurred under the North American Revolving Credit Agreement); and

(5) all of the proceeds (as such term is defined in the UCC) and products, whether tangible or intangible, of any of the foregoing;

provided that neither the Issuer nor any Guarantor shall be obligated to take steps outside the United States to perfect a security interest in any Notes Collateral located in any jurisdiction outside the United States. See "Risk Factors—Risks Related to Our Indebtedness, the Notes and the Guarantees—The liens on the foreign stock will not be created or perfected under the law governing such foreign stock." The Notes will not have a lien on and security interest in any assets of Parent or any of its Subsidiaries (other than the Notes Collateral), and, for the avoidance of doubt, such assets shall not constitute "Notes Collateral" for purposes of the Indenture and the obligations of the Issuer under the Notes and the Guarantors under the Guarantees will be effectively subordinated to Indebtedness secured by a Lien on such assets.

Initially, subject to Permitted Liens, only the Notes will have the benefit of the first-priority security interest in the Notes Collateral. Except for Permitted Additional Notes Priority Debt, no other Indebtedness incurred by the Issuer or any Guarantor may share in the first-priority security interest in the Notes Collateral. As set out in more detail below, upon an enforcement event or Insolvency or Liquidation Proceeding, proceeds from the Notes Collateral will be applied ratably to satisfy obligations under the Notes and any Permitted Additional Notes Priority Debt.

Security Documents

The Issuer, the Guarantors, the Collateral Agent and the Trustee will enter into one or more Security Documents creating and establishing the terms of the security interests and Liens that secure the Notes and any future Permitted Additional Notes Priority Debt. Under certain circumstances and subject to limitations, in each case as required under the Indenture, the Issuer and the Guarantors may in the future be required to pledge additional Capital Stock to secure the Notes. These security interests and Liens will secure the payment and performance when due of all of the Obligations of the Issuer under the Notes, the Indenture and the Security Documents, as provided in the Security Documents. The Issuer and the Guarantors have completed or will complete all filings and other similar actions required in connection with the perfection of such security interests on or prior to the Issue Date. Deutsche Bank Trust Company Americas will be appointed, pursuant to the Indenture, as the Collateral Agent.

Sufficiency of Collateral

By its nature, portions of the Notes Collateral may be illiquid and may have no readily ascertainable market value. The fair market value of the Notes Collateral is subject to fluctuations based on factors that include, among others, the condition of Parent's industry, the ability to sell the Notes Collateral in an orderly sale, general economic conditions, the availability of buyers and similar factors. The amount to be received upon a sale of the Notes Collateral would also be dependent on numerous factors, including, but not limited to, the actual fair market value of the Notes Collateral at such time and the timing and the manner of the sale. Accordingly, there can be no assurance that the Notes Collateral can be sold in a short period of time or in an orderly manner. In addition, in the event of a bankruptcy or similar proceeding, the ability of the Holders to realize upon any of the Notes Collateral may be subject to certain bankruptcy law limitations as described below. In the event of foreclosure on the Notes Collateral, the proceeds from the sale of the Notes Collateral may not be sufficient to satisfy in full the Issuer's Obligations under the Notes.

Exercise of Remedies under the Security Documents

Upon the occurrence and during the continuance of an Event of Default or an event of default under any agreement or instrument representing Permitted Additional Notes Priority Debt, the Security Documents provide for (among other available remedies) the foreclosure upon and sale of the applicable Notes Collateral by the Collateral Agent at the direction of the Holders of a majority in the aggregate principal amount of the obligations under the Notes and any future Permitted Additional Notes Priority Debt (subject to the terms of the Security Documents) and the distribution of the net proceeds of any such sale to the Holders of the Notes and the holders of any Permitted Additional Notes Priority Debt on a ratable basis, subject to any prior Liens on the Notes Collateral. If the Collateral Agent has asked the Holders of the Notes and the holders of Permitted Additional Notes Priority Debt for instruction and they have not yet responded to such request, the Collateral Agent will be authorized to take, but will not be required to take, and will in no event have any liability for taking, any delay in taking or the failure to take, such actions with regard to a default or event of default which the Collateral Agent, in good faith, believes to be reasonably required to promote and protect the interests of the Holders of the Notes and the holders of Permitted Additional Notes Priority Debt and to preserve the value of the Notes Collateral; provided that once instructions from the Holders of a majority in the aggregate principal amount of the obligations under the Notes and any future Permitted Additional Notes Priority Debt have been received by the Collateral Agent, the actions of the Collateral Agent will be governed thereby and the Collateral Agent will not take any further action which would be contrary thereto. Any action taken or not taken without the vote of any Holder of the Notes or holder of Permitted Additional Notes Priority Debt will

Collateral. The Bankruptcy Code permits the payment and/or accrual of post-petition interest, costs, expenses and attorneys' fees to a secured creditor during a debtor's bankruptcy case only to the extent the value of the Notes Collateral is determined by the bankruptcy court to exceed the aggregate outstanding principal amount of the obligations secured by the Notes Collateral, including any Obligation secured on a priority basis. In addition, during the course of the bankruptcy case, a secured party may be entitled to seek adequate protection of its interest in its collateral to compensate it for any diminution in value caused by the debtor's use, sale, lease, or detention of such collateral. If the secured party is found to be entitled to adequate protection, the form of protection will be determined by agreement with the debtor or by order of the bankruptcy court. Adequate protection can consist of replacement or additional collateral, or cash payments, among other things. Each case is different and whether adequate protection will be ordered by the bankruptcy court and the form the protection might take will vary with the facts of each case.

Furthermore, in the event a bankruptcy court determines that the value of the Notes Collateral is not sufficient to repay all amounts due on the Notes, the Holders would hold secured claims only to the extent of the value of the Notes Collateral to which the Holders are entitled, and unsecured deficiency claims with respect to such shortfall. Any other secured claims and all administrative and priority claims would be paid ahead of such unsecured deficiency claim.

Release of Liens in Respect of Notes Pursuant to the Indenture

The Indenture will provide that the Collateral Agent's Liens on the Notes Collateral will no longer secure the Notes outstanding under the Indenture or any other Obligations under the Indenture or the Security Documents, and the right of the holders of the Notes and such Obligations to the benefits and proceeds of the Collateral Agent's Liens on the Notes Collateral will terminate and be discharged:

(1) upon satisfaction and discharge of the Indenture as set forth under the caption"—Satisfaction and Discharge";

(2) upon a legal Defeasance or covenant Defeasance of the Notes as set forth under the caption "—Legal Defeasance and Covenant Defeasance";

(3) upon payment in full and discharge of all Notes outstanding under the Indenture and all Obligations that are outstanding, due and payable under the Indenture at the time the Notes are paid in full and discharged;

(4) in part with respect to any Notes Collateral upon any sale or other disposition of such Notes Collateral in a transaction permitted by the Indenture to a Person that is not the Issuer or a Guarantor; or

(5) in whole or in part, with the consent of the Holders of the requisite percentage of Notes in accordance with the provisions described below under the caption "Amendment, Supplement and Waiver."

Mandatory Redemption; Offers to Purchase; Open Market Purchases

The Issuer is not required to make any mandatory redemption or sinking fund payments with respect to the Notes. However, under certain circumstances, the Issuer may be required to offer to purchase Notes as described under the caption "Repurchase at the Option of Holders." We may at any time and from time to time purchase Notes in the open market or otherwise.

Optional Redemption

Except as set forth below, the Issuer will not be entitled to redeem the Notes at its option prior to September 15, 2020.

At any time prior to September 15, 2020, the Issuer may redeem all or a part of the Notes, at its option, at any time or from time to time, upon notice as described under the heading "—Selection and 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 record at the close of business on the relevant record date to receive interest due on the relevant interest payment date falling prior to or on the redemption date.

On and after September 15, 2020, the Issuer may redeem the Notes, at its option, in whole at any time or in part from time to time, upon notice as described under the heading "—Selection and Notice," at the redemption prices (expressed as a percentage of principal amount of the Notes to be redeemed) set forth below, *plus* accrued and unpaid interest and Additional Amounts thereon, if any, to, but not including, the applicable Redemption Date, subject to the right of Holders of record at the close of business on the relevant record date to receive interest due on the relevant interest payment date falling prior to or on the redemption date, if redeemed during the twelve-month period beginning on September 15 of each of the years indicated below:

Year	Percentage
2020	102.813%
2021	101.875%
2022	100.938%
2023 and thereafter	100.000%

In addition, until September 15, 2020, the Issuer may, at its option, on one or more occasions redeem up to 40% of the aggregate principal amount of Notes (calculated after giving effect to any issuance of any Additional Notes) at a redemption price equal to 103.750% of the aggregate principal amount thereof, *plus* accrued and unpaid interest and Additional Amounts thereon, if any, to, but not including, the applicable Redemption Date, subject to the right of Holders of record at the close of business on the relevant record date to receive interest due on the relevant interest payment date falling prior to or on the redemption date, with the net cash proceeds of one or more Equity Offerings; *provided* that at least 60% of the sum of the aggregate principal amount of Notes originally issued under the Indenture and any Notes that are issued under the Indenture after the Issue Date remains outstanding immediately after the occurrence of each such redemption; *provided*, *further*, that each such redemption occurs within 120 days of the date of receipt of the cash proceeds from the closing of each such Equity Offering upon not less than 30 nor more than 60 days' notice sent to each Holder of Notes being redeemed and otherwise in accordance with the procedures set forth in the Indenture.

Redemption for Tax Reasons

The Issuer may redeem the Notes in whole, but not in part, at any time upon giving not less than 30 days' nor more than 60 days' prior notice to the Holders at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest to but not including the date fixed for redemption (a "*Tax Redemption Date*") and all Additional Amounts (as defined below under "—Payment of Additional Amounts"), if any, then due and that will become due on the Tax Redemption Date as a result of the redemption or otherwise, if the Issuer determines in good faith that, as a result of a Change in Tax Law (as defined below), a

Payor is, or on the next interest payment date would be, required to pay Additional Amounts with respect to such Notes, and such obligation cannot be avoided by taking reasonable measures available to the Payor. For the avoidance of doubt, the Issuer may redeem the Notes in whole, but not in part, at any time and from time to time following a Change in Tax Law, subject to compliance with the notice periods and other requirements specified herein.

A "*Change in Tax Law*" is a change in, or amendment to, the law, or any regulations or rulings promulgated thereunder, of a Relevant Taxing Jurisdiction (as defined below), or an official written application, administration or interpretation of such laws, regulations or rulings, including a holding, judgment or order by a court of competent jurisdiction or a change in published practice or revenue guidance, in each case that is announced and becomes effective on or after the Issue Date (or if the applicable Relevant Taxing Jurisdiction became a Relevant Taxing Jurisdiction on a date after the Issue Date, such later date).

No such notice of redemption will be given earlier than 60 days prior to the earliest date on which the Payor would be obligated to make such payment of Additional Amounts. Prior to the publication or mailing of any notice of redemption of any Notes pursuant to the foregoing, the Issuer will deliver to the Trustee and Paying Agent (a) an Officer's Certificate stating that the Issuer is entitled to effect such redemption and setting forth a statement of facts showing that the conditions precedent to its right so to redeem have been satisfied and (b) an Opinion of Counsel from an independent tax counsel of our choosing of recognized standing qualified under the laws of the Relevant Taxing Jurisdiction to the effect that the Payor has been or will become obligated to pay Additional Amounts as a result of a Change in Tax Law. The Trustee will accept and shall be entitled to rely on such Officer's Certificate and Opinion of Counsel 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.

Upon receiving such notice of redemption, each Holder will have the right to elect not to have its Notes redeemed. In that case, the Payors will not be obligated to pay any Additional Amounts on any payment with respect to such Notes after the Tax Redemption Date (or, if we fail to pay the redemption price on the Tax Redemption Date, after such later date on which we pay the redemption price) solely as a result of such Change in Tax Law that resulted in the obligation to pay such Additional Amounts, and all future payments with respect to such Notes will be subject to the deduction or withholding of such Relevant Taxing Jurisdiction taxes required by law to be deducted or withheld as a result of such Change in Tax Law. If no such election is made, the Holder will have its Notes redeemed without any further action.

Payment of Additional Amounts

All payments of principal and interest on the Notes by the Issuer or any Guarantor (including, in each case, any successor entity) (each, a "*Payor*") will be made free and clear of and without withholding or deduction for or on account of any present or future tax, assessment or other governmental charge imposed by the United States, any other jurisdiction from or through which payment on any Note or Guarantee thereof is made, or any other jurisdiction in which a Payor is organized, engaged in business for tax purposes, or otherwise considered to be a resident for tax purposes, or any political subdivision or governmental authority thereof or therein having the power to tax (or, in each case, any political subdivision or taxing authority thereof or therein having power to tax) (each, a "*Relevant Taxing Jurisdiction*"), unless the withholding or deduction of such taxes, assessment or other government charge is required by law or the official interpretation or administration thereof. The Payor will, subject to the exceptions and limitations set forth below, pay such additional amounts ("*Additional Amounts*") as are necessary in order that the net payment received by the beneficial holder, after withholding or deduction for any present or future tax, assessment or other governmental charge imposed by a Relevant Taxing Jurisdiction, will not be less than the amount provided in the Notes to be then due and payable; *provided*, *however*, that the foregoing obligation to pay Additional Amounts shall not apply:

(1) to the extent any tax, assessment or other governmental charge is imposed by reason of the Holder (or the beneficial owner for whose benefit such Holder holds such Note), or a fiduciary, settlor, beneficiary, member or shareholder of the Holder if the Holder is an estate, trust, partnership or corporation, or a person holding a power over an estate or trust administered by a fiduciary Holder, being considered as:

(a) being or having been engaged in a trade or business in the United States or having or having had a permanent establishment in the United States;

(b) having a current or former connection with the United States (other than a connection arising solely as a result of the ownership of the Notes, the receipt of any payment or the enforcement of any rights hereunder), including being or having been a citizen or resident of the United States or having been present in the United States;

(c) being or having been a personal holding company, a passive foreign investment company or a controlled foreign corporation for United States income tax purposes or a corporation that has accumulated earnings to avoid U.S. federal income tax;

(d) being or having been a "10-percent shareholder" of the Issuer as defined in section 871(h)(3) of the United States Internal Revenue Code of 1986, as amended (the "Code") or any successor provision; or

(e) being a bank receiving payments on an extension of credit made pursuant to a loan agreement entered into in the ordinary course of its trade or business, as described in section 881(c)(3)(A) of the Code or any successor provision;

(2) to any Holder that is not the sole beneficial owner of the Notes, or a portion of the Notes, or that is a fiduciary, partnership or limited liability company, but only to the extent that a beneficial owner with respect to the Holder, a beneficiary or settlor with respect to the fiduciary, or a beneficial owner or member of the partnership or limited liability company would not have been entitled to the payment of an additional amount had the beneficiary, settlor, beneficial owner or member received directly its beneficial or distributive share of the payment;

(3) to the extent any tax, assessment or other governmental charge that would not have been imposed but for the failure of the Holder or any other person (A) to comply with certification, identification or information reporting requirements concerning the nationality, residence, identity or connection with the United States of the Holder or beneficial owner of the Notes, if compliance is required by statute, by regulation of the United States or any taxing authority therein or by an applicable income tax treaty to which the United States is a party as a precondition to a partial or complete exemption from such tax, assessment or other governmental charge or (B) to comply with any information gathering or reporting requirements or take any similar actions (including entering into any agreement with the U.S. Internal Revenue Service), in each case, that are required to obtain the maximum exemption from withholding that is available to payments received by or on behalf of the Holder;

(4) to any tax, assessment or other governmental charge that is imposed otherwise than by withholding by the Payor or a paying agent from the payment;

(5) to any estate, inheritance, gift, sales, transfer, wealth, capital gains or personal property tax or similar tax, assessment or other governmental charge, or excise tax imposed on the transfer of Notes;

(6) to any tax, assessment or other governmental charge required to be withheld by any paying agent from any payment of principal of or interest on any Note as a result of the presentation of any Note for payment (where presentation is required) by or on behalf of a Holder of Notes, if such payment could have been made without such withholding by presenting the relevant Note to at least one other paying agent in a member state of the European Union;

(7) to the extent any tax, assessment or other governmental charge would not have been imposed but for the presentation by the Holder of any Note, where presentation is required, for payment on a date more than 30 days after the date on which payment became due and payable or the date on which payment thereof is duly provided for, whichever occurs later;

(8) to any tax, assessment or other governmental charge imposed under Sections 1471 through 1474 of the Code (or any amended or successor provisions that are substantively comparable and not materially more onerous to comply with), any current or future regulations or official interpretations thereof, any agreement entered into pursuant to Section 1471(b) of the Code or any fiscal or regulatory legislation, rules or practices adopted pursuant to any intergovernmental agreement entered into in connection with the implementation of such sections of the Code; or

(9) in the case of any combination of items (1), (2), (3), (4), (5), (6), (7) and (8).

As used under this heading "—Payment of Additional Amounts," the term "United States" means the United States of America, the states of the United States, and the District of Columbia.

Wherever in the Indenture, the Notes or this "Description of Notes" there is mentioned, in any context:

(1) the payment of principal;

(2) purchase prices in connection with a purchase of Notes;

(3) interest; or

(4) any other amount payable on or with respect to any Guarantee of a Note,

such reference shall be deemed to include payment of Additional Amounts to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof.

The Payor will pay and indemnify the Holders and beneficial owners of the Notes, the Trustee and Paying Agent for any present or future stamp, transfer, issue, registration, court or documentary taxes, or any other excise, property or similar taxes or similar charges or levies (including any related interest or penalties with respect thereto) that arise in a Relevant Taxing Jurisdiction from the execution, delivery, enforcement or registration of, or receipt of payments with respect to, any Note, any Guarantee of a Note, the Indenture, or any other document or instrument in relation thereto (limited, solely to the extent of such taxes or similar charges or levies that arise from the receipt of any payments of principal or interest on the Notes, to any such taxes or similar charges or levies that are not excluded under clauses (1) through (3) and (5) through (8) or any combination thereof).

The foregoing obligations will survive any termination, defeasance or discharge of the Indenture and will apply *mutatis mutandis* to any jurisdiction in which any successor to a Payor is organized, engaged in business for tax purposes or otherwise resident for tax purposes, or any jurisdiction from or through which any payment under, or with respect to the Notes or

Guarantees thereof is made by or on behalf of such Payor, or any political subdivision or taxing authority or agency thereof or therein.

At least 30 days prior to each date on which any payment under or with respect to the Notes is due and payable (unless an obligation to pay Additional Amounts arises after the 30th day prior to the date on which payment under or with respect to the Notes is due and payable, in which case it will be promptly thereafter), if the Issuer will be obligated to pay Additional Amounts with respect to such payment, the Issuer will deliver to the Trustee an Officer's Certificate stating that Additional Amounts will be payable and the amounts so payable and setting forth such other information as is necessary to enable the Trustee to pay such Additional Amounts to the Holders of such Notes on the relevant payment date.

Except as specifically provided under this heading "—Payment of Additional Amounts," we will not be required to make any payments for any taxes, assessments or other governmental charges imposed by any government or political subdivision or any taxing authority of any government or political subdivision.

Repurchase at the Option of Holders

Change of Control

The Indenture will provide that, if a Change of Control occurs after the Issue Date, unless the Issuer has previously or concurrently sent a redemption notice with respect to all the outstanding Notes as described under "*Optional Redemption,*" the Issuer will make an offer to purchase all of the Notes pursuant to the offer described below (the "*Change of Control Offer*") at a price in cash (the "*Change of Control Payment*") equal to 101% of the aggregate principal amount thereof *plus* accrued and unpaid interest and Additional Amounts, if any, to, but not including, the date of purchase, subject to the right of Holders of record of the Notes at the close of business on the relevant record date to receive interest due on the relevant interest payment date falling prior to or on the purchase date. Within 30 days following any Change of Control, the Issuer will send notice of such Change of Control Offer by first-class mail, with a copy to the Trustee and Paying Agent, to each Holder of Notes to the registered address of such Holder or otherwise electronically in accordance with the procedures of Euroclear and Clearstream, with the following information:

(1) that a Change of Control Offer is being made pursuant to the covenant entitled "Repurchase at the Option of Holders—Change of Control," and that such Holder has the right to require the Issuer to purchase all or a portion of such Holder's Notes at a purchase price in cash 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 purchase, subject to the right of Holders of record of the Notes at the close of business on the relevant record date to receive interest due on the relevant interest payment date falling prior to or on the purchase date;

(2) the purchase price and the purchase date, which will be no earlier than 30 days nor later than 60 days from the date such notice is mailed or otherwise delivered (the "*Change of Control Payment Date*");

(3) that any Note not properly tendered will remain outstanding and continue to accrue interest;

(4) that unless the Issuer defaults in the payment of the Change of Control Payment, all Notes accepted for payment pursuant to the Change of Control Offer will cease to accrue interest on the Change of Control Payment Date;

(5) if such notice is delivered prior to the occurrence of a Change of Control, stating that the Change of Control Offer is conditional on the occurrence of such Change of Control;

(6) that Holders electing to have any Notes purchased pursuant to a Change of Control Offer will be required to surrender such Notes, with the form entitled "Option of Holder to Elect Purchase" on the reverse of such Notes completed, to the paying agent specified in the notice at the address specified in the notice prior to the close of business on the third Business Day preceding the Change of Control Payment Date;

(7) that Holders will be entitled to withdraw their tendered Notes and their election to require the Issuer to purchase such Notes; *provided* that the paying agent receives, not later than the close of business on the second Business Day prior to the Change of Control Payment Date, facsimile transmission or letter setting forth the name of the Holder of the Notes, the principal amount of Notes tendered for purchase, and a statement that such Holder is withdrawing its tendered Notes and its election to have such Notes purchased; and

(8) the instructions, as determined by the Issuer, consistent with the covenant described hereunder, that a Holder must follow.

We will not be required to make a Change of Control Offer following a Change of Control if 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 us and purchases all Notes validly tendered and not withdrawn under such Change of Control Offer. Notwithstanding anything to the contrary herein, a Change of Control Offer may be made in advance of a Change of Control, conditional upon such Change of Control, if a definitive agreement is in place for the Change of Control at the time of making of the Change of Control Offer.

Notes purchased by the Issuer pursuant to a Change of Control Offer will have the status of Notes issued but not outstanding or will be retired and cancelled at the option of the Issuer. Notes purchased by a third party pursuant to the preceding paragraph will have the status of Notes issued and outstanding.

If Holders of not less than 90% in aggregate principal amount of the outstanding Notes validly tender and do not withdraw such Notes in a Change of Control Offer and we, or any third party making a Change of Control Offer in lieu of us as described above, purchases all of the Notes validly tendered and not withdrawn by such Holders, we or such third party will have the right, upon not less than 30 nor more than 60 days' prior notice, given not more than 30 days following such purchase pursuant to the Change of Control Offer described above, to redeem all Notes that remain outstanding following such purchase at a price in cash equal to 101% of the principal amount thereof *plus* accrued and unpaid interest and Additional Amounts, if any, to, but not including, the applicable Redemption Date.

The Issuer will comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent such laws or regulations are applicable in connection with the purchase by the Issuer of Notes pursuant to a Change of Control Offer. 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 shall not be deemed to have breached their obligations described in the Indenture by virtue thereof.

On the Change of Control Payment Date, the Issuer will, to the extent permitted by law,

(1) accept for payment all Notes issued by them or portions thereof properly tendered and not withdrawn pursuant to the Change of Control Offer;

(2) deposit with the paying agent an amount equal to the aggregate Change of Control Payment in respect of all Notes or portions thereof so tendered and not withdrawn; and

(3) deliver, or cause to be delivered, to the Paying Agent for cancellation the Notes so accepted and not withdrawn together with an Officer's Certificate to the Trustee and Paying Agent stating that such Notes or portions thereof have been tendered to and purchased by the Issuer.

The North American Revolving Credit Agreement limits, and future credit agreements or other agreements to which Parent or the Issuer becomes a party may prohibit or limit, the Issuer from purchasing any Notes as a result of a Change of Control. In the event a Change of Control occurs at a time when the Issuer is prohibited from purchasing the Notes, Parent or the Issuer, as applicable, could seek the consent of its lenders to permit the purchase of the Notes or could attempt to refinance the borrowings that contain such prohibition. If Parent or the Issuer, as applicable, does not obtain such consent or repay such borrowings, the Issuer will remain prohibited from purchasing the Notes. In such case, the Issuer's failure to purchase tendered Notes after any applicable notice and lapse of time would constitute an Event of Default under the Indenture, which would, in turn, likely constitute a default under such other agreements.

The North American Revolving Credit Agreement provides, and future credit agreements or other agreements relating to senior indebtedness to which Parent or the Issuer becomes a party may provide, that certain change of control events with respect to Parent or the Issuer would constitute a default thereunder (including a Change of Control under the Indenture). If we experience a change of control that triggers a default thereunder, we could seek a waiver of such default or seek to refinance such Indebtedness. In the event we do not obtain such a waiver or refinance such Indebtedness, such default could result in amounts outstanding under such Indebtedness being declared due and payable.

The Issuer's ability to pay cash to the Holders of Notes following the occurrence of a Change of Control may be limited by its then-existing financial resources. Therefore, sufficient funds may not be available when necessary to make any required repurchases. See "Risk Factors—Risks Related to our Indebtedness, the Notes and the Guarantees—We may be unable to finance a change of control offer."

The Change of Control purchase feature of the Notes may in certain circumstances make more difficult or discourage a sale or takeover of us and, thus, the removal of incumbent management. The Change of Control purchase feature is a result of negotiations between the Initial Purchaser and us. After the Issue Date, we have no present intention to engage in a transaction involving a Change of Control although it is possible that we could decide to do so in the future. Subject to the limitations discussed below, we could, in the future, enter into certain transactions, including acquisitions, refinancings or other recapitalizations, that would not constitute a Change of Control under the Indenture, but that could increase the amount of indebtedness outstanding at such time or otherwise affect our capital structure or credit ratings. Restrictions on our ability to incur additional Indebtedness are contained in the covenants described under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" and "—Certain Covenants—Liens." Such restrictions in the Indenture can be waived only with the consent of the Holders of a majority in principal amount of the Notes then outstanding. Except for the limitations contained in such covenants, however, the Indenture will not contain any covenants or provisions that may afford Holders protection in the event of a highly leveraged transaction.

The definition of "Change of Control" includes a disposition of all or substantially all of the assets of Parent and its Subsidiaries to any Person. Although there is a limited body of case law interpreting the phrase "substantially all" under New York law, which governs the Indenture, 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 Parent. As a result, it may be unclear as to whether a Change of Control has occurred and whether a Holder of Notes may require the Issuer to make an offer to repurchase the Notes as described above.

The provisions under the Indenture relative to the Issuer's obligation to make an offer to purchase 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 principal amount of the Notes.

Asset Sales

The Indenture will provide that Parent will not, and will not permit any of its Restricted Subsidiaries (including, for the avoidance of doubt, the Issuer) to, consummate an Asset Sale, unless:

(1) the Parent or such Restricted Subsidiary, as the case may be, receives consideration at the time of such Asset Sale at least equal to the fair market value as determined in good faith by Parent (such fair market value to be determined on the date of contractually agreeing to such Asset Sale) of the assets sold or otherwise disposed of; and

(2) at least 75% of the consideration therefor received by Parent or such Restricted Subsidiary, as the case may be, is in the form of Cash Equivalents; *provided* that the amount of:

(a) any liabilities (as shown on the Parent's or such Restricted Subsidiary's most recent balance sheet or in the footnotes thereto, or if incurred or accrued subsequent to the date of such balance sheet, such liabilities that would have been reflected on the Parent's or such Restricted Subsidiary's balance sheet or in the footnotes thereto if such incurrence or accrual had taken place on or prior to the date of such balance sheet, as determined in good faith by Parent) of the Parent or any Restricted Subsidiary (other than liabilities that are by their terms expressly subordinated to the Notes or the Guarantees), that are assumed by the transferee of any such assets or that are otherwise cancelled or terminated in connection with the transaction with such transferee and for which Parent and all of its Restricted Subsidiaries have been validly released by all creditors in writing,

(b) any securities, notes or other obligations or assets received by Parent or any Restricted Subsidiary from such transferee that are converted by Parent or such Restricted Subsidiary into Cash Equivalents, or by their terms are required to be satisfied for Cash Equivalents (to the extent of the Cash Equivalents received) within 365 days following the closing of such Asset Sale, and

(c) any Designated Non-cash Consideration received by Parent or any Restricted Subsidiary in such Asset Sale having an aggregate fair market value, taken together with all other Designated Non-cash Consideration received pursuant to this clause (c) that is at that time outstanding, not to exceed 2.50% of Consolidated Total Assets at the time of the receipt of such Designated Non-cash Consideration, with the fair market value of each item of Designated Non-cash Consideration being measured at the time received and without giving effect to subsequent changes in value, shall in each case be deemed to be Cash Equivalents for purposes of this provision and for no other purpose.

Within 365 days after the receipt of any Net Proceeds of any Asset Sale, Parent or such Restricted Subsidiary, at Parent's option or such Restricted Subsidiary, may apply the Net Proceeds from such Asset Sale,

(1) to the extent such Net Proceeds represent proceeds from an Asset Sale of Notes Collateral, (a) to repay, prepay, defease, redeem, purchase or otherwise retire the Notes and Permitted Additional Notes Priority Debt (and if the Indebtedness repaid is revolving credit indebtedness, to correspondingly reduce commitments with respect thereto); *provided* that, with respect to this clause (a), to the extent Parent reduces Obligations under any Permitted Additional Notes Priority Debt, Parent shall equally and ratably prepay, repay, redeem, reduce or purchase (or offer to prepay, repay, redeem, reduce or purchase, as applicable) Obligations under the Notes on a pro rata basis; *provided*, *further*, that all reductions of Obligations under the Notes shall be made as provided under "—Optional Redemption," through open-market purchases (to the extent such purchases are at or above 100% of the principal amount thereof *plus* accrued and unpaid interest and Additional Amounts, if any, to, but not including, the date of redemption) or by an offer (in accordance with the procedures set forth below for an Asset Sale Offer) to all Holders to purchase their Notes at 100% of the principal amount thereof, *plus* the amount of accrued but unpaid interest and Additional Amounts, if any, to, but not including, the date of redemption, on the amount of Notes that would otherwise be prepaid; or (b) to make an investment in (i) any one or more businesses primarily engaged in a Similar Business; *provided* that such investment in any business is in the form of (x) a merger with Parent or any Restricted Subsidiary, (y) the acquisition of Capital Stock that results in Parent or any Restricted Subsidiary owning an amount of the Capital Stock of such business such that it constitutes a Restricted Subsidiary or (z) the acquisition of Capital Stock or other assets of such business, (ii) properties, (iii) capital expenditures and (iv) the acquisition of Capital Stock or other assets, that in each of (i), (ii), (iii) or (iv), are used or useful in a Similar Business or replace the businesses, properties and assets that are subject of such Asset Sale, and in each case, such investment shall result in the Capital Stock or other assets acquired being owned by an entity whose Capital Stock constitutes Notes Collateral;

(2) to the extent that such Net Proceeds do not represent proceeds from an Asset Sale of Notes Collateral, to repay, prepay, defease, redeem, purchase otherwise retire (a) Secured Indebtedness (other than Permitted Additional Notes Priority Debt), and if such Secured Indebtedness repaid is revolving credit indebtedness, to correspondingly reduce commitments with respect thereto, (b) Indebtedness of a Non-Guarantor Subsidiary, other than Indebtedness owing to Parent or an Affiliate of Parent, and if such Indebtedness repaid is revolving credit indebtedness, to correspondingly reduce commitments with respect thereto and/or (c) Indebtedness of the Issuer or any Guarantor that is not subordinated in right of payment to the Notes or the Guarantees, in each case owing to a person other than Parent or any Affiliate of Parent; *provided* that, with respect to this clause (c), Parent shall equally and ratably prepay, repay, redeem, reduce or purchase (or offer to prepay, repay, redeem, reduce or purchase, as applicable) Obligations under the Notes (and may elect to reduce other non-subordinated Indebtedness) on a pro rata basis; *provided*, *further*, that all reductions of Obligations under the Notes shall be made as provided under "—Optional Redemption," through open-market purchases (to the extent such purchases are at or above 100% of the principal amount thereof *plus* accrued and unpaid interest and Additional Amounts, if any, to, but not including, the date of redemption) or by an offer (in accordance with the procedures set forth below for an Asset Sale Offer) to all Holders to purchase their Notes at 100% of the principal amount thereof, *plus* the amount of accrued but unpaid interest and Additional Amounts, if any, to, but not including, the date of redemption, on the amount of Notes that would otherwise be prepaid;

(3) to the extent that such Net Proceeds do not represent proceeds from an Asset Sale of Notes Collateral, to make an Investment in (a) any one or more businesses; *provided* that such Investment in any business is in the form of the acquisition of Capital Stock and results in Parent or any of its Restricted Subsidiaries, as the case may be, owning an amount of the Capital Stock of such business such that it constitutes a Restricted Subsidiary, (b) properties or (c) other assets that, in the case of each of (a), (b) and (c), are used or useful in a Similar Business or replace the businesses, properties and/or other assets that are the subject of such Asset Sale; or

(4) any combination of the foregoing;

provided that, in the case of clauses (1)(b) and (3) above, a binding commitment entered into within such 365 day period shall be treated as a permitted application of the Net Proceeds from the date of such commitment so long as Parent or such other Restricted Subsidiary enters into such commitment with the good faith expectation that such Net Proceeds will be applied to satisfy such commitment within 180 days of such commitment (an "*Acceptable Commitment*") and, in the event any Acceptable Commitment is later cancelled or terminated for any reason before such Net Proceeds are applied, then such Net Proceeds shall constitute Excess Proceeds (as defined below).

Notwithstanding the foregoing, (i) to the extent that any or all of the Net Proceeds of any Asset Sale by a Foreign Subsidiary (a "*Foreign Disposition*") are prohibited or delayed by applicable local law from being repatriated to the United States, the amount equal to the portion of such Net Proceeds so affected will not be required to be applied in compliance with this covenant, and such amounts may be retained by the applicable Foreign Subsidiary so long, but only so long, as the applicable local law will not permit repatriation to the United States (Parent hereby agreeing to use reasonable efforts to cause the applicable Foreign Subsidiary to take all actions reasonably required by the applicable local law to permit such repatriation), and if such repatriation of any of such affected Net Proceeds is permitted under the applicable local law, an amount equal to such Net Proceeds permitted to be repatriated will be applied (whether or not repatriation actually occurs) in compliance with this covenant (net of any additional taxes that are or would be payable or reserved against as a result thereof) and (ii) to the extent that Parent has determined in good faith that repatriation of any or all of the Net Proceeds of any Foreign Disposition could have a material adverse tax consequence (which for the avoidance of doubt, includes, but is not limited to, any purchase whereby doing so Parent, any Restricted Subsidiary or any of their Affiliates and/or equity partners would incur a material tax liability, including a material tax dividend, material deemed dividend pursuant to Code Section 956 or material withholding tax), the amount equal to the Net Proceeds so affected will not be required to be applied in compliance with this covenant. For the avoidance of doubt, to the extent this covenant relates to Net Proceeds realized by any Excluded Subsidiary, this covenant shall be an obligation of Parent (and not such Excluded Subsidiary) to make a payment or an offer to purchase, in each case, measured by the amount of such Net Proceeds and nothing in this "Asset Sales" covenant shall be construed as an obligation of any Excluded Subsidiary to make a payment or repatriate any Net Proceeds (or to effect an offer to purchase) or an obligation of the Issuer or any Guarantor to cause an Excluded Subsidiary to make a payment or repatriate Net Proceeds (or effect an offer to purchase).

Any Net Proceeds from any Asset Sale that are not invested or applied as provided and within the time period set forth in the preceding paragraph (it being understood that any portion of such Net Proceeds used to make an offer to purchase Notes, as described in clause (1) above, will be deemed to have been invested whether or not such offer is accepted) will be deemed to constitute "*Excess Proceeds*." When the aggregate amount of Excess Proceeds from one or more Asset Sales exceeds $30.0 million, the Issuer shall make an offer to all Holders of Notes and, if required by the terms of any Permitted Additional Notes Priority Debt, to the holders of such Permitted Additional Notes Priority Debt (an "*Asset Sale Offer*"), on a *pro rata* basis, to purchase the maximum aggregate principal amount of the Notes and such Permitted Additional Notes Priority Debt that is at least €100,000 and an integral multiple of €1,000 in excess thereof that may be purchased out of the Excess Proceeds at an offer price in cash in an amount equal to 100% of the principal amount thereof, *plus* accrued and unpaid interest and Additional Amounts, if any, to, but not including, the date fixed for the closing of such offer, in accordance with the procedures set forth in the Indenture. Parent or the Issuer will commence an Asset Sale Offer with respect to Excess Proceeds within twenty (20) Business Days after the date that Excess Proceeds so exceed $30.0 million by sending the notice required pursuant to the terms of the Indenture, with a copy to the Trustee and Paying Agent, or otherwise in accordance with the procedures of Euroclear and Clearstream or the relevant clearing system.

To the extent that the aggregate amount of Notes and Permitted Additional Notes Priority Debt tendered pursuant to an Asset Sale Offer is less than the Excess Proceeds, Parent or Issuer may use any remaining Excess Proceeds for general corporate purposes, subject to compliance with other covenants contained in the Indenture. If the aggregate principal amount of Notes or the Permitted Additional Notes Priority Debt surrendered in an Asset Sale Offer exceeds the amount of Excess Proceeds, the Trustee and Paying Agent shall select the Notes and such Permitted Additional Notes Priority Debt to be purchased in the manner described under "—Selection and Notice" below. Upon completion of any such Asset Sale Offer, the amount of Excess Proceeds shall be reset to zero (regardless of whether there are any remaining Excess Proceeds upon such completion).

Pending the final application of any Net Proceeds pursuant to this covenant, the holder of such Net Proceeds may apply such Net Proceeds temporarily to reduce Indebtedness outstanding under a revolving credit facility or otherwise invest such Net Proceeds in any manner not prohibited by the Indenture.

Parent and the Issuer will comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent such laws or regulations are applicable in connection with the repurchase of the Notes pursuant to an Asset Sale Offer. To the extent that the provisions of any securities laws or regulations conflict with the provisions of the Indenture, Parent and the Issuer will comply with the applicable securities laws and regulations and shall not be deemed to have breached its obligations described in the Indenture by virtue thereof.

The North American Revolving Credit Agreement limits, and future credit agreements or other agreements to which Parent or the Issuer becomes a party may prohibit or limit, the Issuer from purchasing any Notes pursuant to this Asset Sales covenant. In the event the Issuer is prohibited from purchasing the Notes, the Issuer could seek the consent of its lenders to the purchase of the Notes or could attempt to refinance the borrowings that contain such prohibition. If the Issuer does not obtain such consent or repay such borrowings, it will remain prohibited from purchasing the Notes. In such case, the Issuer's failure to purchase tendered Notes would constitute an Event of Default under the Indenture which would, in turn, likely constitute a default under such other agreements.

Selection and Notice

If the Issuer is redeeming less than all of the Notes issued by it at any time, the Registrar will select Notes for redemption pro rata, by lot or by such other method in accordance with the procedures of Euroclear and Clearstream or the relevant clearing system; *provided* that no Notes in denominations of €100,000 or less shall be redeemed in part.

Notices of purchase or redemption shall be mailed by first-class mail, postage prepaid, at least 30 but not more than 60 days before the date of purchase or Redemption Date to each Holder of record of Notes at such Holder's registered address or (otherwise in accordance with the procedures of Euroclear and Clearstream) (with a copy to the Trustee and Paying Agent), except that redemption notices may be mailed 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. If any Note is to be purchased or redeemed in part only, any notice of purchase or redemption that relates to such Note shall state the portion of the principal amount thereof that has been or is to be purchased or redeemed.

The Issuer will issue a new Note in a principal amount equal to the unredeemed portion of the Note called for redemption or tendered for purchase in the name of the Holder upon cancellation of the redeemed or purchased Note. Notes called for redemption become due on the date fixed for redemption. On and after the redemption date, interest ceases to accrue on Notes or portions thereof called for redemption unless the Issuer defaults in the payment.

Certain Covenants

Set forth below are summaries of certain covenants that will be contained in the Indenture.

Covenant Suspension

If on any date following the Issue Date (i) the Notes have an Investment Grade Rating from both Rating Agencies and (ii) no Default has occurred and is continuing under the Indenture then, beginning on that day and continuing at all times thereafter until the Reversion Date (as defined below) (the occurrence of the events described in the foregoing clauses (i) and (ii) being collectively referred to as a "*Covenant Suspension Event*"), the covenants specifically listed under the following captions in this "Description of Notes" (collectively, the "*Suspended Covenants*" and each individually, a "*Suspended Covenant*") will not be applicable to the Notes:

(1) "—Repurchase at the Option of Holders—Asset Sales";

(2) "—Limitation on Restricted Payments";

(3) "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock";

(4) clause (4) of the first paragraph of "—Merger, Consolidation or Sale of All or Substantially All Assets";

(5) "—Transactions with Affiliates"; and

(6) "—Dividend and other Payment Restrictions Affecting Restricted Subsidiaries".

During a Suspension Period, Parent may not designate any of its Subsidiaries as Unrestricted Subsidiaries. If and while Parent and the Restricted Subsidiaries are not subject to the Suspended Covenants, the Notes will be entitled to substantially less covenant protection. In the event that Parent and the Restricted Subsidiaries are not subject to the Suspended Covenants under the Indenture for any period of time as a result of the foregoing, and on any subsequent date (the "*Reversion Date*") that the Notes no longer have an Investment Grade Rating from either of the Rating Agencies, then Parent and the Restricted Subsidiaries will thereafter again be subject to the Suspended Covenants under the Indenture with respect to future events. The period beginning on the day of a Covenant Suspension Event and ending on a Reversion Date is called a "*Suspension Period*."

On each Reversion Date, all Indebtedness incurred, or Disqualified Stock or Preferred Stock issued, during the Suspension Period will be deemed to have been outstanding on the Issue Date, so that it is classified as permitted under clause (3) of the second paragraph of the covenant described under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock." Calculations made after the Reversion Date of the amount available to be made as Restricted Payments under "—Limitation on Restricted Payments" will be made as though the covenant described under "—Limitation on Restricted Payments" had been in effect prior to, but not during, the Suspension Period. No Default or Event of Default will be deemed to have occurred on the Reversion Date (or thereafter) under any Suspended Covenant solely as a result of any actions taken by Parent or its Restricted Subsidiaries, or events occurring, during the Suspension Period. On and after each Reversion Date, Parent and its Subsidiaries will be permitted to consummate the transactions contemplated by any contract entered into during the Suspension Period (and not in contemplation of the Reversion Date) so long as such contract and such consummation would have been permitted during such Suspension Period.

For purposes of the "Repurchase at the Option of Holders—Asset Sales" covenant, on the Reversion Date, the unutilized Excess Proceeds amount will be reset to zero.

For purposes of the "—Dividend and other Payment Restrictions Affecting Non-Guarantor Restricted Subsidiaries" covenant, on the Reversion Date, any contractual encumbrances or restrictions of the type specified in clause (1), (2) or (3) of that covenant entered into during the Suspension Period will be deemed to have been in effect on the Issue Date, so that they are permitted under clause (a) under "—Dividend and other Payment Restrictions Affecting Non-Guarantor Restricted Subsidiaries."

For purposes of the "—Transactions with Affiliates" covenant, any Affiliate Transaction entered into after the Reversion Date pursuant to a contract, agreement, arrangement, loan, advance or guaranty with, or for the benefit of, any Affiliate of Parent entered into during the Suspension Period will be deemed to have been in effect as of the Issue Date for purposes of clause (4) under "—Transactions with Affiliates."

There can be no assurance that the Notes will ever achieve or maintain an Investment Grade Rating.

Parent shall deliver to the Trustee an Officer's Certificate notifying it of the commencement or termination of any Suspension Period. The Trustee shall have no independent obligation to determine if a Suspension Period has commenced or terminated, to notify the Holders regarding the same or to determine the consequences thereof.

Limitation on Restricted Payments

Parent will not, and will not permit any of its Restricted Subsidiaries (including, for the avoidance of doubt, the Issuer) to, directly or indirectly:

(1) declare or pay any dividend or make any other payment or any distribution on account of Parent's, or any of its Restricted Subsidiaries' Equity Interests (in each case, solely in such Person's capacity as holder of such Equity Interests), including any dividend or distribution payable in connection with any merger or consolidation other than:

(a) dividends or distributions by Parent payable solely in Equity Interests (other than Disqualified Stock) of Parent; or

(b) dividends or distributions by a Restricted Subsidiary so long as, in the case of any dividend or distribution payable on or in respect of any class or series of securities issued by a Restricted Subsidiary other than a Wholly Owned Subsidiary, Parent or a Restricted Subsidiary receives at least its pro rata share of such dividend or distribution in accordance with its Equity Interests in such class or series of securities;

(2) purchase, redeem, defease or otherwise acquire or retire for value any Equity Interests of Parent, including in connection with any merger or consolidation, in each case held by Persons other than Parent or a Restricted Subsidiary;

(3) make any principal payment on, or redeem, repurchase, defease or otherwise acquire or retire for value, in each case prior to any scheduled repayment, sinking fund payment or maturity, any Subordinated Indebtedness of the Issuer or a Guarantor, other than:

(a) Indebtedness permitted under clauses (7) and (8) of the covenant described under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock"; or

(b) the payment, redemption, repurchase, defeasance, acquisition or retirement for value of Subordinated Indebtedness purchased in anticipation of satisfying a sinking fund obligation, principal installment or final maturity, in each case due within one year of the date of such payment, redemption, repurchase, defeasance, acquisition or retirement; or

(4) make any Restricted Investment

(all such payments and other actions set forth in clauses (1) through (4) above being collectively referred to as "*Restricted Payments*"), unless, at the time of such Restricted Payment:

(1) no Event of Default shall have occurred and be continuing or would occur as a consequence thereof;

(2) immediately after giving effect to such transaction on a *pro forma* basis, Parent could incur $1.00 of additional Indebtedness under the provisions of the first paragraph of the covenant described under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock"; and

(3) such Restricted Payment, together with the aggregate amount of all other Restricted Payments made by Parent and its Restricted Subsidiaries after the Issue Date (including Restricted Payments permitted by clause (1) of the next succeeding paragraph, but excluding all other Restricted Payments permitted by clauses (2) through (11) in the next succeeding paragraph), is less than the sum of (without duplication):

(a) 50% of the Consolidated Net Income of Parent for the period (taken as one accounting period) beginning on the first day of the fiscal quarter in which the Issue Date occurs to the end of Parent's most recently ended fiscal quarter for which internal financial statements are available at the time of such Restricted Payment, or, in the case such Consolidated Net Income for such period is a deficit, *minus* 100% of such deficit; *provided* that for purposes of this clause (a), the aggregate provision or benefit for income taxes used to calculate Consolidated Net Income for any period after the first day of the fiscal quarter in which the Issue Date occurs in accordance with GAAP shall be replaced with income taxes paid (or received) in cash; *plus*

(b) 100% of the aggregate net cash proceeds and the fair market value, as determined in good faith by Parent, of marketable securities or other property (other than cash) received by Parent since the Issue Date from the issue or sale of:

(i) Equity Interests of Parent, excluding cash proceeds and the fair market value, as determined in good faith by Parent, of marketable securities or other property received from the sale of Equity Interests to any future, present or former employee, officer, director, member of management or consultant (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) of Parent since the Issue Date to the extent such amounts have been applied to Restricted Payments made in accordance with clause (4) of the next succeeding paragraph; and

(ii) debt of Parent or any Restricted Subsidiary that has been converted into or exchanged for Equity Interests of Parent;

provided, *however*, that this clause (b) shall not include the proceeds from (X) Equity Interests or convertible debt securities of Parent sold to a Restricted Subsidiary, and (Y) Disqualified Stock or debt securities that have been converted into Disqualified Stock; *plus*

(c) 100% of the aggregate amount of cash and the fair market value, as determined in good faith by Parent, of marketable securities or other property (other than cash) contributed to the capital of Parent following the Issue Date (other than (i) by a Restricted Subsidiary and (ii) Disqualified Stock or debt securities that have been converted into Disqualified Stock); *plus*

(d) 100% of the aggregate amount received in cash and the fair market value, as determined in good faith by Parent, of marketable securities or other property (other than cash) received by means of:

(i) the sale or other disposition (other than to Parent or a Restricted Subsidiary) of Restricted Investments made by Parent or its Restricted Subsidiaries, repurchases and redemptions of such Restricted Investments from Parent or its Restricted Subsidiaries, repayments of loans or advances, releases of guarantees, which constitute Restricted Investments by Parent or its Restricted Subsidiaries, return of capital, income, profits and other amounts realized as a return on Investment from any Restricted Investment by Parent or its Restricted Subsidiaries, in each case since the Issue Date (other than in each case to the extent the Restricted Investment was made in an Unrestricted Subsidiary pursuant to clauses (7) or (8) of the next succeeding paragraph);

(ii) the sale or other distribution (other than to Parent or a Restricted Subsidiary) of the stock of an Unrestricted Subsidiary or a distribution from an Unrestricted Subsidiary (other than in each case to the extent the Investment in such Unrestricted Subsidiary was made by Parent or a Restricted Subsidiary pursuant to clauses (7) or (8) of the next succeeding paragraph or to the extent such Investment constituted a Permitted Investment under clause (12) of such definition) or a dividend or distribution from an Unrestricted Subsidiary since the Issue Date; *plus*

(e) in the case of the redesignation of an Unrestricted Subsidiary as a Restricted Subsidiary or the merger, amalgamation or consolidation of an Unrestricted Subsidiary into Parent or a Restricted Subsidiary or the transfer of all or substantially all of the assets of an Unrestricted Subsidiary to Parent or a Restricted Subsidiary after the Issue

Date, the fair market value of the Investment of Parent or the Restricted Subsidiary in such Unrestricted Subsidiary at the time of such redesignation or at the time of such merger, amalgamation, consolidation or transfer of assets (or the assets transferred or conveyed, as applicable), as determined by Parent in good faith or, if such fair market value may exceed $25.0 million, by the board of directors of Parent, a copy of the resolution of which with respect thereto will be delivered to the Trustee at the time of the redesignation of such Unrestricted Subsidiary as a Restricted Subsidiary or at the time of such merger, amalgamation, consolidation or transfer of assets other than to the extent the Investment in such Unrestricted Subsidiary was made by Parent or a Restricted Subsidiary pursuant to clauses (7) or (8) of the next succeeding paragraph or to the extent such Investment constituted a Permitted Investment under clause (12) of such definition; *plus*

(f) $175.0 million.

The foregoing provisions will not prohibit:

(1) the payment of any dividend or distribution or the consummation of any irrevocable redemption within 60 days after the date of declaration of the dividend or other distribution or giving of the redemption notice, as the case may be, if at the date of declaration or distribution such dividend, distribution or redemption payment would have complied with the provisions of the Indenture (assuming, in the case of a redemption payment, the giving of the notice would have been deemed a Restricted Payment at such time and such deemed Restricted Payment would have been permitted at such time);

(2) the payment of any dividend or distribution by any of Parent's Restricted Subsidiaries to the holders of its Equity Interests on a pro rata basis;

(3) the principal payment on, redemption, repurchase, defeasance, exchange or other acquisition or retirement of (x) Subordinated Indebtedness of the Issuer or a Guarantor made by exchange for, or out of the proceeds of the sale of, new Indebtedness of the Issuer or a Guarantor, as the case may be, or (y) Disqualified Stock of the Issuer or a Guarantor made by exchange for, or out of the proceeds of the sale of, Disqualified Stock of the Issuer or a Guarantor, that, in each case, is made within 120 days of such sale and is incurred in compliance with "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" so long as:

(a) the principal amount (or accreted value, if applicable) of such new Indebtedness or the liquidation preference of such new Disqualified Stock does not exceed the principal amount of (or accreted value, if applicable), *plus* any accrued and unpaid interest on, the Subordinated Indebtedness or the liquidation preference of, *plus* any accrued and unpaid dividends on, the Disqualified Stock being so repaid, repurchased, redeemed, defeased, exchanged, acquired or retired for value, *plus* the amount of any premium required to be paid under the terms of the instrument governing the Subordinated Indebtedness or Disqualified Stock being so repaid, repurchased, redeemed, defeased, exchanged, acquired or retired, any tender premiums, *plus* any defeasance costs, accrued interest and any fees and expenses (including original issue discount, upfront or similar fees) incurred in connection therewith;

(b) such new Indebtedness is subordinated to the Notes or the applicable Guarantee at least to the same extent as such Subordinated Indebtedness so repaid, repurchased, redeemed, defeased, exchanged, acquired or retired for value;

(c) such new Indebtedness or Disqualified Stock has a final scheduled maturity date equal to or later than the final scheduled maturity date of the Subordinated

Indebtedness or Disqualified Stock being so repaid, repurchased, redeemed, defeased, exchanged, acquired or retired; and

(d) such new Indebtedness or Disqualified Stock has a Weighted Average Life to Maturity at the time incurred equal to or greater than the remaining Weighted Average Life to Maturity of the Subordinated Indebtedness or Disqualified Stock being so repaid, repurchased, redeemed, defeased, exchanged, acquired or retired;

(4) a Restricted Payment to pay for the repurchase, redemption, retirement or other acquisition or retirement for value of Equity Interests (other than Disqualified Stock) of Parent or a Restricted Subsidiary held by any future, present or former employee, officer, director, member of management, manager or consultant (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) of Parent or any of its Subsidiaries, pursuant to any management equity plan or stock option plan or any other management or employee benefit plan or other agreement or arrangement, including, without limitation, severance payments in connection with the death, disability, or termination of employment or consultancy of any of the foregoing Persons (and including, for the avoidance of doubt, any principal and interest payable on any notes issued by Parent in connection with any such repurchase, retirement or other acquisition and any tax related thereto); *provided*, *however*, that the aggregate amounts made under this clause (4) do not exceed $5.0 million in any calendar year; *provided* that any unused amounts in any calendar year may be carried forward to one or more future calendar years; *provided*, *further*, that such amount in any calendar year may be increased by an amount not to exceed:

(a) the cash proceeds from the sale of Equity Interests (other than Disqualified Stock) of Parent or Restricted Subsidiaries, in each case to any future, present or former employee, officer, director, member of management, manager or consultant (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) of Parent or any of its Subsidiaries, to the extent the cash proceeds from the sale of such Equity Interests have not otherwise been applied to the payment of Restricted Payments by virtue of clause (3) of the preceding paragraph; *plus*, in respect of any sale of Equity Interests in connection with an exercise of stock options, an amount equal to the amount required to be withheld by Parent in connection with such exercise under applicable law to the extent such amount is repaid to Parent constituted a Restricted Payment and has not otherwise been applied to the payment of Restricted Payments by virtue of clause (3) of the preceding paragraph; *plus*

(b) the cash proceeds of key man life insurance policies received by Parent or its Restricted Subsidiaries after the Issue Date; *plus*

(c) the amount of any cash bonuses otherwise payable to employees, officers, directors, members of management, consultants of Parent, any of its Subsidiaries or any of its direct or indirect companies that are foregone in return for receipt of Equity Interests; *less*

(d) the amount of any Restricted Payments previously made with the cash proceeds described in clauses (a), (b) and (c) of this clause (4);

and *provided*, *further*, that cancellation of Indebtedness owing to Parent or any of its Restricted Subsidiaries from any future, present or former employee, officer, director, member of management, manager or consultant (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) of Parent or any of Parent's Restricted Subsidiaries in connection with a repurchase of Equity Interests of Parent or Restricted Subsidiaries will not be deemed to constitute a Restricted Payment for purposes of this covenant or any other provision of the Indenture;

(5) the declaration and payment of dividends or distributions to holders of any class or series of Disqualified Stock of Parent or any of its Restricted Subsidiaries or any class or series of Preferred Stock of any Restricted Subsidiary issued or incurred in accordance with the covenant described under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" to the extent such dividends are included in the definition of "Fixed Charges";

(6) redemptions, repurchases, retirements or other acquisitions of Equity Interests deemed to occur (a) upon exercise of stock options or warrants or other securities convertible into or exchangeable for Equity Interests if such Equity Interests represent all or a portion of the exercise price of such options or warrants or other securities convertible into or exchangeable for Equity Interests and (b) in connection with the withholding portion of the Equity Interests granted or awarded to any future, present or former employee, officer, director, member of management, manager or consultant (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) of Parent or any of its Subsidiaries to pay for the taxes payable by such Persons upon such grant or award;

(7) other Restricted Payments in an aggregate amount, taken together with all other Restricted Payments made pursuant to this clause (7) that are at the time outstanding, not to exceed $50.0 million;

(8) any Restricted Payments if immediately after giving *pro forma* effect thereto and the incurrence of any Indebtedness the net proceeds of which are used to finance such Restricted Payment, the Consolidated Total Leverage Ratio of Parent and its Restricted Subsidiaries would not have exceeded 3.00 to 1.00;

(9) the repurchase, redemption or other acquisition or retirement for value of any Subordinated Indebtedness pursuant to the provisions similar to those described under the captions "—Repurchase at the Option of Holders—Change of Control" and "—Repurchase at the Option of Holders—Asset Sales"; *provided* that all Notes tendered by Holders in connection with a Change of Control Offer or Asset Sale Offer, as applicable, have been repurchased, redeemed or acquired for value;

(10) the distribution, by dividend or otherwise, or other transfer or disposition of shares of Capital Stock of, or Indebtedness owed to Parent or a Restricted Subsidiary by, Unrestricted Subsidiaries (other than Unrestricted Subsidiaries, the primary assets of which are Cash Equivalents) or the proceeds thereof; and

(11) payments or distributions to dissenting stockholders pursuant to applicable law, pursuant to or in connection with a consolidation, merger or transfer of all or substantially all of the assets of Parent and its Restricted Subsidiaries, taken as a whole, that complies with the covenant described under "—Merger, Consolidation or Sale of All or Substantially All Assets";

provided, *however*, that at the time of, and after giving effect to, any Restricted Payment permitted under clauses (7) or (8), no Default shall have occurred and be continuing or would occur as a consequence thereof.

In determining whether any Restricted Payment is permitted by this covenant, Parent and its Restricted Subsidiaries may allocate all or any portion of such Restricted Payment among the categories described in clauses (1) through (11) of the immediately preceding paragraph or among such categories and the types of Restricted Payments described in the first paragraph of this covenant (including categorization in whole or in part as a Permitted Investment); *provided* that, at the time of such allocation, all such Restricted Payments, or allocated portions thereof, would be permitted under the various provisions of this covenant.

As of the Issue Date, all of Parent's Subsidiaries will be Restricted Subsidiaries. Parent will not permit any Unrestricted Subsidiary to become a Restricted Subsidiary except pursuant to the second to last sentence of the definition of "Unrestricted Subsidiary." For purposes of designating any Restricted Subsidiary as an Unrestricted Subsidiary, all outstanding Investments by Parent and its Restricted Subsidiaries (except to the extent repaid) in the Subsidiary so designated will be deemed to be Investments in an amount determined as set forth in the last sentence of the definition of "Investments." Such designation will be permitted only if a Restricted Payment or Permitted Investment in such amount would be permitted at such time, whether pursuant to the first paragraph of this section or clauses (7) or (8) of the second paragraph of this section or pursuant to the definition of Permitted Investment and if such Subsidiary otherwise meets the definition of an Unrestricted Subsidiary. Unrestricted Subsidiaries will not be subject to any of the restrictive covenants set forth in the Indenture.

Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock

Parent will not, and will not permit any of its Restricted Subsidiaries (including, for the avoidance of doubt, the Issuer) to, directly or indirectly, create, incur, issue, assume, guarantee or otherwise become directly or indirectly liable, contingently or otherwise (collectively, "*incur*" and collectively, an "*incurrence*") with respect to any Indebtedness (including Acquired Indebtedness) and Parent will not issue any shares of Disqualified Stock and will not permit any Restricted Subsidiary to issue any shares of Disqualified Stock or Preferred Stock; *provided*, *however*, that Parent may incur Indebtedness (including Acquired Indebtedness) or issue shares of Disqualified Stock, and any of its Restricted Subsidiaries may incur Indebtedness (including Acquired Indebtedness), issue shares of Disqualified Stock and issue shares of Preferred Stock, if the Fixed Charge Coverage Ratio for Parent and its Restricted Subsidiaries' most recently ended four fiscal quarters 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 would have been at least 2.00 to 1.00, determined on a *pro forma* basis (including a *pro forma* application of the net proceeds therefrom), as if the additional Indebtedness had been incurred, or the Disqualified Stock or Preferred Stock had been issued, as the case may be, and the application of the proceeds therefrom had occurred at the beginning of such four-quarter period; *provided*, *further*, that the aggregate amount of Indebtedness (including Acquired Indebtedness) that may be incurred and Disqualified Stock or Preferred Stock that may be issued pursuant to the foregoing by Non-Guarantor Subsidiaries shall not exceed, when taken together with Indebtedness that may be incurred and Disqualified Stock or Preferred Stock that may be issued by Non-Guarantor Subsidiaries pursuant to clause (14) of the paragraph below, $30.0 million at any one time outstanding.

The foregoing limitations will not apply to:

(1) Indebtedness incurred by Parent and its Restricted Subsidiaries pursuant to Credit Facilities (and the issuance and creation of letters of credit and bankers' acceptances thereunder (with letters of credit and bankers' acceptances being deemed to have a principal amount equal to the face amount thereof subject to any reductions to the face amount provided therein)); *provided* that immediately after giving effect to any such incurrence, the aggregate principal amount of all Indebtedness incurred under this clause

(1) and then outstanding does not exceed the greater of (x) the sum of $160.0 million and €130.0 million and (y) the Borrowing Base as of the date of such incurrence; *provided*, *further*, that the aggregate amount of Indebtedness that may be incurred pursuant to the foregoing by Non-Guarantor Subsidiaries shall not exceed €130.0 million at any one time outstanding;

(2) the incurrence by the Issuer and any Guarantor of Indebtedness represented by the Notes (including any Guarantee) issued on the Issue Date;

(3) the incurrence by Parent and its Restricted Subsidiaries of the Existing Indebtedness;

(4)(a) Indebtedness (including Capitalized Lease Obligations) incurred or Disqualified Stock issued by Parent or any Restricted Subsidiary and Preferred Stock issued by any Restricted Subsidiary, to finance the purchase, lease, replacement or improvement of property (real or personal) or equipment, whether through the direct purchase of assets or the Capital Stock of any Person owning such assets and (b) any Indebtedness incurred or Disqualified Stock or Preferred Stock issued to refund, refinance or replace any other Indebtedness incurred or Disqualified Stock or Preferred Stock issued pursuant to this clause (4); *provided* that the aggregate amount of Indebtedness incurred and Disqualified Stock and Preferred Stock issued pursuant to clauses (a) and (b) of this clause (4) does not exceed the greater of (x) $50.0 million and (y) 5.0% of Consolidated Total Assets at any one time outstanding;

(5) Indebtedness incurred by Parent or any of its Restricted Subsidiaries constituting reimbursement obligations with respect to letters of credit, bank guarantees or similar instruments supporting trade payables, discounted bills of exchange, the discounting or factoring of receivables for credit management purposes, bankers acceptances, warehouse receipts or other similar facilities issued in the ordinary course of business, including, without limitation, letters of credit in respect of workers' compensation claims, health, disability or other employee benefits or property, casualty or liability insurance or self-insurance, unemployment insurance (including premiums related thereto) or other types of social security, pension obligations, vacation pay, health, disability or other employee benefits;

(6) Indebtedness arising from agreements of Parent or its Restricted Subsidiaries providing for indemnification, adjustment of purchase price, earnouts or similar obligations, in each case, incurred or assumed in connection with an acquisition or disposition of any business or assets or Subsidiary in accordance with the terms of the Indenture, other than guarantees of Indebtedness incurred by any Person acquiring all or any portion of such business or assets or Subsidiary for the purpose of financing such acquisition and Indebtedness arising from guaranties, letters of credit, bank guaranties, surety bonds, performance bonds or similar instruments securing the performance of Parent or any Restricted Subsidiary pursuant to any such agreement;

(7) Indebtedness of Parent to a Restricted Subsidiary; *provided* that any such Indebtedness owing to a Restricted Subsidiary that is not a Guarantor or the Issuer is expressly subordinated in right of payment to the Notes to the extent that such subordination is permitted by applicable law; *provided*, *further*, that any subsequent issuance or transfer of any Capital Stock or any other event which results in any Restricted Subsidiary ceasing to be a Restricted Subsidiary or any other subsequent transfer of any such Indebtedness (except to Parent or another Restricted Subsidiary or any pledge of such Indebtedness constituting a Permitted Lien) shall be deemed, in each case, to be an incurrence of such Indebtedness not permitted by this clause (7);

(8) Indebtedness of a Restricted Subsidiary to Parent or another Restricted Subsidiary; *provided* that if a Guarantor or Issuer incurs such Indebtedness to a Restricted Subsidiary

that is not a Guarantor or the Issuer, such Indebtedness is expressly subordinated in right of payment to the Guarantee of the Notes of such Guarantor to the extent that such subordination is permitted by applicable law; *provided*, *further*, that any subsequent issuance or transfer of any Capital Stock or any other event which results in any such Restricted Subsidiary ceasing to be a Restricted Subsidiary or any subsequent transfer of any such Indebtedness (except to Parent or another Restricted Subsidiary or any pledge of such Indebtedness constituting a Permitted Lien) shall be deemed, in each case, to be an incurrence of such Indebtedness not permitted by this clause (8);

(9) shares of Preferred Stock of a Restricted Subsidiary issued to Parent or another Restricted Subsidiary; *provided* that any subsequent issuance or transfer of any Capital Stock or any other event which results in any such Restricted Subsidiary ceasing to be a Restricted Subsidiary or any other subsequent transfer of any such shares of Preferred Stock (except to Parent or another of its Restricted Subsidiaries) shall be deemed in each case to be an issuance of such shares of Preferred Stock not permitted by this clause (9);

(10)(a) Hedging Obligations (excluding Hedging Obligations entered into for speculative purposes) for the purpose of limiting interest rate risk, exchange rate risk or commodity pricing risk, and (b) Indebtedness in respect of any Bank Products or Cash Management Services in the ordinary course of business;

(11) obligations (including reimbursement obligations with respect to guaranties, letters of credit, bank guarantees or other similar instruments) in respect of tenders, statutory obligations, leases, governmental contracts, trade contracts, stay, performance, bid, customs, appeal and surety bonds and performance and/or return of money bonds and completion guarantees or other obligations of a like nature provided by Parent or any of its Restricted Subsidiaries in the ordinary course of business or consistent with past practice or industry practices;

(12) Indebtedness or Disqualified Stock of the Parent and/or the Issuer and Indebtedness, Disqualified Stock or Preferred Stock of any Subsidiary Guarantor not otherwise permitted hereunder in an aggregate principal amount or liquidation preference, which when aggregated with the principal amount and liquidation preference of all other Indebtedness, Disqualified Stock and Preferred Stock then outstanding and incurred or issued, as applicable, pursuant to this clause (12), does not at any one time outstanding exceed the greater of (A) $100.0 million or (B) 7.5% of Consolidated Total Assets; *provided* that any Indebtedness incurred or Disqualified Stock or Preferred Stock issued pursuant to this clause (12) shall cease to be deemed incurred, issued or outstanding for purposes of this clause (12) but shall be deemed incurred or issued for the purposes of the first paragraph of this covenant from and after the first date on which the Parent, the Issuer or such Subsidiary Guarantor could have incurred such Indebtedness or issued such Disqualified Stock or Preferred Stock under the first paragraph of this covenant without reliance on this clause (12);

(13) the incurrence by Parent or any Restricted Subsidiary of Indebtedness or issuance of Disqualified Stock or the issuance by any Restricted Subsidiary of Preferred Stock which serves to extend, replace, refund, refinance, renew or defease any Indebtedness incurred (including any existing commitments unutilized thereunder) or Disqualified Stock or Preferred Stock issued as permitted under the first paragraph of this covenant and clauses (2), (3) and (4) above, this clause (13) and clause (14) below or any Indebtedness incurred or Disqualified Stock or Preferred Stock issued to so extend, replace, refund, refinance or renew such Indebtedness, Disqualified Stock or Preferred Stock including additional Indebtedness incurred or Disqualified Stock or Preferred Stock issued to pay accrued interest and dividends, premiums (including tender premiums), defeasance costs and fees

and expenses (including original issue discount, upfront fees or similar fees) in connection therewith (the "*Refinancing Indebtedness*") prior to its respective maturity; *provided, however*, that such Refinancing Indebtedness:

(a) has a Weighted Average Life to Maturity at the time such Refinancing Indebtedness is incurred or issued which is not less than the remaining Weighted Average Life to Maturity of the Indebtedness, Disqualified Stock or Preferred Stock being extended, replaced, refunded, refinanced, renewed or defeased (except by virtue of prepayment of such Indebtedness),

(b) to the extent such Refinancing Indebtedness extends, replaces, refunds, refinances, renews or defeases (i) Indebtedness subordinated to or *pari passu* with the Notes or any Guarantee thereof, such Refinancing Indebtedness is subordinated to or *pari passu* with the Notes or the Guarantee at least to the same extent as the Indebtedness being extended, replaced, refunded, refinanced, renewed or defeased, (ii) Indebtedness secured by Liens junior in priority to the Liens securing the Notes or any Guarantee, such Refinancing Indebtedness is secured by Liens junior in priority to the Liens securing the Notes or such Guarantee or (iii) Disqualified Stock or Preferred Stock, such Refinancing Indebtedness must be Disqualified Stock or Preferred Stock, respectively,

(c) shall not include:

(i) Indebtedness, Disqualified Stock or Preferred Stock of a Subsidiary of Parent that is not the Issuer or a Guarantor that refinances Indebtedness, Disqualified Stock or Preferred Stock of the Issuer;

(ii) Indebtedness, Disqualified Stock or Preferred Stock of a Subsidiary of Parent that is not a Guarantor that refinances Indebtedness, Disqualified Stock or Preferred Stock of a Guarantor; or

(iii) Indebtedness, Disqualified Stock or Preferred Stock of Parent or a Restricted Subsidiary that refinances Indebtedness, Disqualified Stock or Preferred Stock of an Unrestricted Subsidiary, and

(d) to the extent such Refinancing Indebtedness extends, replaces, refunds, refinances, renews or defeases Indebtedness secured by Liens junior in priority to the Liens securing the Notes or any Guarantee, such Refinancing Indebtedness is secured by Liens junior in priority to the Liens securing the Notes or such Guarantee;

(14)(x) Indebtedness or Disqualified Stock of Parent or Indebtedness, Disqualified Stock or Preferred Stock of a Restricted Subsidiary incurred or issued to finance an acquisition, merger, consolidation or amalgamation or investment or (y) Indebtedness, Disqualified Stock or Preferred Stock of Persons that are acquired by Parent or any Restricted Subsidiary or merged into or amalgamated or consolidated with or into Parent or a Restricted Subsidiary in accordance with the terms of the Indenture or that is assumed by Parent or any Restricted Subsidiary in connection with such acquisition, which with respect to this clause (y) is not incurred by such Persons in connection with, or in anticipation of, such acquisition, merger, amalgamation or consolidation; *provided* that after giving effect to such acquisition, merger, amalgamation or consolidation or investment, either

(a) Parent would 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 this covenant, or

(b) the Fixed Charge Coverage Ratio of Parent and its Restricted Subsidiaries is equal to or greater than the Fixed Charge Coverage Ratio of Parent and its Restricted Subsidiaries immediately prior to such acquisition, merger, amalgamation or consolidation;

provided, *further*, that the aggregate amount of Indebtedness that may be incurred and Disqualified Stock or Preferred Stock that may be issued pursuant to the foregoing by Non-Guarantor Subsidiaries shall not exceed, when taken together with Indebtedness that may be incurred and Disqualified Stock or Preferred Stock that may be issued by Non-Guarantor Subsidiaries pursuant to the first paragraph of this "Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" covenant, $30.0 million at any one time outstanding

(15) Indebtedness (i) arising from the honoring by a bank or other financial institution of a check, draft or similar instrument drawn against insufficient funds in the ordinary course of business and (ii) in respect of any commercial credit cards, stored value cards, purchasing cards, treasury management, check drawing and automated payment services (including depository, overdraft, controlled disbursement, ACH transactions, return items, interstate depository network services, Society for Worldwide Interbank Financial Telecommunication transfers, cash pooling and operational foreign exchange management), dealer incentive, supplier finance or similar programs, current account facilities, netting services, employee credit card programs, overdraft facilities, foreign exchange facilities, payment facilities and, in each case, similar arrangements and cash management arrangements entered into in the ordinary course of business;

(16) Indebtedness of Parent or any of its Restricted Subsidiaries supported by a letter of credit or bank guarantee issued pursuant to a Credit Facility incurred pursuant to clause (1) above, in a principal amount not in excess of the stated amount of such letter of credit or bank guarantee (as such stated amount may be reduced pursuant to the terms thereof);

(17)(a) any guarantee by Parent or a Restricted Subsidiary of Indebtedness or other obligations of any Restricted Subsidiary so long as the incurrence of such Indebtedness incurred by such Restricted Subsidiary is permitted under the terms of the Indenture, or

(b) any guarantee by a Restricted Subsidiary of Indebtedness of Parent permitted to be incurred under the terms of the Indenture; *provided* that such guarantee is incurred in accordance with the covenant described below under "—Future Guarantors";

(18) Indebtedness of Parent or any of its Restricted Subsidiaries consisting of (a) the financing of insurance premiums, (b) take-or-pay obligations contained in supply arrangements, in each case incurred in the ordinary course of business and/or (c) obligations to reacquire assets or inventory in connection with customer financing arrangements in the ordinary course of business;

(19) Indebtedness consisting of Indebtedness issued by Parent or any of its Restricted Subsidiaries to any future, present or former employee, officer, director, member of management, consultant or independent contractor (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing), in each case to finance the purchase or redemption of Equity Interests of Parent or a Restricted Subsidiary to the extent described in clause (4) of the second paragraph of the covenant described under "—Limitation on Restricted Payments";

(20) Indebtedness of Parent or any Restricted Subsidiary as an account party in respect of trade letters of credit issued in the ordinary course of business;

(21) Indebtedness consisting of obligations owing under supply, customer, distribution, license, leases or similar agreements entered into in the ordinary course of business;

(22) Indebtedness representing deferred compensation to directors, officers, employees, members of management, managers or consultants of Parent or any of its Restricted Subsidiaries incurred in the ordinary course of business and deferred

compensation or any Investments or any Restricted Payments permitted pursuant to the covenant described under "—Limitation on Restricted Payments";

(23) Indebtedness in respect of letters of credit, bank guaranties, surety bonds, performance bonds and similar instruments issued for general corporate purposes in the ordinary course of business; and

(24) all premiums (if any), interest (including post-petition interest), fees, expenses, charges and additional or contingent interest on obligations described in clauses (1) through (23) above.

For purposes of determining compliance with this covenant, in the event that an item of Indebtedness, Disqualified Stock or Preferred Stock (or any portion thereof) meets the criteria of more than one of the categories of permitted Indebtedness, Disqualified Stock or Preferred Stock described in clauses (1) through (24) above or is entitled to be incurred pursuant to the first paragraph of this covenant, Parent, in its sole discretion, will classify or reclassify, or later divide, classify or reclassify, such item of Indebtedness, Disqualified Stock or Preferred Stock (or any portion thereof) in any manner that complies with this covenant; *provided* that all Indebtedness outstanding under the North American Revolving Credit Agreement and the European Credit Agreement on the Issue Date shall be treated as incurred on the Issue Date under clause (1) of the preceding paragraph. In addition, in the event an item of Indebtedness, Disqualified Stock or Preferred Stock (or any portion thereof) is incurred or issued pursuant to the second paragraph of this covenant (other than clause (14) above) on the same date that an item of Indebtedness, Disqualified Stock or Preferred Stock (or any portion thereof) is incurred or issued under the first paragraph of this covenant or clause (14) above, then the Fixed Charge Coverage Ratio, or applicable leverage ratio, will be calculated with respect to such incurrence or issuance under the first paragraph of this covenant or clause (14) above without regard to any incurrence or issuance under the second paragraph of this covenant (other than clause (14) above). Unless Parent elects otherwise, the incurrence or issuance of Indebtedness, Disqualified Stock or Preferred Stock (or any portion thereof) will be deemed incurred or issued first under the first paragraph of this covenant or clause (14) to the extent permitted, with the balance incurred or issued under the second paragraph of this covenant (other than clause (14)).

Accrual of interest or dividends, the accretion of accreted value, the accretion or amortization of original issue discount, and the payment of interest or dividends in the form of additional Indebtedness, Disqualified Stock or Preferred Stock, as the case may be, of the same class, accretion or amortization of original issue discount or liquidation preference and increases in the amount of Indebtedness outstanding solely as a result of fluctuations in the exchange rate of currencies will not be deemed to be an incurrence of Indebtedness or an issuance of Disqualified Stock or Preferred Stock for purposes of this covenant. Guarantees of, or obligations in respect of letters of credit relating to, Indebtedness which is otherwise included in the determination of a particular amount of Indebtedness shall not be included in the determination of such amount of Indebtedness; *provided* that the incurrence of the Indebtedness represented by such guarantee or letter of credit, as the case may be, was in compliance with this covenant. Any Indebtedness incurred, or Disqualified Stock or Preferred Stock issued, to refinance Indebtedness incurred, or Disqualified Stock or Preferred Stock issued, pursuant to clauses (1), (2), (3), (4), (12), (13) and (14) of the second paragraph above will be permitted to include additional Indebtedness, Disqualified Stock or Preferred Stock incurred to pay (I) any accrued and unpaid interest on the Indebtedness, any accrued and unpaid dividends on the Preferred Stock and any accrued and unpaid dividends on the Disqualified Stock being so refinanced, extended, replaced, refunded, renewed or defeased and (II) the amount of any tender premium or penalty or premium required to be paid under the terms of the instrument or documents governing such refinanced Indebtedness, Preferred Stock or

Disqualified Stock and any defeasance costs and any fees and expenses (including original issue discount, upfront fees or similar fees) incurred in connection with the issuance of such new Indebtedness, Preferred Stock or Disqualified Stock or the extension, replacement, refunding, refinancing, renewal or defeasance of such refinanced Indebtedness, Preferred Stock or Disqualified Stock (and, with respect to Indebtedness under the North American Revolving Credit Facility, will be permitted to include an amount equal to any unutilized North American Revolving Credit Facility being refinanced, extended, replaced, refunded, renewed or defeased to the extent permanently terminated at the time of incurrence of such Refinancing Indebtedness).

For purposes of determining compliance with any U.S. dollar-denominated restriction on the incurrence of Indebtedness, the U.S. dollar-equivalent principal amount of Indebtedness denominated in a foreign currency shall be calculated based on the relevant currency exchange rate in effect on the date such Indebtedness was incurred, in the case of term debt, or first committed or first incurred (whichever yields the lower U.S. dollar equivalent), in the case of revolving credit debt; *provided* that if such Indebtedness is incurred to refinance other Indebtedness denominated in a foreign currency, and such refinancing would cause the applicable U.S. dollar-denominated restriction to be exceeded if calculated at the relevant currency exchange rate in effect on the date of such refinancing, such U.S. dollar-denominated restriction shall be deemed not to have been exceeded so long as the principal amount of such refinancing Indebtedness (*plus* premium (including tender premiums), fees, defeasance costs, accrued interest and expenses including original issue discount, upfront fees or similar fees) does not exceed the principal amount of such Indebtedness being refinanced.

The principal amount of any Indebtedness incurred to refinance other Indebtedness, if incurred in a different currency from the Indebtedness being refinanced, shall be calculated based on the currency exchange rate applicable to the currencies in which such respective Indebtedness is denominated that is in effect on the date of such refinancing. The principal amount of Indebtedness outstanding under any clause of this covenant will be determined after giving effect to the appreciation of proceeds of any such Indebtedness to refinance any other such Indebtedness.

The Indenture will provide that the Issuer will not, and will not permit any Guarantor to, directly or indirectly, incur any Indebtedness (including Acquired Indebtedness) that is contractually subordinated or junior in right of payment to any Indebtedness of the Issuer or such Guarantor, as the case may be, unless such Indebtedness is expressly subordinated in right of payment to the Notes or such Guarantor's Guarantee to the extent and in the same manner as such Indebtedness is subordinated to other Indebtedness of the Issuer or such Guarantor, as the case may be.

The Indenture will not treat (1) unsecured Indebtedness as subordinated or junior to Secured Indebtedness merely because it is unsecured or (2) senior Indebtedness as subordinated or junior to any other senior Indebtedness merely because it has a junior priority with respect to the same collateral.

Liens

Parent will not, and will not permit any of its Restricted Subsidiaries (including, for the avoidance of doubt, the Issuer) to, directly or indirectly, create, incur, assume or suffer to exist any Lien (except Permitted Liens) that secures obligations under any Indebtedness or any related guarantee, on any asset or property of Parent or any Restricted Subsidiary, or any income or profits therefrom, or assign or convey any right to receive income therefrom.

The expansion of Liens by virtue of accrual of interest, the accretion of accreted value, the payment of interest or dividends in the form of additional Indebtedness, amortization of original issue discount and increases in the amount of Indebtedness outstanding solely as a result of fluctuations in the exchange rate of currencies or increases in the value of property securing Indebtedness will not be deemed to be an incurrence of Liens for purposes of this covenant.

Merger, Consolidation or Sale of All or Substantially All Assets

The Issuer and Parent may not consolidate or merge with or into or wind up into (whether or not the Issuer or Parent is the surviving corporation), or sell, assign, transfer, lease, convey or otherwise dispose of all or substantially all of its properties or assets, in one or more related transactions, to any Person unless:

(1) the Issuer or Parent is the surviving Person or the Person formed by or surviving any such consolidation or merger (if other than the Issuer or Parent, as applicable) or to which such sale, assignment, transfer, lease, conveyance or other disposition will have been made is a corporation, partnership, limited liability company or trust organized or existing under the laws of the United States, any state thereof or the District of Columbia (the Issuer, Parent or such Person, as the case may be, being herein called the "*Successor Company*");

(2) the Successor Company, if other than the Issuer or Parent, as applicable, expressly assumes all the obligations of the Issuer or Parent under the Notes, the Guarantee, the Indenture and the Security Documents pursuant to a supplemental indenture or other document or instrument;

(3) immediately after such transaction, no Default shall have occurred and be continuing; and

(4) immediately after giving *pro forma* effect to such transaction and any related financing transactions, as if such transactions had occurred at the beginning of the applicable four-quarter period, either

(a) Parent would 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 under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock," or

(b) the Fixed Charge Coverage Ratio for Parent and its Restricted Subsidiaries would be equal to or greater than the Fixed Charge Coverage Ratio for Parent and its Restricted Subsidiaries immediately prior to such transaction;

(5) each Guarantor, unless it is the other party to the transactions described above, in which case clause (2) of this paragraph shall apply, shall have by supplemental indenture or other document or instrument confirmed that its Guarantee shall apply to such Person's obligations under the Indenture and the Notes; and

(6) the Successor Company shall have delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that such consolidation, merger winding up, sale, assignment, transfer, lease, conveyance or other disposal and such supplemental indentures, if any, comply with the Indenture and all conditions precedent provided for in the indenture relating to such transaction have been complied with.

The Successor Company (if other than Parent or the Issuer) will succeed to, and be substituted for Parent or the Issuer under the Indenture, the Notes and the Guarantee, as applicable, and in such event Parent or the Issuer will automatically be released and discharged from its obligation under the Indenture, the Notes and the Guarantee, as applicable.

Notwithstanding the foregoing clauses (3) and (4),

(1) any Restricted Subsidiary may consolidate with or merge with or into or wind up into or sell, assign, transfer, lease, convey or otherwise dispose of all or part of its properties and assets to the Parent or Issuer;

(2) the Issuer or Parent may consolidate with or merge with or into or wind up into an Affiliate of the Parent solely for the purpose of redomiciling the Issuer or Parent, as applicable, in a state of the United States, the District of Columbia or any territory thereof so long as the amount of Indebtedness of Parent and its Restricted Subsidiaries is not increased thereby;

(3) Parent or any of its Subsidiaries may be converted into, or reorganized or reconstituted as a limited liability company, limited partnership or corporation in a state of the United States, the District of Columbia or any territory thereof; and

(4) the Issuer or Parent may change its name.

Subject to certain limitations described in the Indenture governing the release of a Guarantee upon the sale, disposition or transfer of a Subsidiary Guarantor, no Subsidiary Guarantor will, and Parent will not permit any Subsidiary Guarantor to, consolidate or merge with or into or wind up into (whether or not the Issuer or a Guarantor is the surviving corporation), or sell, assign, transfer, lease, convey or otherwise dispose of all or substantially all of its properties or assets, in one or more related transactions, to any Person unless:

(1)(a) such Subsidiary Guarantor is the surviving Person or the Person formed by or surviving any such consolidation or merger (if other than such Subsidiary Guarantor) or to which such sale, assignment, transfer, lease, conveyance or other disposition will have been made is a corporation, partnership or limited liability company organized or existing under the laws of the jurisdiction of organization of such Subsidiary Guarantor, as the case may be, or under the laws of the United States, any state thereof, the District of Columbia or any territory thereof (such Subsidiary Guarantor or such Person, as the case may be, being herein called the "*Successor Person*")*;*

(b) the Successor Person, if other than such Subsidiary Guarantor, expressly assumes all the obligations of such Subsidiary Guarantor under the Indenture, such Subsidiary Guarantor's related Guarantee and the Security Documents pursuant to supplemental indentures or other documents or instruments;

(c) immediately after such transaction, no Default exists; and

(d) the Successor Person shall have delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that such consolidation, merger winding up, sale, assignment, transfer, lease, conveyance or other disposal and such supplemental indentures, if any, comply with the Indenture and all conditions precedent provided for in the indenture relating to such transaction have been complied with; or

(2) the transaction is made in compliance with clauses (1) and (2) of the first paragraph of the covenant described under "Repurchase at the Option of Holders—Asset Sales."

Subject to certain limitations described in the Indenture, the Successor Person (if other than such Subsidiary Guarantor) will succeed to, and be substituted for, such Subsidiary Guarantor under the Indenture and such Subsidiary Guarantor's Guarantee, and such Subsidiary Guarantor will automatically be released and discharged from its obligations under the Indenture and such Subsidiary Guarantor's Guarantee. Notwithstanding the foregoing, (1) any Subsidiary Guarantor may consolidate with or merge with or into or wind up into or sell, assign, transfer, lease, convey or otherwise dispose of all or part of its properties and assets to another Guarantor or to the Issuer, (2) a Subsidiary Guarantor may consolidate or merge with or into or wind up or convert into an Affiliate for the purpose of reincorporating such Subsidiary Guarantor in another state of a the United States or the District of Columbia, (3) a Subsidiary Guarantor may convert into a Person organized or existing under the laws of a jurisdiction in the United States, (4) a Subsidiary Guarantor may liquidate or dissolve or change its legal form if Parent determines in good faith that such action is in the best interests of Parent and is not materially disadvantageous to the Holders of the Notes or (5) a Guarantor may change its name.

Clauses (2), (3), (4) and (5) of the first paragraph of this "—Merger, Consolidation and Sale of All or Substantially All Assets" covenant will not apply to a sale, assignment, transfer, conveyance or other disposition of assets between or among Parent and the Restricted Subsidiaries.

Although there is a limited body of case law interpreting the phrase "substantially all" under New York law, which governs the Indenture, 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 "all or substantially all" of the property or assets of a Person.

Transactions with Affiliates

Parent will not, and will not permit any of its Restricted Subsidiaries (including, for the avoidance of doubt, the Issuer) 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 any transaction, contract, agreement, understanding, loan, advance or guarantee with, or for the benefit of, any Affiliate of Parent (each of the foregoing, an "*Affiliate Transaction*") involving aggregate payments or consideration in excess of $5.0 million, unless:

(1) such Affiliate Transaction is on terms, taken as a whole, that are not materially less favorable to Parent or its relevant Restricted Subsidiary than those that would have been obtained in a comparable transaction by Parent or such Restricted Subsidiary with an unrelated Person on an arm's-length basis or, if in the good faith judgment of the board of directors of Parent or a committee comprised solely of disinterested members of the board of directors of Parent, such Affiliate Transaction is fair to Parent or such Restricted Subsidiary from a financial point of view; and

(2) Parent delivers to the Trustee with respect to any Affiliate Transaction or series of related Affiliate Transactions involving aggregate payments or consideration in excess of $25.0 million, a resolution adopted in good faith by the majority of the board of directors of Parent or a committee comprised solely of disinterested members of the board of directors of Parent approving such Affiliate Transaction and set forth in an Officer's Certificate certifying that such Affiliate Transaction complies with clause (1) above.

The foregoing provisions will not apply to the following:

(1) transactions between or among Parent or any of its Restricted Subsidiaries, or an entity that becomes a Restricted Subsidiary as a result of such transaction, and any merger, consolidation or amalgamation of Parent and any direct or indirect parent of Parent; *provided* that such parent shall have no material liabilities and no material assets other than cash, Cash Equivalents and Capital Stock of Parent and such merger, consolidation or amalgamation is otherwise in compliance with the terms of the Indenture and effected for a *bona fide* business purpose;

(2) Restricted Payments permitted by the provisions of the Indenture described above under the covenant "—Limitation on Restricted Payments" and Investments constituting Permitted Investments;

(3) the payment of customary fees, reasonable out of pocket costs to and reimbursement of expenses and compensation paid to, and indemnities provided on behalf of or for the benefit of, future, present or former employees, officers, members of the board of directors (or similar governing body), members of management, managers, consultants or independent contractors (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) of Parent, in each case, in the ordinary course of business;

(4) any agreement or arrangement as in effect as of the Issue Date, or any amendment, modification or extension thereof (so long as any such amendment is not disadvantageous in any material respect to the Holders when taken as a whole as compared to the applicable agreement as in effect on the Issue Date as determined in good faith by the board of directors of Parent or a committee comprised solely of disinterested members of the board of directors of Parent) or any transaction contemplated thereby;

(5)(a) transactions with customers, clients, suppliers, joint ventures, contractors, or purchasers or sellers of goods or services or providers of employees or other labor, or transactions otherwise relating to the purchase or sale of goods or services, in each case in the ordinary course of business and otherwise in compliance with the terms of the Indenture which are fair to Parent and its Restricted Subsidiaries, in the good faith determination of the board of directors (or similar governing body) of Parent or a committee comprised solely of disinterested members of the board of directors of Parent, or the senior management of Parent, or are on terms at least as favorable as would reasonably have been obtained at such time from an unaffiliated party on an arm's-length basis or (b) transactions with joint ventures or Unrestricted Subsidiaries entered into in the ordinary course of business or the terms of any such transactions are no less favorable to Parent or Restricted Subsidiary participating in such joint ventures than they are to other joint venture partners;

(6) the sale, issuance or transfer of Equity Interests (other than Disqualified Stock or Preferred Stock) of Parent or a Restricted Subsidiary to any person and the granting and performance of customary registration rights;

(7) payments by Parent or any of its Restricted Subsidiaries made for any financial advisory, consulting, financing, underwriting or placement services or in respect of other investment banking activities and other transaction fees, including, without limitation, in connection with acquisitions or divestitures which payments are approved by a majority of the board of directors of Parent or a committee comprised solely of disinterested members of the board of directors of Parent in good faith or are otherwise permitted by the Indenture;

(8)(a) payments or loans (or cancellation of loans) or advances to employees, officers, directors, members of management, consultants or independent contractors (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) of Parent or any of its Restricted Subsidiaries and collective bargaining agreements, employment agreements, severance arrangements, compensatory (including profit sharing) arrangements, stock option plans, benefit plan, health, disability or similar insurance plan and other similar arrangements with such employees, officers, directors, managers, members of management, consultants or independent contractors (or the estate, heirs, family members, spouse, former spouse, domestic partner or former domestic partner of any of the foregoing) in each case, for *bona fide* business purposes and (b) any subscription agreement or similar agreement pertaining to the repurchase of Capital

Stock pursuant to put/call rights or similar rights with future, present or former employees, officers, directors, members of management, consultants or independent contractors approved by the board of directors (or equivalent governing body) of Parent or any Restricted Subsidiary in good faith;

(9) the payment of all expenses related to this offering of Notes incurred or owed after the Issue Date;

(10) any contribution to the capital of Parent or any Restricted Subsidiary;

(11) between Parent or any Restricted Subsidiary and any Person, a director of which is also a director of Parent or any direct or indirect parent of Parent; *provided*, *however*, that such director abstains from voting as a director of Parent or such direct or indirect parent of Parent or of a Restricted Subsidiary of Parent, as the case may be, on any matter involving such other Person;

(12) the issuance of securities or other payments, awards or grants in cash, securities or otherwise pursuant to, or the funding of, employment arrangements, stock option and stock ownership plans or similar employee benefit plans approved by the board of directors (or equivalent governing body) of Parent or a committee comprised solely of disinterested members of the board of directors of Parent in good faith;

(13) transactions undertaken in good faith (as certified by a responsible financial or accounting officer of Parent in an Officer's Certificate) for the purposes of improving the consolidated tax efficiency of Parent and its Subsidiaries and not for the purpose of circumventing any covenant set forth in the Indenture so long as such transactions would not materially adversely affect the Holders;

(15) pledges of Equity Interests of Unrestricted Subsidiaries;

(16) transactions with joint ventures for the purchase or sale of goods, equipment and services entered into in the ordinary course of business;

(17) the payment of reasonable out-of-pocket costs and expenses related to registration rights and customary indemnities provided to shareholders under any shareholder agreement;

(18) licenses of, or other grants of rights to use, intellectual property granted by Parent or any Restricted Subsidiary in the ordinary course of business or consistent with industry practice;

(19) contemporaneous purchases and/or sales by (a) Parent or any of its Restricted Subsidiaries and (b) an Affiliate, of assets, Capital Stock, bonds, notes, debentures or other debt securities, and bank loans, participations or similar obligations at substantially the same price; and

(20) investments by any Permitted Holder, Parent or any Affiliate thereof in securities or Indebtedness of the Issuer or any Guarantor.

Dividend and Other Payment Restrictions Affecting Non-Guarantor Restricted Subsidiaries

Parent will not, and will not permit any of its Restricted Subsidiaries that are not the Issuer or Guarantors to, directly or indirectly, create or otherwise cause or allow to exist or become effective any consensual encumbrance or consensual restriction on the ability of any such Restricted Subsidiary to:

(1)(a) pay dividends or make any other distributions to the Issuer or any of the Guarantors on its Capital Stock or with respect to any other interest or participation in, or measured by, its profits; or

(b) pay any Indebtedness owed to the Issuer or any of the Guarantors;

(2) make loans or advances to the Issuer or any Guarantor; or

(3) sell, lease or transfer any of its properties or assets to the Issuer or any Guarantor,

except (in each case) for such encumbrances or restrictions existing under or by reason of:

(a) contractual encumbrances or restrictions in effect on the Issue Date, including pursuant to the North American Revolving Credit Agreement and the European Credit Agreement and the related documentation;

(b) the Indenture, the Notes and the related Guarantees;

(c) purchase money obligations for property acquired and Capitalized Lease Obligations in the ordinary course of business that impose restrictions of the nature discussed in clause (3) above on the property or assets so acquired;

(d) applicable law or any applicable rule, regulation or order or the terms of any license, authorization, concession or permit provided by any Governmental Authority;

(e) any agreement or other instrument of a Person acquired (or assumed in connection with the acquisition of property) by Parent or any of its Restricted Subsidiaries in existence at the time of such acquisition (but not created in contemplation thereof), which encumbrance or restriction is not applicable to any Person, or the properties or assets of any Person, other than the Person so acquired and its Subsidiaries, or the property or assets of the Person so acquired and its Subsidiaries;

(f) contracts or agreements for the sale of assets, including any restrictions with respect to a Subsidiary of Parent pursuant to an agreement that has been entered into for the sale or disposition of all or substantially all of the Capital Stock or assets of such Subsidiary;

(g) Indebtedness otherwise permitted to be incurred pursuant to the covenants described under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" and "—Liens" that apply solely to the assets securing such Indebtedness and/or the Restricted Subsidiaries incurring or guaranteeing such Indebtedness;

(h) restrictions on cash or other deposits or net worth imposed by customers under contracts entered into in the ordinary course of business;

(i) other Indebtedness, Disqualified Stock or Preferred Stock of Non-Guarantor Subsidiaries permitted to be incurred or issued subsequent to the Issue Date pursuant to the provisions of the covenant described under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock";

(j) customary provisions in any partnership agreement, limited liability company organizational governance document, joint venture agreement and other similar agreement entered into in the ordinary course of business;

(k) customary provisions contained in leases, subleases, licenses or sublicenses. Equity Interests or asset sale agreements and other similar agreements, including with respect to intellectual property, in each case, entered into in the ordinary course of business;

(l) customary provisions restricting assignment of any agreement entered into in the ordinary course of business;

(m) other Indebtedness, Disqualified Stock or Preferred Stock of any Restricted Subsidiary that is incurred subsequent to the Issue Date; *provided* that such Indebtedness, Disqualified Stock or Preferred Stock is permitted to be incurred subsequent to the Issue Date by the covenant described under "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" and either (i) the provisions relating to such encumbrance or restriction contained in such Indebtedness are no less favorable to Parent in any material respect, taken as a whole, as determined by Parent in good faith, than the provisions contained in the Indenture as in effect on the Issue Date, (ii) are not more disadvantageous, taken as a whole, to the Holders than is customary in comparable financings for similarly situated issuers or (iii) will not materially impair the Issuer's ability to make payments on the Notes when due, in each case in the good faith judgment of Parent;

(n) customary restrictions and conditions contained in any agreement relating to the sale, transfer, lease or other disposition of any asset permitted by the covenant described under "—Asset Sales" pending the consummation of such sale, transfer, lease or other disposition;

(o) customary restrictions and conditions contained in the document relating to any Lien so long as (i) such Lien is a Permitted Lien and such restrictions or conditions relate only to the specific asset subject to such Lien and (ii) such restrictions and conditions are not created for the purpose of avoiding the restrictions imposed by this clause (o);

(p) customary net worth or similar provisions contained in real property leases entered into by Parent or any Subsidiary in the ordinary course of business so long as Parent or such Subsidiary has determined in good faith that such net worth or similar provisions could not reasonably be expected to impair the ability of Parent or such Subsidiary to meet its ongoing obligations; and

(q) any encumbrances or restrictions of the type referred to in clauses (1), (2) and (3) above imposed by any amendments, modifications, restatements, renewals, increases, supplements, refundings, replacements or refinancings of the contracts, instruments or obligations referred to in clauses (a) through (p) above; *provided* that such amendments, modifications, restatements, renewals, increases, supplements, refundings, replacements or refinancings are, in the good faith judgment of Parent, no more restrictive in any material respect with respect to such encumbrances and other restrictions taken as a whole than those prior to such amendment, modification, restatement, renewal, increase, supplement, refunding, replacement or refinancing.

For purposes of determining compliance with this covenant, (1) the priority of any Preferred Stock in receiving dividends or liquidating distributions prior to dividends or liquidating distributions being paid on common stock shall not be deemed a restriction on the ability to make distributions on Capital Stock and (2) the subordination of loans or advances made to Parent or a Restricted Subsidiary to other Indebtedness incurred by Parent or any such Restricted Subsidiary shall not be deemed a restriction on the ability to make loans or advances.

Maintenance of Listing

The Issuer will use its commercially reasonable efforts to obtain and maintain the listing of the Notes on TISE for so long as such Notes are outstanding; *provided* that if at any time the Issuer determines that it will not maintain such listing, it will, prior to the delisting of the Notes from TISE (if then listed on TISE), use commercially reasonable efforts to obtain and maintain a listing of such Notes on another "recognised stock exchange" as defined in Section 1005 of the

Income Tax Act 2007 of the United Kingdom (in which case, references in this covenant to TISE will be deemed to be refer to such other "recognised stock exchange"). In no event will this covenant require the Issuer to obtain or maintain the listing of the Notes on any exchange that requires financial reporting for any fiscal period in addition to the fiscal periods required by the SEC.

Future Guarantors

Parent will not permit any of its domestic Wholly Owned Subsidiaries that are Restricted Subsidiaries (and non-Wholly Owned Subsidiaries if such non-Wholly Owned Subsidiary guarantees Indebtedness under the North American Revolving Credit Facility or Capital Markets Indebtedness of the Issuer or any Guarantor), other than the Issuer, a Guarantor or an Excluded Subsidiary, to guarantee the payment of (i) any Indebtedness of the Issuer or any Guarantor under the Credit Facilities incurred under clause (1) of the second paragraph described above under the caption "—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" or (ii) any Capital Markets Indebtedness of the Issuer or any Guarantor having an aggregate principal amount outstanding in excess of $50.0 million, unless:

(1) such Restricted Subsidiary within 30 days (i) executes and delivers a supplemental indenture to the Indenture providing for a Guarantee by such Restricted Subsidiary, except with respect to a Guarantee of Indebtedness of the Issuer or any Guarantor if such Indebtedness is by its express terms subordinated in right of payment to the Notes or such Guarantor's Guarantee, any such Guarantee by such Restricted Subsidiary with respect to such Indebtedness will be subordinated in right of payment to such Guarantee substantially to the same extent as such Indebtedness is subordinated to the Notes or such Guarantor's Guarantee and (ii) executes and delivers a supplement or joinder to the Security Documents or new Security Documents and takes all actions required thereunder to perfect the Liens created thereunder; and

(2) such Restricted Subsidiary waives and will not in any manner whatsoever claim or take the benefit or advantage of, any rights of reimbursement, indemnity or subrogation or any other applicable rights against Parent or any Restricted Subsidiary as a result of any payment by such Restricted Subsidiary under its Guarantee;

provided that this covenant will not be applicable to any guarantee of any Restricted Subsidiary that existed at the time such Person became a Restricted Subsidiary and was not incurred in connection with, or in contemplation of, such Person becoming a Restricted Subsidiary. Parent may elect, in its sole discretion, to cause any Subsidiary that is not otherwise required to be a Guarantor to become a Guarantor, in which case such Subsidiary will not be required to comply with clause (1) or (2) above and such Guarantee may be released at any time in Parent's sole discretion.

Notwithstanding the foregoing, each such Guarantee may be limited as necessary to recognize certain defenses generally available to guarantors (including those that relate to fraudulent conveyance or transfer, voidable preference, financial assistance, corporate purpose, capital maintenance or similar laws, regulations or defenses affecting the rights of creditors generally) or other considerations under applicable law.

Each Guarantee shall be released in accordance with the provisions of the Indenture described under "—Guarantees."

Reports and Other Information

Whether or not Parent is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, so long as any Notes are outstanding, Parent will furnish to the Trustee:

(1) within 90 days after the end of each fiscal year end of Parent, all financial information that would be required to be contained in an annual report on Form 10-K, or any successor or comparable form, filed with the SEC, including a "Management's Discussion and Analysis of Financial Condition and Results of Operations" and a report on the annual financial statements of Parent's independent registered public accounting firm;

(2) within 45 days after the end of each of the first three fiscal quarters of each fiscal year of Parent, all financial information that would be required to be contained in a quarterly report on Form 10-Q, or any successor or comparable form, filed with the SEC; and

(3) within ten Business Days after the occurrence of such an event, the information that would be required to be contained in filings with the SEC on Form 8-K under Items 1.01, 1.02, 1.03, 2.01, 2.05, 2.06, 4.01, 4.02, 5.01 and 5.02(b), 5.02(c) and 5.02(d) (other than with respect to information required or contemplated by Item 402 of Regulation S-K) if Parent were required to file such reports; *provided, however*, that no such current report shall be required to be furnished if Parent determines in its good faith judgment that such event is not material to Holders or the business, assets, operations, financial position or prospects of Parent and its Restricted Subsidiaries, taken as a whole; *provided further* that the foregoing shall not obligate Parent to make available copies of any agreements, financial statements or other items that would be required to be filed as exhibits to a current report on Form 8-K.

Notwithstanding the foregoing, Parent will not be required to furnish any information, certificates or reports required by (i) Section 302, Section 404 or Section 906 of the Sarbanes-Oxley Act of 2002, or related Items 307 or 308 of Regulation S-K, (ii) Regulation G or Item 10(e) of Regulation S-K promulgated by the SEC with respect to any non-generally accepted accounting principles financial measures contained therein or (iii) Rule 3-09 and 3-10 of Regulation S-X.

If Parent is not subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, Parent will deliver such information and such reports to any Holder of a Note and, upon request, to any beneficial owner of the Notes, in each case by posting such information on password-protected website which will require a confidentiality acknowledgment, and will make such information readily available to any prospective investor in the Notes that certifies that it is an eligible purchaser of the Notes, any securities analyst (to the extent providing analysis of investment in the Notes) or any market maker in the Notes, in each case who (i) agrees to treat such information as confidential or (ii) accesses such information on such password-protected website which will require a confidentiality acknowledgment; *provided* that Parent shall post such information thereon and make readily available any password or other login information to any such prospective investor in the Notes, securities analyst (to the extent providing analysis of investment in the Notes) or market maker in the Notes. Parent will hold a quarterly conference call for all Holders and securities analysts (to the extent providing analysis of investment in the Notes) to discuss such financial information within ten (10) Business Days after distribution of such financial information or otherwise providing substantially comparable availability of such reports (as determined by Parent in good faith) (it being understood that, without limitation, making such reports available on Bloomberg or another private electronic information service shall constitute substantially comparable availability); it being understood that any customary quarterly earnings calls with public equity holders shall be deemed to constitute such quarterly conference calls for all Holders and such securities analysts; *provided*, however, that if Parent is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act and has timely filed all applicable periodic reports required thereby, Parent will not be required to hold such a quarterly conference call so long as Parent makes one or more Officers available during normal business hours to answer any reasonable questions of Holders and security analysts in respect of such financial information.

To the extent not satisfied by the foregoing, Parent will also furnish to Holders, securities analysts (to the extent providing analysis of investment in the Notes) and prospective investors in the Notes upon request the information required to be delivered pursuant to Rule 144A(d)(4) under the Securities Act, so long as the Notes are not freely transferable under the Securities Act.

If Parent has designated any of its Subsidiaries as an Unrestricted Subsidiary and if any such Unrestricted Subsidiary or group of Unrestricted Subsidiaries, if taken together as one Subsidiary, would constitute a Significant Subsidiary of Parent, then the annual and quarterly information required by clauses (1) and (2) of this covenant shall include a reasonably detailed presentation, either on the face of the financial statements or in the footnotes thereto, 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 such Unrestricted Subsidiaries.

Parent will be deemed to have furnished the reports referred to in the first paragraph of this covenant if Parent has filed reports containing such information with the SEC. The Trustee shall have no duty to monitor whether any such filings have been made.

Delivery of such reports, information and documents to the Trustee is for informational purposes only and the Trustee's receipt of such shall not constitute actual or constructive knowledge or notice of any information contained therein or determinable from information contained therein, including any default or the Issuer's compliance with any of its covenants hereunder (as to which the Trustee is entitled to rely exclusively on an Officer's Certificate).

Further Assurances

The Indenture will provide that the Issuer and the Guarantors will do or cause to be done all acts and things that may be required under applicable law or that the Collateral Agent from time to time may reasonably request, to assure and confirm that the Collateral Agent holds, for the benefit of the Holders of Notes, duly created and enforceable and perfected Liens upon the Notes Collateral (including any assets that are acquired or otherwise become, or are required by any Security Document to become, Notes Collateral after the Notes are issued), in each case, as contemplated by, and with the Lien priority required under, the Security Documents, and subject to the limitations set forth in the Security Documents.

The Issuer and the Guarantors will promptly execute, acknowledge and deliver such security documents, instruments, certificates, notices and other documents, and take such other actions as will be reasonably required under applicable law or that the Collateral Agent may reasonably request, in each case, to create, perfect or protect the Liens and benefits intended to be conferred, in each case as contemplated by the Security Documents for the benefit of the Holders of Notes, in each case, subject to the limitations set forth in the Security Documents.

Events of Default and Remedies

The Indenture will provide that each of the following is an Event of Default:

(1) default in payment when due and payable, upon redemption, acceleration or otherwise, of principal of, or premium, if any, on any Note;

(2) default for 30 days or more in the payment when due of interest on or with respect to any Note;

(3) failure by the Issuer or any Guarantor to comply with the covenant described above under "—Certain Covenants—Merger, Consolidation or Sale of All or Substantially All Assets";

(4) failure by Parent or any Restricted Subsidiary for 60 days after receipt of written notice specifying the default given by the Trustee or the Holders of not less than 30% in principal amount of the Notes to comply with any of its obligations, covenants or agreements (other than a default referred to in clauses (1), (2) or (3) above) contained in the Indenture or the Notes;

(5) default under any mortgage, indenture or instrument under which there is issued or by which there is secured or evidenced any Indebtedness for money borrowed by Parent or any of its Restricted Subsidiaries or the payment of which is guaranteed by Parent or any of its Restricted Subsidiaries, other than Indebtedness owed to Parent or a Restricted Subsidiary, whether such Indebtedness or guarantee now exists or is created after the issuance of any Note, if both:

(a) such default either results from the failure to pay any principal of such Indebtedness at its stated final maturity (after giving effect to any applicable grace periods) or relates to an obligation other than the obligation to pay principal of any such Indebtedness at its stated final maturity and results in the holder or holders of such Indebtedness causing such Indebtedness to become due prior to its stated maturity; and

(b) the principal amount of such Indebtedness, together with the principal amount of any other such indebtedness in default for failure to pay any principal at its stated final maturity (after giving effect to any applicable grace periods), or the maturity of which has been so accelerated, aggregate $50.0 million or more at any one time outstanding;

(6) failure by Parent or any Significant Subsidiary, or any group of Restricted Subsidiaries that, taken together (as of the latest audited consolidated financial statements for Parent), would constitute a Significant Subsidiary, to pay final judgments aggregating in excess of $50.0 million (net of any amounts paid or fully covered by independent third party insurance as to which the relevant insurance company does not dispute coverage), which final judgments remain unpaid, undischarged, unwaived and unstayed for a period of more than 60 days after such judgment becomes final and non-appealable, and in the event such judgment is covered by insurance, an enforcement proceeding has been commenced by any creditor upon such judgment or decree which is not promptly stayed;

(7) certain events of bankruptcy or insolvency with respect to Parent or any Significant Subsidiary, or any group of Restricted Subsidiaries that, taken together (as of the latest audited consolidated financial statements for Parent), would constitute a Significant Subsidiary;

(8) the Guarantee of Parent or any Significant Subsidiary, or any group of Restricted Subsidiaries that, taken together (as of the latest audited consolidated financial statements for Parent), would constitute a Significant Subsidiary, shall for any reason cease to be in full force and effect or any responsible officer of Parent or any Guarantor that is a Significant

Subsidiary, or any group of Restricted Subsidiaries that, taken together (as of the latest audited consolidated financial statements for Parent), would constitute a Significant Subsidiary, as the case may be, denies that it has any further liability under its or their Guarantee(s) or gives notice to such effect, other than by reason of the termination of the Indenture or the release of any such Guarantee in accordance with the Indenture; or

(9) so long as the Security Documents have not otherwise been terminated in accordance with their terms or the Notes Collateral as a whole of the Issuer or any Guarantor has not otherwise been released from the Lien of the Security Documents in accordance with the terms thereof, (a) the Liens with respect to a material portion of the Notes Collateral cease to be valid or enforceable, (b) default by the Issuer or any such Guarantor for 60 days after written notice given by the Trustee or Holders of at least 30% in aggregate principal amount of the then outstanding Notes in the performance of any covenant under the Security Documents which adversely affects the enforceability, validity, perfection or priority of the Lien on the Notes Collateral securing the Obligations under the Indenture and the Notes or which adversely affects the condition or value of the Notes Collateral, in each case, taken as a whole, in any material respect, (c) repudiation or disaffirmation by the Issuer or any Guarantor, or any Person acting on behalf of the Parent, of any of its material obligations under the Security Documents or (d) the determination in a judicial proceeding that all or any material portion of the Security Documents, taken as a whole, are unenforceable or invalid, for any reason, against the Issuer or any Guarantor with respect to any material portion of the Notes Collateral.

If any Event of Default (other than of a type specified in clause (7) above with respect to Parent or any Significant Subsidiary, or any group of Restricted Subsidiaries that, taken together (as of the latest audited consolidated financial statements for Parent), would constitute a Significant Subsidiary) occurs and is continuing under the Indenture, the Trustee or the Holders of at least 30% in principal amount of the then total outstanding Notes by notice to Parent and the Paying Agent (and if given by the Holders, with a copy to the Trustee) may declare the principal, premium, if any, interest and any other monetary obligations on all the then outstanding Note to be due and payable immediately.

Upon the effectiveness of such declaration, such principal, premium, if any, and interest will be due and payable immediately. Notwithstanding the foregoing, in the case of an Event of Default arising under clause (7) above with respect to Parent or any Significant Subsidiary, or any group of Restricted Subsidiaries that, taken together (as of the latest audited consolidated financial statements for Parent), would constitute a Significant Subsidiary, all outstanding Notes will become due and payable without further action or notice. The Indenture will provide that the Trustee may withhold from the Holders notice of any continuing Default, except a Default relating to the payment of principal, premium, if any, or interest, if it determines that withholding notice is in their interest.

The Indenture provides that the Holders of a majority in aggregate principal amount of the then outstanding Notes by notice to the Trustee may on behalf of the Holders of the Notes waive any existing Default and its consequences under the Indenture except a continuing Default in the payment of interest on, premium, if any, or the principal of any Notes held by a non-consenting Holder. In the event of any Event of Default specified in clause (5) above, such Event of Default and all consequences thereof (excluding any resulting payment default, other than as a result of acceleration of the Notes) shall be annulled, waived and rescinded, automatically and without any action by the Trustee or the Holders, if within 30 days after such Event of Default arose:

(1) the Indebtedness or guarantee that is the basis for such Event of Default has been discharged; or

(2) Holders thereof have rescinded or waived the acceleration, notice or action (as the case may be) giving rise to such Event of Default; or

(3) the default that is the basis for such Event of Default has been cured.

The Indenture will provide that, at any time after a declaration of acceleration with respect to the Notes, the Holders of a majority in principal amount of the Notes may rescind and cancel such declaration and its consequences:

(1) if the rescission would not conflict with any judgment or decree;

(2) if all existing Events of Default have been cured, waived, annulled or rescinded except nonpayment of principal or interest that has become due solely because of the acceleration;

(3) to the extent the payment of such interest is lawful, interest on overdue installments of interest and overdue principal, which has become due otherwise than by such declaration of acceleration, has been paid; and

(4) if the Issuer or Parent has paid the Trustee and the Paying Agent its reasonable compensation and reimbursed the Trustee and the Paying Agent for its expenses, disbursements and advances.

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 of the Holders unless the Holders have offered to the Trustee indemnity or security satisfactory to it against any loss, liability or expense. Except to enforce the right to receive payment of principal, premium (if any) or interest 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 written notice that an Event of Default is continuing;

(2) Holders of at least 30% in principal amount of the total outstanding Notes have requested the Trustee, in writing, to pursue the remedy;

(3) Holders have offered the Trustee security or indemnity satisfactory to it against any loss, liability or expense;

(4) the Trustee has not complied with such request within 60 days after the receipt thereof and the offer of security or indemnity; and

(5) Holders of a majority in principal amount of the total outstanding Notes have not given the Trustee a written direction inconsistent with such request within such 60-day period.

Subject to certain restrictions, under the Indenture the Holders of a majority in principal amount of the total outstanding Notes are given the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or of exercising any trust or power conferred on the Trustee. The Trustee, however, may refuse to follow any direction that conflicts with law or the Indenture or that the Trustee determines is unduly prejudicial to the rights of any other Holder of a Note or that would involve the Trustee in personal liability.

The Indenture will provide that Parent is required to deliver to the Trustee annually a statement regarding compliance with the Indenture, and Parent is required, within five Business Days, after becoming aware of any Default, to deliver to the Trustee a statement specifying such Default.

No Personal Liability of Directors, Officers, Employees and Stockholders

No past, present or future director, officer, employee, manager, incorporator, member, partner or stockholder of Parent or its Subsidiaries shall have any liability for any obligations of the Issuer or the Guarantors under the Notes, the Guarantees, the Indenture or the Security Documents or for any claim based on, in respect of, or by reason of such obligations or their creation. Each Holder by accepting Notes waives and releases all such liability. The waiver and release are part of the consideration for issuance of the Notes. Such waiver may not be effective to waive liabilities under the federal securities laws and it is the view of the SEC that such a waiver is against public policy.

Legal Defeasance and Covenant Defeasance

The obligations of the Issuer and the Guarantors under the Indenture will terminate (other than certain obligations) and will be released upon payment in full of all of the Notes. The Issuer may, at its option and at any time, elect to have all of its obligations discharged with respect to the Notes and have each Guarantor's obligation discharged with respect to its Guarantee ("*Legal Defeasance*") and cure all then existing Events of Default except for:

(1) the rights of Holders of Notes to receive payments in respect of the principal of, premium, if any, and interest on the Notes when such payments are due solely out of the trust created pursuant to the Indenture;

(2) the Issuer's obligations with respect to Notes concerning issuing temporary Notes, registration of such 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 and immunities of the Trustee and the Paying Agent, and the Issuer's obligations in connection therewith; and

(4) the Legal Defeasance provisions of the Indenture.

In addition, the Issuer may, at its option and at any time, elect to have its obligations and those each Guarantor released with respect to substantially all of the restrictive covenants in the Indenture ("*Covenant Defeasance*") and thereafter any omission to comply with such obligations shall not constitute a Default with respect to the Notes. In the event Covenant Defeasance occurs, certain events (not including bankruptcy, receivership, rehabilitation and insolvency events pertaining to Parent and any Significant Subsidiary, or any group of Restricted Subsidiaries that, taken together (as of the latest audited consolidated financial statements for Parent), would constitute a Significant Subsidiary) 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 with respect to the Notes:

(1) the Issuer must irrevocably deposit with the Trustee (or such other entity directed, designated or appointed by the Issuer and reasonably acceptable to the Trustee acting for the Trustee for this purpose), for the benefit of the Holders, cash in euro, European Government Obligations denominated in euro, or a combination thereof, in such amounts as will be sufficient, without consideration of any reinvestment of interest, in the opinion of a nationally recognized firm of independent public accountants, investment bank or appraisal firm, to pay the principal of, premium, if any, and interest due on the Notes on the stated maturity date or on the redemption date, as the case may be, of such principal, premium, if any, or interest on such Notes (*provided* that if such redemption is made as provided under the second paragraph under "Optional Redemption," (x) the amount of

cash in euros, European Government Obligations denominated in euro, or a combination thereof, that the Issuer must irrevocably deposit or cause to be deposited will be determined using an assumed Applicable Premium calculated as of the date of such deposit and (y) the Issuer must irrevocably deposit or cause to be deposited additional money in trust on the redemption date as necessary to pay the Applicable Premium as determined on such date) and the Issuer must specify whether such Notes are being defeased to maturity or to a particular redemption date;

(2) in the case of Legal Defeasance, the Issuer shall have delivered to the Trustee an Opinion of Counsel confirming that, subject to customary assumptions and exclusions,

(a) the Issuer has received from, or there has been published by, the United States Internal Revenue Service a ruling, or

(b) since the issuance of the Notes, 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 shall confirm that, subject to customary assumptions and exclusions, the Holders will not recognize income, gain or loss for U.S. federal income tax purposes, as applicable, 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;

(3) in the case of Covenant Defeasance, the Issuer shall have delivered to the Trustee an Opinion of Counsel confirming that, subject to customary assumptions and exclusions, the Holders 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 such 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;

(4) no Event of Default (other than that resulting from borrowing funds to be applied to make such deposit and the granting of Liens in connection therewith) shall have occurred and be continuing on the date of such deposit;

(5) such Legal Defeasance or Covenant Defeasance shall not result in a breach or violation of, or constitute a default under, any material agreement or instrument (other than the Indenture) to which the Issuer or any Guarantor is a party or by which the Issuer or any Guarantor is bound;

(6) the Issuer shall have delivered to the Trustee an Officer's Certificate stating that the deposit was not made by the Issuer with the intent of defeating, hindering, delaying or defrauding any creditors of the Issuer or any Guarantor or others; and

(7) the Issuer shall have delivered to the Trustee an Officer's Certificate and an Opinion of Counsel (which Opinion of Counsel may be subject to customary assumptions and exclusions) each stating that all conditions precedent provided for or relating to the Legal Defeasance or the Covenant Defeasance, as the case may be, have been complied with.

Notwithstanding the foregoing, an Opinion of Counsel required by the subsection (2) of the immediately preceding paragraph with respect to legal defeasance need not be delivered if all of the Notes not theretofore delivered to the Paying Agent for cancellation (x) have become due and payable or (y) will become due and payable at their stated maturity within one year under arrangements satisfactory to the Paying Agent and the Trustee for the giving of notice of redemption by the Paying Agent in the name, and at the expense, of the Issuer.

The Notes Collateral will be released from the Lien securing the Notes, as provided under the caption "—Release of Liens in Respect of Notes Pursuant to the Indenture," upon a Legal Defeasance or Covenant Defeasance in accordance with the provisions described above.

Satisfaction and Discharge

The Indenture will be discharged and will cease to be of further effect as to all Notes, when either:

(1)(a) all Notes theretofore authenticated and delivered, except lost, stolen or destroyed Notes which have been replaced or paid and Notes for whose payment money has theretofore been deposited in trust or segregated and held in trust by the Issuer and thereafter repaid to the Issuer or discharged from trust, have been delivered to the Paying Agent for cancellation; or

(b) all Notes not theretofore delivered to the Paying Agent for cancellation have become due and payable by reason of the making of a notice of redemption or otherwise, will become due and payable within one year or are to be called for redemption within one year under arrangements satisfactory to the Trustee and the Paying Agent for the giving of notice of redemption by the Paying Agent in the name, and at the expense, of the Issuer and either Issuer or any Guarantor has irrevocably deposited or caused to be deposited with the Trustee (or such other entity directed, designated or appointed by the Issuer and reasonably acceptable to the Trustee, acting for the Trustee for this purpose) for the benefit of the Holders, cash in euros, European Government Obligations denominated in euro or a combination thereof, in such amounts as will be sufficient, in the opinion of a nationally recognized firm of independent public accountants expressed in a written certificate delivered to the Trustee, without consideration of any reinvestment of interest to pay and discharge the entire indebtedness on the Notes not theretofore delivered to the Paying Agent for cancellation for principal, premium, if any, and accrued interest to, but not including, the date of maturity or redemption;

(2) the Issuer and/or the Guarantors have 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 (or such other entity directed, designated or appointed by the Issuer and reasonably acceptable to the Trustee, acting for the Trustee for this purpose) and the Paying Agent to apply the deposited money toward the payment of the Notes at maturity or the redemption date, as the case may be.

In addition, the Issuer must deliver an Officer's Certificate and an Opinion of Counsel to the Trustee stating that all conditions precedent to satisfaction and discharge have been complied with.

The Notes Collateral will be released from the Lien securing the Notes, as provided under the caption "Release of Liens on Respect of Notes Pursuant to the Indenture," upon satisfaction and discharge in accordance with the provisions described above.

Amendment, Supplement and Waiver

Except as provided in the next two succeeding paragraphs, the Indenture, any Guarantee, the Notes, the Security Documents and any intercreditor agreement may be amended or supplemented with the consent of the Holders of at least a majority in principal amount of the Notes then outstanding, including consents obtained in connection with a purchase of, or tender offer or exchange offer for Notes, and any past or existing Default or compliance with any provision of the Indenture, any Guarantee, the Notes issued thereunder, the Security Documents or any intercreditor agreement may be waived with the consent of the Holders of a majority in principal amount of the then outstanding Notes (including consents obtained in connection with a purchase of or tender offer or exchange offer for the Notes), other than Notes beneficially owned by the Issuer or its Affiliates.

The Indenture will provide that, without the consent of each affected Holder of the Notes, an amendment or waiver may not, with respect to any Notes held by a non-consenting Holder:

(1) reduce the principal amount of such Notes whose Holders must consent to an amendment, supplement or waiver;

(2) reduce the principal of or change the fixed final maturity of any such Note or alter or waive the provisions with respect to the redemption of such Notes (other than provisions relating to the covenants described above under the caption "Repurchase at the Option of Holders");

(3) reduce the rate of or change the time for payment of interest on any Note;

(4) waive a Default in the payment of principal of or premium, if any, or interest 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 Notes and a waiver of the payment default that resulted from such acceleration, or in respect of a covenant or provision contained in the Indenture or any Guarantee which cannot be amended or modified without the consent of all affected Holders;

(5) make any Note payable in money other than that stated therein;

(6) make any change in the provisions of the Indenture relating to waivers of past Defaults or the rights of Holders to receive payments of principal of or premium, if any, or interest on the Notes;

(7) make any change in the amendment and waiver provisions of the Indenture described herein;

(8) impair the right of any Holder to receive payment of principal of, premium if any, or interest on such Holder's Notes on or after the due dates therefor or to institute suit for the enforcement of any payment on or with respect to such Holder's Notes;

(9) make any change to or modify the ranking of the Notes that would materially adversely affect the Holders;

(10) except as expressly permitted by the Indenture, modify the Guarantees in any manner materially adverse to the Holders.

In addition, without the consent of the Holders of Notes of at least 66 2/3% in principal amount of the Notes then outstanding, no amendment, supplement or waiver may release all or substantially all of the Notes Collateral other than in accordance with the Indenture and the Security Documents.

Notwithstanding the foregoing, the Issuer, any Guarantor (with respect to its Guarantee), and the Trustee and the Collateral Agent may amend or supplement the Indenture, any Guarantee, the Notes or the Security Documents, or any intercreditor agreement, without the consent of any Holder:

(1) to cure any ambiguity, omission, mistake, defect or inconsistency as certified by Parent;

(2) to provide for uncertificated Notes in addition to or in place of certificated Notes (*provided* that the uncertificated Notes are issued in registered form for purposes of Section 163(f) of the Code);

(3) to comply with the covenant relating to mergers, consolidations and sales of assets;

(4) to provide for the assumption of the Issuer's or any Guarantor's obligations to the Holders in a transaction that complies with the Indenture;

(5) to make any change that would provide any additional rights or benefits to the Holders or that does not adversely affect the legal rights under the Indenture of any such Holder;

(6) to add covenants for the benefit of the Holders or to surrender any right or power conferred upon the Issuer or any Guarantor;

(7) to evidence and provide for the acceptance and appointment under the Indenture of a successor Trustee or Paying Agent thereunder pursuant to the requirements thereof;

(8) to add a Guarantor under the Indenture or to release a Guarantor in accordance with the terms of the Indenture and to provide for any local law restrictions required by the jurisdiction of organization of such Guarantor;

(9) to conform the text of the Indenture, Guarantees, the Notes or the Security Documents to any provision of this "Description of Notes" to the extent that such provision in this "Description of Notes" was intended to be a verbatim recitation of a provision of the Indenture, Guarantee, the Notes or the Security Documents as certified by Parent;

(10) to provide for the issuance of Additional Notes permitted to be incurred under the Indenture;

(11) to make any amendment to the provisions of the Indenture relating to the transfer and legending of Notes as permitted by the Indenture, including, without limitation to facilitate the issuance and administration of the Notes; *provided*, *however*, that (i) compliance with the Indenture as so amended would not result in Notes being transferred in violation of the Securities Act or any applicable securities law and (ii) such amendment does not materially and adversely affect the rights of Holders to transfer Notes;

(12) to add additional assets as Notes Collateral;

(13) to make, complete or confirm any grant of Notes Collateral permitted or required by the Indenture or any of the Security Documents or any release, termination or discharge of Notes Collateral that becomes effective as set forth in the Indenture or any of the Security Documents;

(14) to add any Permitted Additional Notes Priority Debt to the Security Documents to the extent permitted by the Indenture; or

(15) to amend any intercreditor agreement in any way which does not violate the Indenture and which does not materially and adversely affect the Holders.

The consent of the Holders is not necessary under the Indenture to approve the particular form of any proposed amendment. It is sufficient if such consent approves the substance of the proposed amendment.

Neither Parent nor any of its Subsidiaries or Affiliates may, directly or indirectly, pay or cause to be paid any consideration, whether by way of interest, fee or otherwise, to any Holder for or as inducement to any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes unless such consideration is offered to be paid or agreed to be paid to all Holders of the Notes that consent, waive or agree to amend such term or provision within the time period set forth in the solicitation documents relating to the consent, waiver or amendment.

For the avoidance of doubt, no amendment to, or deletion of any of the covenants described under "—Certain Covenants," or action taken in compliance with the covenants in effect at the time of such action, shall be deemed to impair or affect any legal rights of any

Holders of the Notes to receive payment of principal of or premium, if any, or interest on the Notes or to institute suit for the enforcement of any payment on or with respect to such Holder's Notes.

Listing

Application has been made for the Notes to be listed on TISE. The Issuer can provide no assurance that this application will be granted. Consummation of the offering of the notes is not contingent upon obtaining such listing.

Notices

Notices given by first-class mail, postage prepaid, will be deemed given five calendar days after mailing; notices personally delivered will be deemed given at the time delivered by hand; notices given by facsimile will be deemed given when receipt is acknowledged; notices given by overnight air courier guaranteeing next day delivery will be deemed given the next Business Day after timely delivery to the courier; and notices given electronically will be deemed given when sent. Any notices required to be given to the Holders of Notes represented by global notes will be given to the common depository for Euroclear and Clearstream. The Issuer and Guarantors may limit notices given to them electronically to particular notices or communications.

Concerning the Trustee

Deutsche Bank Trust Company Americas, in each of its capacities, including without limitation as Trustee, and Collateral Agent, assumes no responsibility for the accuracy or completeness of the information contained in this offering memorandum or the related documents or for any failure by us or any other party to disclose events that may have occurred and may affect the significance or accuracy of such information. The Indenture will also contain provisions relating to the obligations and duties of the Trustee, to the indemnification of the Trustee and to the liability and responsibility, including limitations, for actions that the Trustee takes.

The Indenture will contain certain limitations on the rights of the Trustee thereunder, should it become a creditor of the Issuer, to obtain payment of claims in certain cases, or to realize on certain property received in respect of any such claim as security or otherwise. The Trustee will be permitted to engage in other transactions; however, if it acquires any conflicting interest, as defined in the Indenture, it must eliminate such conflict within 90 days or resign.

The Indenture will provide that the Holders of a majority in aggregate principal amount of the 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 Trustee shall not be deemed to have notice of any Default or Event of Default unless a Responsible Officer of the Trustee has actual knowledge thereof. A "*Responsible Officer*" of the Trustee shall mean any officer of the Trustee with direct responsibility for the administration of the Indenture. The Indenture will provide that in case an Event of Default shall occur (which shall not be cured), the Trustee will be required, to exercise such rights and powers vested in it by the Indenture and, to use the same degree of care and skill in their exercise as a prudent person would exercise or use under the circumstances in the conduct of such person's own affairs. The Trustee will be under no obligation to exercise any of its rights or powers under the

Indenture at the request or direction of any Holder of a Note, unless such Holder shall have offered to the Trustee security and indemnity satisfactory to the Trustee against any loss, liability or expense.

Neither the Trustee nor the Collateral Agent shall be responsible for and make no representation as to the existence, genuineness, value or protection of any Notes Collateral, for the legality, effectiveness or sufficiency of any Security Document, or for the creation, perfection, priority, sufficiency or protection of any Liens securing the Notes. Neither the trustee nor the Collateral Agent shall be responsible for filing any financing or continuation statements or recording any documents or instruments in any public office at any time or times or otherwise perfecting or maintaining the perfection of any Lien or security interest in the Notes Collateral.

By their acceptance of the Notes, the Holders of the Notes will be deemed to have authorized (i) the Trustee to enter into any Security Documents, including without limitation joinders thereto, and (ii) the Collateral Agent to enter into and to perform each of the Security Documents.

Governing Law

The Indenture, the Notes and any Guarantee 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. For purposes of the Indenture, unless otherwise specifically indicated, the term "*consolidated*" with respect to any Person refers to such Person consolidated with its Restricted Subsidiaries, and excludes from such consolidation any Unrestricted Subsidiary as if such Unrestricted Subsidiary were not an Affiliate of such Person.

"*Acquired Indebtedness*" means, with respect to any specified Person,

(1) Indebtedness of any other Person existing at the time such other Person is consolidated, merged or amalgamated with or into or became a Restricted Subsidiary of such specified Person, including Indebtedness incurred in connection with, or in contemplation of, such other Person merging or amalgamating with or into, or becoming a Restricted Subsidiary of, such specified Person, and

(2) Indebtedness secured by a Lien encumbering any asset acquired by such specified Person; *provided*, that any Indebtedness of such Person that is extinguished, redeemed, defeased, retired or otherwise repaid at the time of or immediately upon consummation of the transaction pursuant to which such other Person becomes a Subsidiary of the specified Person will not be Acquired Indebtedness.

"*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*" (including, with correlative meanings, the terms "*controlling*," "*controlled by*" and "*under common control with*"), as used with respect to any Person, shall mean 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.

"*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, if any, of (a) the present value at such Redemption Date of (i) the redemption price of such Note at September 15, 2020 (such redemption price being set forth under the caption "Optional Redemption"), *plus* (ii) all required interest payments due on such Note through September 15, 2020 (excluding accrued but unpaid interest and Additional Amounts 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 then outstanding principal amount of such Note as calculated by the Issuer or on behalf of the Issuer by such Person as the Issuer shall designate; *provided* that such calculation shall not be a duty or an obligation of the Trustee.

"*Asset Sale*" means:

(1) the sale, conveyance, transfer or other disposition, whether in a single transaction or a series of related transactions, of property or assets of Parent or any of its Restricted Subsidiaries (each referred to in this definition as a "*disposition*"); or

(2) the issuance or sale of Equity Interests of any Restricted Subsidiary, whether in a single transaction or a series of related transactions (other than Preferred Stock of Restricted Subsidiaries issued in compliance with the covenant described under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" and directors' qualifying shares and shares issued to foreign nationals as required under applicable law);

in each case, other than:

(a) any disposition of (i) Cash Equivalents (or other financial assets that were Cash Equivalents when the original Investment was made) or Investment Grade Securities, (ii) surplus, obsolete, used, damaged or worn-out property or equipment in the ordinary course of business (whether now owned or hereafter acquired) or any disposition or consignment of equipment, inventory or goods (or other assets) held for sale, (iii) property no longer used or useful in the conduct of business of Parent and its Restricted Subsidiaries and (iv) property or equipment that is otherwise economically impracticable to maintain;

(b) the disposition of all or substantially all of the assets of the Issuer or Parent in a manner permitted pursuant to the provisions described above under "—Certain Covenants—Merger, Consolidation or Sale of All or Substantially All Assets" or any disposition that constitutes a Change of Control pursuant to the Indenture;

(c) the making of any payment or Investment that is permitted to be made, and is made, under the covenant described above under "—Certain Covenants—Limitation on Restricted Payments" or the making of any Permitted Investment;

(d) any disposition of assets of Parent or any Restricted Subsidiary or issuance or sale of Equity Interests of any Restricted Subsidiary in any transaction or series of transactions with an aggregate fair market value not to exceed $5.0 million;

(e) any disposition of property or assets or issuance of securities by a Restricted Subsidiary to Parent or by Parent or a Restricted Subsidiary to another Restricted Subsidiary;

(f) any Permitted Asset Swap;

(g)(i) the sale, lease, assignment, sublease, license or sublicense of any real or personal property in the ordinary course of business and (ii) the termination of leases in the ordinary course of business;

(h) any issuance or sale of Equity Interests in, or Indebtedness or other securities of, an Unrestricted Subsidiary or any other disposition of such Unrestricted Subsidiary or any disposition of assets of such Unrestricted Subsidiary;

(i) any disposition arising from foreclosure, casualty, condemnation or any similar action or transfers by reason of eminent domain with respect to any property or other asset of Parent or any of the Restricted Subsidiaries or exercise of termination rights under any lease, sublease, license, sublicense, concession or other agreement;

(j) dispositions in connection with the granting of a Lien that is permitted under the covenant described above under "—Certain Covenants—Liens";

(k) the issuance by a Restricted Subsidiary of Preferred Stock or Disqualified Stock that is permitted by the covenant described under the caption "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock";

(l) any grant in the ordinary course of business of any license of patents, trademarks, know-how or any other intellectual property, including, but not limited to, grants of franchises or licenses, franchise or license master agreements and/or area development agreements;

(m) dispositions of receivables in connection with the compromise, settlement or collection thereof in the ordinary course of business or in bankruptcy or similar proceedings;

(n) the sale, discount or forgiveness of accounts receivable or notes receivable in the ordinary course of business or in connection with the collection or compromise thereof or the conversion of accounts receivable to notes receivable;

(o) the abandonment of intellectual property rights in the ordinary course of business which in the reasonable good faith determination of Parent are uneconomical or not material to the conduct of the business of Parent and the Restricted Subsidiaries taken as a whole;

(p) termination of non-speculative Hedging Obligations;

(q) any surrender or waiver of contract rights or the settlement, release, recovery on or surrender of contract, tort or other claims of any kind in the ordinary course of business;

(r) sales, transfers and other dispositions of Investments in joint ventures or any Subsidiary that is not a Wholly Owned Subsidiary to the extent required by, or made pursuant to, buy/sell arrangements between the joint venture or similar parties set forth in the relevant joint venture arrangements and/or similar binding arrangements;

(s) dispositions of real property and related assets in the ordinary course of business in connection with relocation activities for directors, officers, employees, members of management or consultants of Parent or any Subsidiary;

(t) dispositions and/or terminations of leases, subleases, licenses or sublicenses, which (i) do not materially interfere with the business of Parent and its Restricted Subsidiaries, taken as a whole, or (ii) relate to closed facilities or the discontinuation of any product line; and

(u) the disposition of any assets (including Equity Interests) made in connection with the approval of any applicable antitrust authority or otherwise necessary or advisable in the good faith determination of Parent to consummate any acquisition permitted under the Indenture.

"*Bank Products*" means any services or facilities on account of credit or debit cards, purchase cards, stored value cards or merchant services constituting a line of credit.

"*Bankruptcy Code*" means The Bankruptcy Reform Act of 1978, as heretofore and hereafter amended, and codified as 11 U.S.C. Section 101 *et seq*.

"*Borrowing Base*" means, at the time of any determination, an amount equal to the sum, without duplication, of (a) 85% of the aggregate book value of accounts receivable of Parent and its Restricted Subsidiaries, *plus* (b) 65% of the aggregate book value of all inventory owned by Parent and its Restricted Subsidiaries, in each case, based on the most recent internal month-end financial statements available to Parent, determined on a *pro forma* basis in a manner consistent with the *pro forma* basis contained in the definition of "Fixed Charge Coverage Ratio."

"*Bund Rate*" means, with respect to a redemption date, the yield to maturity at the time of computation of direct obligations of the Federal Republic of Germany (Bunds or Bundesanleihen) with a constant maturity (as compiled and published in the most recent financial statistics that have become publicly available at least two Business Days prior to such redemption date (or, if such financial statistics are no longer published, any publicly available source of similar market data)) most nearly equal to the period from such redemption date to September 15, 2020; *provided*, *however*, that if the period from the applicable redemption date to such date is not equal to the constant maturity of the direct obligation of the Federal Republic of Germany for which a weekly average yield is given, the Bund Rate shall be obtained by linear interpolation (calculated to the nearest one-twelfth of a year) from the weekly average yields of direct obligations of the Federal Republic of Germany for which such yields are given, except that if the period from the applicable redemption date to such date is less than one year, the weekly average yield on actually traded direct obligations of the Federal Republic of Germany adjusted to a constant maturity of one year shall be used.

"*Business Day*" means each day which is not a Legal Holiday.

"*Capital Markets Indebtedness"* means any Indebtedness consisting of bonds, debentures, notes or other similar debt securities issued in (a) a public offering registered under the Securities Act, (b) a private placement to institutional investors that is resold in accordance with Rule 144A or Regulation S under the Securities Act, whether or not it includes registration rights entitling the holders of such debt securities to registration thereof with the SEC, or (c) a private placement to institutional investors. For the avoidance of doubt, the term "Capital Markets Indebtedness" does not include any Indebtedness under commercial bank facilities, Capitalized Lease Obligations or recourse transfer of any financial asset or any other type of Indebtedness incurred in a manner not customarily viewed as a "securities offering."

"*Capital Stock*" means:

(1) in the case of a corporation, shares in the capital of such corporation;

(2) in the case of an association or business entity, any and all shares, interests, participations, rights or other equivalents (however designated) of capital stock;

(3) in the case of a partnership or limited liability company, partnership or membership interests (whether general or limited); 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.

"*Capitalized Lease Obligation*" means, at the time any determination thereof is to be made, the amount of the liability in respect of a capital lease that would at such time be required to be capitalized and reflected as a liability on a balance sheet (excluding the footnotes thereto) prepared in accordance with GAAP.

"*Cash Equivalents*" means:

(1) U.S. dollars and Canadian dollars;

(2)(a) pounds sterling, euro, or any national currency of any participating member state of the EMU, the United Kingdom, or the Kingdom of Norway; or (b) in the case of any Foreign Subsidiary that is a Restricted Subsidiary, such local currencies held by them from time to time in the ordinary course of business;

(3) securities issued or directly and unconditionally guaranteed or insured as to interest and principal by the U.S. government or any agency or instrumentality thereof, the obligations of which are backed by the full faith and credit of the U.S., in each case maturing within one year after such date and, in each case, repurchase agreements and reverse repurchase agreements relating thereto;

(4) deposits, money market deposits, time deposit accounts, certificates of deposit or bankers' acceptances (or similar instruments) maturing within one year after such date, in each case with any bank or trust company organized under, or authorized to operate as a bank or trust company under, the laws of the U.S., any state thereof or the District of Columbia and that has capital and surplus of not less than $100,000,000 and, in each case, repurchase agreements and reverse repurchase agreements relating thereto;

(5) commercial paper maturing within 24 months from the date of creation thereof and having, at the time of the acquisition thereof, a rating of at least A-2 from S&P or at least P-2 from Moody's (or reasonably equivalent ratings of another internationally recognized ratings agency);

(6) marketable short-term money market and similar securities having a rating of at least A-2 from S&P or at least P-2 from Moody's (or reasonably equivalent ratings of another internationally recognized ratings agency) and in each case maturing within 24 months after the date of creation thereof and in a currency permitted under clause (1) or (2) above;

(7) readily marketable direct obligations issued by any state, commonwealth or territory of the United States or any political subdivision or taxing authority thereof having an Investment Grade Rating from either Moody's or S&P (or reasonably equivalent ratings of another internationally recognized rating agency) with maturities of 24 months or less from the date of acquisition;

(8) Indebtedness or Preferred Stock issued by Persons with a rating of "A" or higher from S&P, "A2" or higher from Moody's (or reasonably equivalent ratings of another internationally recognized ratings agency) with maturities of 24 months or less from the date of acquisition and in each case in a currency permitted under clause (1) or (2) above;

(9) Investments with average maturities of 12 months or less from the date of acquisition in money market funds rated AA- (or the equivalent thereof) or better by S&P, Aaa3 (or the equivalent thereof) or better by Moody's, and in each case in a currency permitted under clause (1) or (2) above;

(10) institutional money market funds registered under the Investment Company Act of 1940;

(11) in the case of any Foreign Subsidiaries or Issuer, investments equivalent to those referred to in clauses (3) through (10) above denominated in foreign currencies customarily used by persons for cash management purposes in any jurisdiction outside the United States; and

(12) investment funds (including shares of any money market mutual fund) investing at least 90% of their assets in securities of the types described in clauses (1) through (11) above.

Notwithstanding the foregoing, Cash Equivalents shall include amounts denominated in currencies other than those set forth in clauses (1) and (2) above; *provided* that such amounts are converted into any currency listed in clauses (1) and (2) as promptly as practicable and in any event within ten Business Days following the receipt of such amounts.

"*Cash Management Services*" means any of the following to the extent not constituting a line of credit: treasury, depositary and/or cash management services, including, without limitation, other netting services, overdraft protections, automated clearing-house arrangements, employee credit card programs, controlled disbursement services, ACH transactions, return items, interstate depository network services, foreign exchange facilities, travel and expense cards, corporate purchasing cards, car leasing programs, deposit and other accounts and merchant services (including, for the avoidance of doubt, all "Cash Management Services" as defined in the North American Revolving Credit Agreement).

"*Change of Control*" means the occurrence of any of the following after the Issue Date:

(1) the sale, lease or transfer, in one or a series of related transactions (other than by way of merger or consolidation), of all or substantially all of the assets of Parent and its Subsidiaries, taken as a whole, to any Person other than the Permitted Holders;

(2) any "person" or "group" (as such terms are used in Sections 13(d) and 14(d) of the Exchange Act, but excluding any employee benefit plan of such person or its Subsidiaries, and any person or entity acting in its capacity as trustee, agent or other fiduciary or administrator of any such plan) other than the Permitted Holders becomes the "beneficial owner" (as defined in Rules 13d-3 and 13d-5 under the Exchange Act, except that a "person" or "group" shall be deemed to have "beneficial ownership" of all Capital Stock that such "person" or "group" has the right to acquire, whether such right is exercisable immediately or only after the passage of time (such right, an "option right")), directly or indirectly, of more than fifty percent (50%) of the Capital Stock of Parent entitled to vote in the election of members of the board of directors (or equivalent governing body) of Parent;

(3) there shall have occurred under any indenture or other instrument evidencing any Indebtedness that is in excess of $50.0 million or Capital Stock of Parent or any Subsidiary any "change in control" or similar provision (as set forth in the indenture, agreement or other evidence of such Indebtedness) obligating the Issuer or any Guarantor to repurchase, redeem or repay all or any part of the Indebtedness or Capital Stock provided for therein; or

(4) the Issuer shall cease to be a direct or indirect wholly-owned Subsidiary of Parent.

"*Code*" means the Internal Revenue Code of 1986, as amended from time to time.

"*Consolidated Interest Expense*" means, with respect to any Person for any period, without duplication, the sum of the following determined on a Consolidated basis, without duplication, for Parent and its Subsidiaries in accordance with GAAP, interest expense (including, without limitation, interest expense attributable to Capitalized Lease Obligations and all net payment obligations pursuant to Hedging Obligations associated with Indebtedness) for such period.

"*Consolidated Net Income*" means, with respect to any Person for any period, the net income (or loss) of Parent and its Subsidiaries for such period, determined on a Consolidated basis, without duplication, in accordance with GAAP; provided that in calculating Consolidated Net Income of Parent and its Subsidiaries for any period, there shall be excluded (a) the net income (or loss) of any Person (other than a Subsidiary which shall be subject to clause (c) below), in which Parent or any of its Subsidiaries has a joint interest with a third party, except to the extent such net income is actually paid in cash to Parent or any of its Subsidiaries by dividend or other distribution during such period, (b) the net income (or loss) of any Person accrued prior to the date it becomes a Subsidiary of Parent or any of its Subsidiaries or is merged into or consolidated with Parent or any of its Subsidiaries or that Person's assets are acquired by Parent or any of its Subsidiaries except to the extent included pursuant to the foregoing clause (a), (c) the net income (if positive), of any Subsidiary to the extent that the declaration or payment of dividends or similar distributions by such Subsidiary to Parent or any of its Subsidiaries of such net income is restricted by contract, operation of law or otherwise; provided, however, that if such Subsidiary is able despite such restriction to distribute income or transfer cash to the referent Person by way of an intercompany loan or otherwise, then such income or cash, to the extent of such ability, shall not be excluded pursuant to this clause (c), and (d) non-cash gains or losses attributable solely to fluctuations in currency values and related income tax effects, in either case related to intercompany notes and accounts payable existing prior to or as of the Issue Date and payable to Parent or any of its Subsidiaries.

"*Consolidated Secured Debt Ratio*" means, as of any date of determination, the ratio of (1) Consolidated Total Indebtedness of such Person and its Restricted Subsidiaries that is secured by Liens as of such date of determination to (2) EBITDA of such Person and its Restricted Subsidiaries, in each case with such *pro forma* adjustments to Consolidated Total Indebtedness and EBITDA as are appropriate and consistent with the *pro forma* adjustment provisions set forth in the definition of Fixed Charge Coverage Ratio.

"*Consolidated Total Assets*" means, at any date, all amounts that would, in conformity with GAAP, be set forth opposite the caption "total assets" (or like caption) on a consolidated balance sheet of Parent and its Restricted Subsidiaries at such date.

"*Consolidated Total Indebtedness*" means, as to any Person as at any date of determination, an amount equal to the sum of (1) the aggregate amount of all outstanding Indebtedness of such Person and its Restricted Subsidiaries on a consolidated basis consisting of Indebtedness for borrowed money, Obligations in respect of Capitalized Lease Obligations and debt obligations evidenced by promissory notes and similar instruments and (2) the aggregate amount of all outstanding Disqualified Stock of such Person and all Preferred Stock of its Restricted Subsidiaries on a consolidated basis, with the amount of such Disqualified Stock and Preferred Stock equal to the greater of their respective voluntary or involuntary liquidation preferences and maximum fixed repurchase prices, in each case determined on a consolidated basis in accordance with GAAP, less unrestricted cash and Cash Equivalents included on the consolidated balance sheet of such Person and any Restricted Subsidiaries as of such date. For purposes hereof, the "*maximum fixed repurchase price*" of any Disqualified Stock or Preferred Stock that does not have a fixed repurchase price shall be calculated in accordance with the terms of such Disqualified Stock or Preferred Stock as if such Disqualified Stock or Preferred Stock were purchased on any date on which Consolidated Total Indebtedness shall be required to be determined pursuant to the Indenture, and if such price is based upon, or measured by, the fair market value of such Disqualified Stock or Preferred Stock, such fair market value shall be determined reasonably and in good faith by the Issuer.

"*Consolidated Total Leverage Ratio*" means, as of any date of determination, the ratio of (1) Consolidated Total Indebtedness of such Person and its Restricted Subsidiaries as of such date of determination to (2) EBITDA of such Person and its Restricted Subsidiaries, in each case with such *pro forma* adjustments to Consolidated Total Indebtedness and EBITDA as are appropriate and consistent with the *pro forma* adjustment provisions set forth in the definition of Fixed Charge Coverage Ratio.

"*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 (the "*primary obligor*") 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 therefor,

(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 primary obligation against loss in respect thereof.

"*Credit Facilities*" means, with respect to Parent or any Restricted Subsidiary, one or more debt facilities, including the North American Revolving Credit Facility and the European Loan Facility, or other financing arrangements (including, without limitation, commercial paper facilities with banks or other institutional lenders or investors or indentures) providing for revolving credit loans, term loans, letters of credit or other long-term indebtedness, including any notes, mortgages, guarantees, collateral documents, instruments and agreements executed in connection therewith, and any amendments, supplements, modifications, extensions, restructurings, renewals, restatements, amendments, replacements and restatements, or refundings thereof, in whole or in part, and any indentures or credit facilities or commercial paper facilities with banks or other institutional lenders or investors that refinance any part of the loans, notes or other securities, other credit facilities or commitments thereunder, including any such refinancing facility or indenture that increases the amount permitted to be borrowed thereunder or alters the maturity thereof (*provided* that such increase in borrowings is permitted under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock") or adds Restricted Subsidiaries as additional borrowers or guarantors thereunder and whether by the same or any other agent, lender or group of lenders.

"*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 Parent or a Restricted Subsidiary in connection with an Asset Sale that is so designated as Designated Non-cash Consideration pursuant to an Officer's Certificate, setting forth the basis of such valuation, less the amount of Cash Equivalents received in connection with a subsequent sale, redemption, repurchase of, or collection or payment on, such Designated Non-cash Consideration.

"*Disqualified Stock*" means, with respect to any Person, any Capital Stock of such Person which, by its terms, or by the terms of any security into which it is convertible or for which it is redeemable or exchangeable, or upon the happening of any event, matures or is mandatorily redeemable (other than solely as a result of a change of control or asset sale) pursuant to a sinking fund obligation or otherwise or is redeemable at the option of the Holder thereof (other than solely as a result of a change of control or asset sale), in whole or in part, in each case prior to the date 91 days after the earlier of the maturity date of the Notes or the date the Notes are no longer outstanding; *provided*, *however*, that if such Capital Stock is issued to any current or former employee or to any plan for the benefit of employees, directors, officers, members of management or consultants of Parent or its Subsidiaries or by any such plan to such employees, directors, officers, members or management or consultants, such Capital Stock shall not constitute Disqualified Stock solely because it may be required to be repurchased by Parent or its Subsidiaries in order to satisfy applicable statutory or regulatory obligations or as a result of such employee's, director's, officer's, management member's or consultant's termination, death or disability.

"*Domestic Subsidiary*" means a Subsidiary incorporated or organized under the laws of any jurisdiction of the United States of America.

"*EBITDA*" means, with respect to any Person for any period, the sum of the following determined on a Consolidated basis, without duplication, for Parent and its Subsidiaries in accordance with GAAP: (a) Consolidated Net Income for such period *plus* (b) the sum of the following, without duplication, to the extent deducted in determining Consolidated Net Income for such period: (i) income and franchise taxes paid or accrued during such period, (ii) Fixed Charges for such period, and (iii) amortization, depreciation and other non-cash charges for such period (except to the extent that such non-cash charges are reserved for cash charges to be taken in the future), (iv) extraordinary losses during such period (excluding extraordinary losses from discontinued operations) and (v) transaction fees, costs and expenses (including legal, tax and structuring fees, costs and expenses) incurred in connection with the consummation of any transaction (or any transaction proposed and not consummated) permitted under the Indenture, including any Equity Offering, Permitted Investment, Restricted Payments, acquisitions, dispositions, recapitalizations, mergers, consolidations or amalgamations, option buyouts or incurrences, repayments, refinancings, amendments or modifications of Indebtedness (including any amortization or write-off of debt issuance or deferred financings costs, premiums and prepayment penalties) or similar transactions), including (x) such fees, expenses or charges related to the offering of the Notes and (y) commissions, discounts, yield and other fees and charges *less* (c) any extraordinary gains during such period.

"*EMU*" means economic and monetary union as contemplated in the Treaty on European Union.

"*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 sale of common stock or Preferred Stock of Parent, Issuer, or the Restricted Subsidiaries (excluding Disqualified Stock), other than:

(1) public offerings with respect to Parent's common stock registered on Form S-8; and

(2) issuances to any Subsidiary of Parent.

"*euro*" means the single currency of participating member states of the EMU.

"*European Credit Agreement*" Revolving Credit Agreement entered into on June 25, 2002 (as amended by a first amendment agreement dated September 3, 2004, by a second amendment agreement dated June 14, 2005, by a third amendment agreement dated May 26, 2008, by a fourth amendment agreement dated September 15, 2009, by a fifth amendment agreement dated October 28, 2010, and by a sixth amendment agreement dated September 27, 2012) by and among Kronos Titan GmbH, Kronos Europe S.A./N.V., Kronos Titan AS, Kronos Norge AS, Titania AS, and Kronos Denmark APS, each as borrowers and guarantors, the lenders party thereto in their capacities as lenders thereunder, and Deutsche Bank Luxembourg S.A., as agent thereunder, and any amendments, supplements, modifications, extensions, renewals, restatements, refundings or refinancings thereof and any credit, commercial paper or other facilities with banks or other institutional lenders or investors that replace, refund or refinance all or any part of the loans, notes, other credit facilities or commitments thereunder, including any such replacement, refunding or refinancing facility that increases the amount borrowable thereunder or alters the maturity thereof. Issuer is not a borrower or guarantor under the European Credit Agreement.

"*European Government Obligations*" means direct obligations (or certificates representing an ownership interest in such obligations) of a member state of the European Union (including any agency or instrumentality thereof) for the payment of which the full faith and credit of such government is pledged.

"*European Loan Facility*" means the credit facility incurred pursuant to the European Credit Agreement, including any notes, mortgages, guarantees, collateral documents, instruments and agreements executed in connection therewith, and any amendments, supplements, modifications, extensions, restructurings, renewals, restatements, amendments, replacements and restatements, or refundings thereof, in whole or in part, and any indentures or credit facilities or commercial paper facilities with banks or other institutional lenders or investors that refinance any part of the loans, notes or other securities, other credit facilities or commitments thereunder, including any such refinancing facility or indenture that increases the amount permitted to be borrowed thereunder or alters the maturity thereof (*provided* that such increase in borrowings is permitted under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock") or adds Restricted Subsidiaries as additional borrowers or guarantors thereunder and whether by the same or any other agent, lender or group of lenders.

"*Exchange Act*" means the Securities Exchange Act of 1934, as amended, and the rules and regulations of the SEC promulgated thereunder.

"*Excluded Subsidiary*" means (a) any Foreign Subsidiary of Parent or of any direct or indirect Domestic Subsidiary or Foreign Subsidiary, (b) any Domestic Subsidiary (i) substantially all of the assets of which constitute the Capital Stock in one or more Foreign Subsidiaries or (ii) substantially all of the assets of which constitute the Capital Stock of any entity described in clause (i) (such Domestic Subsidiary, a "*CFC Holding Company*") and (c) any Domestic Subsidiary that is a direct or indirect Subsidiary of a Foreign Subsidiary or a CFC Holding Company.

"*Existing Indebtedness*" means Indebtedness of Parent and its Restricted Subsidiaries (other than the North American Revolving Credit Facility, the European Loan Facility and the Notes) in existence on the Issue Date *plus* interest accruing thereon, until such amounts are repaid.

"*Fixed Charge Coverage Ratio*" means, with respect to any Person for any period, the ratio of (1) EBITDA of such Person and its Restricted Subsidiaries for such period to (2) the Fixed

Charges of such Person and its Restricted Subsidiaries for such period. In the event that such Person or any of its Restricted Subsidiaries incurs, assumes, guarantees, repurchases, redeems, retires or extinguishes any Indebtedness (other than Indebtedness under any revolving credit facility, in which case interest expense shall be computed based upon the average daily balance of such Indebtedness during such applicable period) or issues, repurchases or redeems Disqualified Stock or Preferred Stock subsequent to the commencement of the period for which the Fixed Charge Coverage Ratio is being calculated but prior to or simultaneously with the event for which the calculation of the Fixed Charge Coverage Ratio is made (the "*Fixed Charge Coverage Ratio Calculation Date*"), then the Fixed Charge Coverage Ratio shall be calculated giving *pro forma* effect to such incurrence, assumption, guarantee, repurchase, redemption, retirement or extinguishment of Indebtedness, or such issuance, repurchase or redemption of Disqualified Stock or Preferred Stock, as if the same had occurred at the beginning of the applicable four-quarter period for which internal financial statements are available.

For purposes of making the computation referred to above, Investments, acquisitions, dispositions, amalgamations, mergers, consolidations and discontinued operations (as determined in accordance with GAAP) and any operational changes that Parent or any of its Restricted Subsidiaries has determined to make/or has made during the four-quarter reference period or subsequent to such reference period and on or prior to or simultaneously with the Fixed Charge Coverage Ratio Calculation Date shall be calculated on a *pro forma* basis assuming that all such Investments, acquisitions, dispositions, amalgamations, mergers, consolidations, discontinued operations and operational changes (and the change in any associated fixed charge obligations and the change in EBITDA resulting therefrom) had occurred on the first day of the four-quarter reference period. If since the beginning of such period any Person that subsequently became a Restricted Subsidiary or was merged, amalgamated or consolidated with or into Parent or any of its Restricted Subsidiaries since the beginning of such period shall have made any Investment, acquisition, disposition, amalgamation, merger, consolidation, discontinued operation or operational change that would have required adjustment pursuant to this definition, then the Fixed Charge Coverage Ratio shall be calculated giving *pro forma* effect thereto for such period as if such Investment, acquisition, disposition, discontinued operation, merger, amalgamation, consolidation or operational change had occurred at the beginning of the applicable four-quarter period.

For purposes of this definition, whenever *pro forma* effect is to be given to an Investment, acquisition, disposition, amalgamation, merger, consolidation, discontinued operation or operational change, the *pro forma* calculations shall be made in good faith by a responsible financial or accounting officer of Parent (and may include (to the extent not already included in EBITDA) "run rate" cost savings (including sourcing), operating expense reductions and other operating improvements or synergies resulting from such Investment, acquisition, disposition, amalgamation, merger, consolidation, discontinued operation or operational change, which is being given pro forma effect that are projected by Parent in good faith to result from actions either taken or with respect to which substantial steps have been taken or are expected to be taken (in the good faith determination of Parent) within 18 months after the end of such period. If any Indebtedness bears a floating rate of interest and is being given *pro forma* effect, the interest on such Indebtedness shall be calculated as if the rate in effect on the Fixed Charge Coverage Ratio Calculation Date had been the applicable rate for the entire period (taking into account any Hedging Obligations applicable to such Indebtedness). Interest on a Capitalized Lease Obligation shall be deemed to accrue at an interest rate reasonably determined by a responsible financial or accounting officer of Parent to be the rate of interest implicit in such Capitalized Lease Obligation in accordance with GAAP. Interest on Indebtedness that may optionally be determined at an interest rate based upon a factor of a prime or similar rate, a eurocurrency interbank offered rate, or other rate, shall be deemed to have been based upon the rate actually chosen, or, if none, then based upon such optional rate chosen as Parent may designate. Interest on any Indebtedness under a revolving credit facility computed on a *pro forma* basis shall be computed based upon the average daily balance of such indebtedness during the applicable period.

For purposes of this definition, any amount in a currency other than U.S. dollars will be converted to U.S. dollars based on the average exchange rate for such currency for the most recent twelve month period immediately prior to the date of determination in a manner consistent with that used in calculating EBITDA for the applicable period.

"*Fixed Charges*" means, with respect to any Person for any period, the sum, without duplication, of:

(1) Consolidated Interest Expense of such Person for such period;

(2) all cash dividends or other distributions paid (excluding items eliminated in consolidation) on any series of Preferred Stock during such period; and

(3) all cash dividends or other distributions paid (excluding items eliminated in consolidation) on any series of Disqualified Stock during such period.

"*Foreign Subsidiary*" means any Subsidiary that is incorporated or organized under the laws of a jurisdiction outside of the United States.

"*GAAP*" means generally accepted accounting principles in the United States which are in effect on the Issue Date, except for any reports required to be delivered under the covenant described above under "—Certain Covenants "—Reports and Other Information," which shall be prepared in accordance with GAAP in effect on the date thereof. At any time after the Issue Date, the Issuer may elect to apply IFRS accounting principles in lieu of GAAP, and upon any such election, references herein to GAAP shall thereafter be construed to mean IFRS pursuant to the previous sentence.

"*Governmental Authority*" means any federal, state, municipal, national or other government, governmental department, commission, board, bureau, court, agency or instrumentality or political subdivision thereof or any entity or officer exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to any government or any court (including any supra-national body exercising such powers or functions, such as the European Union or the European Central Bank), in each case whether associated with a state or locality of the U.S., the U.S., or a foreign government.

"*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 letters of credit and reimbursement agreements in respect thereof), of all or any part of any Indebtedness or other obligations.

"*Guarantee*" means the guarantee by any Guarantor of the Issuer's Obligations under the Indenture and the Notes.

"*Guarantor*" means each Person that Guarantees the Notes in accordance with the terms of the Indenture.

"*Hedging Obligations*" means, with respect to any Person, the obligations of such Person under any interest rate swap agreement, interest rate cap agreement, interest rate collar agreement, commodity swap agreement, commodity cap agreement, commodity collar agreement, foreign exchange contract, currency swap agreement or similar agreement providing for the transfer or mitigation of interest rate, commodity price or currency risks either generally or under specific contingencies (including, for the avoidance of doubt, under all "Hedge Obligations" as defined in the North American Revolving Credit Agreement).

"*Holder*" means the Person in whose name a Note is registered on the registrar's books.

"*IFRS*" means international accounting standards within the meaning of IAS Regulation 1606/2002, as in effect from time to time, to the extent relevant to the applicable financial statements.

"*Indebtedness*" means, with respect to any Person, without duplication:

(1) any indebtedness (including principal and premium) of such Person, whether or not contingent:

(a) in respect of borrowed money;

(b) evidenced by bonds, notes, debentures or similar instruments or letters of credit or bankers' acceptances (or, without duplication, reimbursement agreements in respect thereof);

(c) representing the balance deferred and unpaid of the purchase price of any property (including Capitalized Lease Obligations), except (i) any such balance that constitutes an obligation in respect of a commercial letter of credit, a trade payable or similar obligation, in each case accrued in the ordinary course of business, (ii) any earn-out obligations until such obligation becomes a liability on the balance sheet of such Person in accordance with GAAP and is not paid after becoming due and payable and (iii) any such obligations under ERISA or liabilities associated with customer prepayments; or

(d) representing any Hedging Obligations;

if and to the extent that any of the foregoing Indebtedness (other than letters of credit (other than commercial letters of credit) and Hedging Obligations) would appear as a liability upon a balance sheet (excluding the footnotes thereto) of such Person prepared in accordance with GAAP;

(2) to the extent not otherwise included, any obligation by such Person to be liable for, or to pay, as obligor, guarantor or otherwise, on the obligations of the type referred to in clause (1) of a third Person (whether or not such items would appear upon the balance sheet of such obligor or guarantor), other than by endorsement of negotiable instruments for collection in the ordinary course of business; and

(3) to the extent not otherwise included, the obligations of the type referred to in clause (1) of a third Person secured by a Lien on any asset owned by such first Person, whether or not such Indebtedness is assumed by such first Person; *provided*, *however*, that the amount of such Indebtedness will be the lesser of: (i) the fair market value of such asset at such date of determination, and (ii) the amount of such Indebtedness of such other Person secured by such asset;

provided, *however*, that notwithstanding the foregoing, Indebtedness shall be deemed not to include (1) Contingent Obligations incurred in the ordinary course of business and (2) deferred or prepaid revenues.

Notwithstanding anything in the Indenture to the contrary, Indebtedness shall not include, and shall be calculated without giving effect to, the effects of Accounting Standards Codification Topic 815 and related interpretations to the extent such effects would otherwise increase or decrease an amount of Indebtedness for any purpose under the Indenture as a result of accounting for any embedded derivatives created by the terms of such Indebtedness; and any such amounts that would have constituted Indebtedness under the Indenture but for the application of this sentence shall not be deemed an incurrence of Indebtedness under the Indenture.

"*Initial Purchaser*" means Deutsche Bank AG, London Branch.

"*Insolvency or Liquidation Proceeding*" means (a) any voluntary or involuntary case or proceeding under the Bankruptcy Code or other applicable bankruptcy or insolvency law with respect to the Issuer or any Guarantor, (b) any other voluntary or involuntary insolvency, reorganization or bankruptcy case or proceeding, or any receivership, liquidation, reorganization or other similar case or proceeding with respect to the Issuer or any Guarantor or with respect to any of their respective assets, (c) any liquidation, dissolution, reorganization or winding up of the Issuer or any Guarantor whether voluntary or involuntary and whether or not involving insolvency or bankruptcy or (d) any assignment for the benefit of creditors or any other marshalling of assets and liabilities of the Issuer or any Guarantor.

"*Investment Grade Rating*" means a rating equal to or higher than Baa3 (or the equivalent) by Moody's, BBB- (or the equivalent) by S&P, or, in any such case, an equivalent rating by any other Rating Agency.

"*Investment Grade Securities*" means:

(1) securities issued or directly and fully guaranteed or insured by the United States government or any agency or instrumentality thereof or by any participating member state of the EMU, the United Kingdom, or the Kingdom of Norway (other than Cash Equivalents);

(2) securities or instruments with an Investment Grade Rating, but excluding any debt securities or instruments constituting loans or advances among Parent and its Subsidiaries;

(3) investments in any fund that invests exclusively in investments of the type described in clauses (1) and (2) which fund may also hold immaterial amounts of cash pending investment or distribution; and

(4) corresponding instruments in countries other than the United States customarily utilized for high quality investments.

"*Investments*" means, with respect to any Person, all investments by such Person in other Persons (including Affiliates) in the form of loans (including guarantees), advances or capital contributions (excluding accounts receivable, trade credit, advances to customers, commission, travel and similar advances to officers, directors, distributors, consultants and employees, in each case made in the ordinary course of business), purchases or other acquisitions for consideration of Indebtedness, Equity Interests or other securities issued by any other Person and investments that are required by GAAP to be classified on the balance sheet (excluding the footnotes thereto) of Parent in the same manner as the other investments included in this definition to the extent such transactions involve the transfer of cash or other property. The amount of any Investment shall be deemed to be the amount actually invested, without adjustment for subsequent increases or decreases in value or any write-downs or write-offs, but giving effect to any repayments thereof in the form of loans and any return on capital or return on Investment in the case of equity Investments (whether as a distribution, dividend, redemption or sale but not in excess of the amount of such Investment). For purposes of the definition of "Unrestricted Subsidiary" and the covenant described under "—Certain Covenants—Limitation on Restricted Payments":

"*Investments*" shall include the portion (proportionate to Parent's equity interest in such Subsidiary) of the fair market value of the net assets of a Subsidiary of Parent at the time that such Subsidiary is designated an Unrestricted Subsidiary; *provided*, *however*, that upon a redesignation of such Subsidiary as a Restricted Subsidiary, Parent shall be deemed to continue to have a permanent "Investment" in an Unrestricted Subsidiary in an amount (if positive) equal to:

(1) Parent's "Investment" in such Subsidiary at the time of such redesignation; *less*

(2) the portion (proportionate to Parent's equity interest in such Subsidiary) of the fair market value of the net assets of such Subsidiary at the time of such redesignation; and

(3) any property transferred to or from an Unrestricted Subsidiary shall be valued at its fair market value at the time of such transfer, in each case as determined in good faith by Parent.

"*Issue Date*" means September 13, 2017.

"*Legal Holiday*" means a Saturday, a Sunday or any other day on which commercial banking institutions are not required by law, regulation or executive order to be open in the State of New York or in the jurisdiction of the place of payment. If a payment date at a place of payment is on a Legal Holiday, payment shall be made at that place on the next succeeding Business Day, and no interest shall accrue on such payment for the intervening period.

"*Lien*" means, with respect to any asset, any mortgage, lien, deed of trust, hypothecation, 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); *provided* that in no event shall an operating lease be deemed to constitute a Lien.

"*Moody's*" means Moody's Investors Service, Inc. and any successor to its rating agency business.

"*Net Income*" means, with respect to any Person, the net income (loss) of such Person, determined in accordance with GAAP and before any reduction in respect of Preferred Stock dividends.

"*Net Proceeds*" means the aggregate cash proceeds received by Parent or any of its Restricted Subsidiaries in respect of any Asset Sale, including, without limitation, any cash received in respect of or upon the sale or other disposition of any Designated Non-cash Consideration received in any Asset Sale, net of the direct costs relating to such Asset Sale and the sale or disposition of such Designated Non-cash Consideration, including legal, accounting and investment banking fees, and brokerage and sales commissions, any relocation expenses incurred as a result thereof, taxes paid or payable as a result thereof, amounts required to be applied to the repayment of principal, premium, if any, and interest on Indebtedness (other than Subordinated Indebtedness) secured by a Lien on the assets disposed of required (other than required by clause (1) of the second paragraph of "—Repurchase at the Option of Holders—Asset Sales") to be paid as a result of such transaction and any deduction of appropriate amounts to be provided by Parent or any of its Restricted Subsidiaries as a reserve in accordance with GAAP against any liabilities associated with the asset disposed of in such transaction and retained by Parent or any of its Restricted Subsidiaries after such sale or other disposition thereof, including pension and other post-employment benefit liabilities and liabilities related to environmental matters or against any indemnification obligations associated with such transaction.

"*Non-Guarantor Subsidiary*" means any Restricted Subsidiary (other than the Issuer) that is not a Subsidiary Guarantor.

"*North American Revolving Credit Agreement*" means that certain asset-based revolving Credit Agreement, dated as of June 18, 2012, and entered into by and among Parent, the subsidiary borrowers party thereto, the lenders party thereto in their capacities as lenders thereunder and Wells Fargo Capital Finance, LLC, as administrative agent thereunder, as amended, restated, supplemented or otherwise modified from time to time. The Issuer is not a borrower or guarantor under the North American Revolving Credit Agreement.

"*North American Revolving Credit Facility*" means the asset-based revolving credit facility incurred pursuant to the North American Revolving Credit Agreement, including any notes, mortgages, guarantees, collateral documents, instruments and agreements executed in connection therewith, and any amendments, supplements, modifications, extensions, restructurings, renewals, restatements, amendments, replacements and restatements, or refundings thereof, in whole or in part, and any indentures or credit facilities or commercial paper facilities with banks or other institutional lenders or investors that refinance any part of the loans, notes or other securities, other credit facilities or commitments thereunder, including any such refinancing facility or indenture that increases the amount permitted to be borrowed thereunder or alters the maturity thereof (*provided* that such increase in borrowings is permitted under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock") or adds Restricted Subsidiaries as additional borrowers or guarantors thereunder and whether by the same or any other agent, lender or group of lenders.

"*Obligations*" means any principal, interest (including any interest, fees and other amounts accruing subsequent to the filing of a petition in bankruptcy, reorganization or similar proceeding at the rate provided for in the documentation with respect thereto, whether or not such interest, fees and other amounts are an allowed claim under applicable state, federal or foreign law), penalties, fees, indemnification, reimbursements (including reimbursement obligations with respect to letters of credit and banker's acceptances), damages and other liabilities, and guarantees of payment of such principal, interest, penalties, fees, indemnifications, reimbursements, damages and other liabilities, payable under the documentation governing any Indebtedness.

"*Officer*" means the Chairman of the Board, the Chief Executive Officer, the Chief Financial Officer, the President, any Executive Vice President, Senior Vice President or Vice President, the Treasurer, the Secretary or an Assistant Secretary of the Issuer or Parent, as applicable.

"*Officer's Certificate*" means a certificate signed by an Officer of the Issuer or Parent, as applicable, who must be the principal executive officer, the principal financial officer, the treasurer or the principal accounting officer of the Issuer or Parent, as applicable, or such other person appointed by one of the foregoing, in each case, who meets the requirements set forth in the Indenture.

"*Opinion of Counsel*" means a written opinion from legal counsel who is reasonably acceptable to the Trustee. The counsel may be an employee of or counsel to Parent.

"*Permitted Additional Notes Priority Debt*" means obligations under Additional Notes or any other credit agreement, loan agreement or other agreement with banks or other institutional or commercial lenders providing for loans or other extensions of credit or any indenture or other debt instrument or agreement providing for bonds, notes, other loans or other extensions of credit (including, without limitation, with respect to any permitted first priority refinancing debt and any incremental equivalent debt, but excluding the Notes issued on the Issue Date) that (a) is secured by the Notes Collateral on a pari passu basis with the Notes pursuant to clauses (30) and/or (34) of the definition of "Permitted Liens," (b) is designated as Permitted Additional Notes Priority Debt by the Issuer in an Officer's Certificate delivered to the Trustee and which also contains a certification that the incurrence of the Indebtedness under such credit agreement, loan agreement, note agreement, indenture or other agreement is permitted to be incurred and so secured by the Notes Collateral by the Indenture and (c) the trustee or agent under such Permitted Additional Notes Priority Debt (other than Additional Notes) executes a joinder agreement to the Pledge Agreement in the form attached thereto.

"*Permitted Asset Swap*" means the substantially concurrent purchase and sale or exchange of Related Business Assets or a combination of Related Business Assets and Cash Equivalents between Parent or any of its Restricted Subsidiaries and another Person; *provided* that any Cash Equivalents received must be applied in accordance with the "—Repurchase at the Option of Holders—Asset Sales" covenant; *provided further* that any Permitted Asset Swap involving assets owned by any entity whose Capital Stock constitutes Notes Collateral shall result in the assets acquired in such Permitted Asset Swap being owned by an entity whose Capital Stock constitutes Notes Collateral.

"*Permitted Holders*" means (1) Lisa K. Simmons or Serena Simmons Connelly, or members of the family of Lisa K. Simmons or Serena Simmons Connelly, including their spouses and/or their descendants, whether natural or adopted (collectively, "*Simmons Family Members*"), (2) any trust established primarily for the benefit of the Simmons Family Members ("*Simmons Trust*"), (3) trustees, acting in such capacity, or beneficiaries of a Simmons Trust to the extent of the beneficial interest therein and for so long as such Simmons Trust exists, (4) any employee plan or pension fund of Parent or any of its Subsidiaries, (5) any Person holding Capital Stock for or pursuant to the terms of any such plan or fund and (6) any Person controlled by, or any group made up of, any one or more of the Persons specified in (1) through (5) above.

"*Permitted Investments*" means, without duplication:

(1) any Investment in Parent or any of its Restricted Subsidiaries;

(2) any Investment in cash and Cash Equivalents or Investment Grade Securities;

(3) any Investment by Parent or any of its Restricted Subsidiaries in a Person (including in the Equity Interests of such Person) if as a result of such Investment:

(a) such Person becomes a Restricted Subsidiary; or

(b) such Person, in one transaction or a series of related transactions, is merged, amalgamated or consolidated with or into, or transfers or conveys substantially all of its assets to, or is liquidated into, Parent or a Restricted Subsidiary,

and, in each case, any Investment held by such Person; *provided* that such Investment was not acquired by such Person in contemplation of such acquisition, merger, consolidation or transfer;

(4) any Investment in securities or other assets not constituting cash, Cash Equivalents or Investment Grade Securities and received in connection with an Asset Sale made pursuant to the first paragraph under "Repurchase at the Option of Holders—Asset Sales" or any other disposition of assets not constituting an Asset Sale;

(5) any Investment existing on, or made pursuant to binding commitments existing on, the Issue Date and any extension, modification, replacement, renewal or reinvestments of any such Investments existing or committed on the Issue Date (other than reimbursements of Investments in Parent or any Subsidiary); *provided* that the amount of any such Investment may be increased (x) as required by the terms of such Investment or commitment as in existence on the Issue Date or (y) as otherwise permitted under the Indenture;

(6) any Investment acquired by Parent or any of its Restricted Subsidiaries:

(a) in exchange for any other Investment or accounts receivable held by Parent or any such Restricted Subsidiary in connection with or as a result of a bankruptcy, workout, reorganization or recapitalization of, or settlement of delinquent accounts and disputes with or judgments against, the issuer of such other Investment or accounts receivable;

(b) as a result of a foreclosure by Parent or any of its Restricted Subsidiaries with respect to any secured Investment or other transfer of title with respect to any secured Investment in default;

(c) as a result of the settlement, compromise or resolution of litigation, arbitration or other disputes with Persons who are not Affiliates, or

(d) in settlement of debts created in the ordinary course of business;

(7) Hedging Obligations permitted under clause (10) of the covenant described in "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock";

(8) Investments the payment for which consists of Equity Interests (exclusive of Disqualified Stock) of Parent; *provided*, *however*, that such Equity Interests will not increase the amount available for Restricted Payments under clause (3) of the first paragraph under the covenant description in "—Certain Covenants—Limitation on Restricted Payments";

(9) guarantees (including Guarantees) of Indebtedness permitted under the covenant described in "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock," performance guarantees and Contingent Obligations in the ordinary course of business and the creation of liens on the assets of Parent or any of its Restricted Subsidiaries in compliance with the covenant described in "—Certain Covenants—Liens," including, without limitation, any guarantee or other obligation issued or incurred under the North American Revolving Credit Facility or the European Loan Facility in connection with any letter of credit issued for the account of Parent or any of its Subsidiaries (including with respect to the issuance of, or payments in respect of drawings under, such letters of credit);

(10) any transaction to the extent it constitutes an Investment that is permitted and made in accordance with the provisions of the second paragraph of the covenant described under "—Certain Covenants—Transactions with Affiliates" (except transactions described in clauses (2) and (5) of the second paragraph thereof);

(11) Investments consisting of or to finance purchases and acquisitions of inventory, supplies, materials, services or equipment, or intellectual property, or the licensing or

contribution of intellectual property pursuant to any distribution, service, joint marketing, cobranding, co-distribution or other similar arrangement, however denominated;

(12) Investments having an aggregate fair market value, taken together with all other Investments made pursuant to this clause (12) that are at that time outstanding, not to exceed the greater of (x) $100.0 million and (y) 7.5% of Consolidated Total Assets (with the fair market value of each investment being measured at the time made and without giving effect to subsequent changes in value); *provided*, *however*, that if any Investment pursuant to this clause (12) is made in any Person that is not a Restricted Subsidiary of Parent at the date of the making of such Investment and such Person becomes a Restricted Subsidiary after such date, such Investment shall thereafter be deemed to have been made pursuant to clause (1) above and shall cease to have been made pursuant to this clause (12) for so long as such Person continues to be a Restricted Subsidiary;

(13) loans and advances to, or guarantees of Indebtedness of, officers, directors, employees, managers, consultants or independent contractors and members of management of Parent (or their respective immediate family members), any of its Subsidiaries or any direct or indirect parent of Parent not to exceed $5.0 million at any time outstanding (with the fair market value of each Investment being measured at the time made and without giving effect to subsequent changes in value) (calculated without regard to write-downs or write-offs thereof);

(14) Investments consisting of licensing or contribution of intellectual property pursuant to joint marketing arrangements with other Persons;

(15) Investments in prepaid expenses, negotiable instruments held for collection and lease, utility and workers compensation, performance and similar deposits entered into as a result of the operations of the business in the ordinary course;

(16) Investments in any Subsidiary or any joint venture as required by, or made pursuant to, intercompany cash management arrangements, buy/sell arrangements between the joint venture parties set forth in joint venture agreements and similar binding arrangements or related activities arising in the ordinary course of business;

(17) Investments in the ordinary course of business consisting of endorsements for collection or deposit and customary trade arrangements with customers;

(18) the Notes and the related Guarantees;

(19) guarantees of leases (other than capital leases) or of other obligations not constituting Indebtedness, in each case in the ordinary course of business;

(20) Investments constituting advances, deposits, prepayments and other credits to, and guarantees for the benefit of, existing or potential suppliers, customers, distributors, licensors, licensees, lessee and lessors, in each case, in the ordinary course of business, to maintain the ordinary course of business or where there is a reasonable expectation for a material commercial benefit, as the case may be;

(21) extensions of trade credit and the conversion of overdue trade receivables into notes receivables in each case in the ordinary course of business; and

(22) Investments in notes receivables payable to Parent or any Restricted Subsidiary by the purchasers of assets purchased pursuant to dispositions permitted in accordance with the "Asset Sales" covenant.

"*Permitted Liens*" means, without duplication, and with respect to any Person:

(1)(a) (i) pledges, deposits or security by such Person under workmen's compensation laws, unemployment insurance, employers' health tax and other social security laws or similar legislation or regulations, health, disability or other employee benefits or property and deposits securing liability to insurance carriers under insurance or self-insurance arrangements in respect of such obligations and (ii) pledges and deposits and other Liens securing liability for reimbursement or indemnification obligations of (including obligations in respect of letters of credit or bank guarantees for the benefit of) insurance carriers providing property, casualty, liability or other insurance to Parent and its Subsidiaries; or (b) Liens, pledges and deposits in connection with bids, tenders, contracts (other than for Indebtedness for borrowed money) or leases, statutory obligations, surety, stay, customs, bid and appeal bonds, performance and return of money bonds, bids, leases, government contracts, trade contracts, agreements with utilities, performance and completion guarantees and other obligations of a like nature (including letters of credit in lieu of any such items or to support the issuance thereof) incurred in the ordinary course of business, including those incurred to secure health, safety and environmental obligations in the ordinary course of business and obligations in respect of letters of credit or bank guarantees that have been posted to support payment of the items described in this clause (1);

(2) Liens imposed by law, such as landlord's, banks', carriers', warehousemen's, workmen, materialmen's, repairmen's, construction and mechanics' Liens, (i) for sums not yet overdue for a period of more than 30 days, (ii) being contested in good faith by appropriate actions or other Liens arising out of judgments or awards against such Person with respect to which such Person shall then be proceeding with an appeal or other proceedings for review if adequate reserves with respect thereto are maintained on the books of such Person in accordance with GAAP or (iii) with respect to which the failure to make payment could not reasonably be expected to have a material adverse effect;

(3) Liens for taxes, assessments or other governmental charges (i) not yet overdue for a period of more than 30 days, (ii) which are being contested in good faith by appropriate actions diligently conducted, if adequate reserves with respect thereto are maintained on the books of such Person in accordance with GAAP, (iii) for property taxes on property that Parent or one of its Subsidiaries has determined to abandon if the sole recourse for such tax, assessment, charge, levy or claim is to such property or (iv) with respect to which the failure to make payment could not reasonably be expected to have a material adverse effect;

(4) Liens in favor of issuers of performance, surety, bid, indemnity, warranty, release, appeal or similar bonds or with respect to other regulatory requirements or letters of credit or bankers' acceptances issued, and completion guarantees provided for, in each case pursuant to the request of and for the account of such Person in the ordinary course of its business or consistent with past practice or industry practices prior to the Issue Date;

(5) minor survey exceptions, minor encumbrances, ground leases, easements or reservations of, or rights of others for, licenses, rights-of-way, servitudes, sewers, electric lines, drains, telegraph and telephone and cable television lines, gas and oil pipelines and other similar purposes, or zoning, building codes or other restrictions (including, without limitation, minor defects or irregularities in title and similar encumbrances) as to the use of real properties or Liens incidental to the conduct of the business of such Person or to the ownership of its properties which were not incurred in connection with Indebtedness and which do not in the aggregate materially impair their use in the operation of the business of such Person;

(6) Liens securing Indebtedness, Disqualified Stock or Preferred Stock permitted to be incurred pursuant to clauses (4) or (14)(y) of the second paragraph of the covenant described under "—Certain Covenants—Limitation on Incurrence of Indebtedness and

Issuance of Disqualified Stock and Preferred Stock"; *provided* that (a) Liens securing Indebtedness, Disqualified Stock or Preferred Stock to be Incurred pursuant to clause (4) of the second paragraph of the covenant described under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" are limited to the assets financed with such Indebtedness, Disqualified Stock or Preferred Stock and any replacements thereof, additions and accessions thereto and the proceeds and products thereof and after-acquired and other related property; *provided*, *further*, that individual financings of assets provided by a counterparty may be cross-collateralized to other financings of assets provided by such counterparty and (b) Liens securing Indebtedness permitted to be incurred pursuant to clause (14)(y) of the second paragraph of the covenant described under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock" are solely on property or the assets or Capital Stock of the acquired, merged, amalgamated or consolidated entity, as the case may be, and improvements thereon and the proceeds and the products thereof and after-acquired property;

(7) Liens existing on the Issue Date (other than any Lien securing the Indebtedness outstanding on the Issue Date under the North American Revolving Credit Facility or the European Loan Facility);

(8) Liens existing on property or shares of stock of a Person at the time such Person becomes a Subsidiary (*provided* that such Liens are not created or incurred in connection with, or in contemplation of, such other Person becoming such a Subsidiary) and any replacement, extension or renewal of any such Lien (to the extent the indebtedness and other obligations secured by such replacement, extension or renewal Liens are permitted by the Indenture); *provided* that such replacement, extension or renewal Liens do not cover any property other than the property that was subject to such Liens prior to such replacement, extension or renewal;

(9) Liens existing on property at the time Parent or a Restricted Subsidiary acquired the property, including any acquisition by means of a merger, amalgamation or consolidation with or into Parent or any of its Restricted Subsidiaries; *provided*, *however*, that such Liens are not created or incurred in connection with, or in contemplation of, such acquisition, merger, amalgamation or consolidation; *provided*, *further*, *however*, that the Liens may not extend to any other property owned by Parent or any of its Restricted Subsidiaries;

(10) Liens securing Indebtedness or other obligations of Parent or a Restricted Subsidiary owing to Parent or another Restricted Subsidiary permitted to be incurred in accordance with the covenant described under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock";

(11) Liens securing Hedging Obligations and in respect of Cash Management Services so long as the related Indebtedness is permitted to be incurred under the Indenture;

(12) Liens on specific items of inventory or other goods and proceeds of any Person securing such Person's obligations in respect of documentary letters of credit or bankers' acceptances, a bank guarantee or letters of credit issued or created for the account of such Person to facilitate the purchase, shipment or storage of such inventory or other goods;

(13) leases, subleases, licenses or sublicenses, grants or permits (including with respect to intellectual property) granted to others in the ordinary course of business which do not materially interfere with the ordinary conduct of the business of Parent or any of its Restricted Subsidiaries and the customary rights reserved or vested in any Person by the terms of any lease, sublease, license, sublicense, grant or permit, or to require annual or periodic payments as a condition to the continuance thereof;

(14) Liens arising from Uniform Commercial Code (or equivalent statutes) financing statement filings regarding operating leases or accounts in connection with any transaction otherwise permitted under the Indenture;

(15) Liens in favor of the Issuer or any Guarantor;

(16) Liens to secure any refinancing, refunding, extension, renewal or replacement (or successive refinancing, refunding, extensions, renewals or replacements) as a whole, or in part, of any Indebtedness secured by any Lien referred to in the foregoing clauses (6), (7), (8) and (9); *provided*, *however*, that (a) such new Lien shall be limited to the same property that was permitted to secure the original Lien (other than the proceeds and products thereof, accessions thereto, improvements on such property and after-acquired property), and (b) the Indebtedness secured by such Lien at such time is not increased to any amount greater than the sum of (i) the outstanding principal amount or, if greater, committed amount of the Indebtedness described under clauses (6), (7), (8) and (9) at the time the original Lien became a Permitted Lien under the Indenture, and (ii) an amount necessary to pay any accrued interest and fees (including original issue discount, upfront fees or similar fees) and expenses, including premiums (including tender premiums), related to such refinancing, refunding, extension, renewal or replacement;

(17) deposits made or other security provided to secure liabilities to insurance brokers, insurance carriers under insurance or self-insurance arrangements in the ordinary course of business;

(18) Liens securing judgments for the payment of money not constituting an Event of Default under clause (6) under the caption "Events of Default and Remedies" so long as such Liens are adequately bonded and any appropriate legal proceedings that may have been duly initiated for the review of such judgment have not been finally terminated or the period within which such proceedings may be initiated has not expired;

(19) Liens in favor of customs and revenue authorities arising as a matter of law to secure payment of customs duties in connection with the importation of goods;

(20) Liens (i) of a collection bank arising under Section 4-208 or 4-210 of the Uniform Commercial Code on items in the course of collection, (ii) attaching to commodity trading accounts or other commodity brokerage accounts incurred in the ordinary course of business, and (iii) in favor of banking institutions arising as a matter of law encumbering deposits (including the right of set-off) and which are within the general parameters customary in the banking industry;

(21) Liens deemed to exist in connection with Investments in repurchase agreements or other Cash Equivalents permitted under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock"; *provided* that such Liens do not extend to any assets other than those that are the subject of such repurchase agreement or other Cash Equivalents;

(22) Liens encumbering reasonable customary initial deposits and margin deposits and similar Liens attaching to commodity trading accounts or other brokerage accounts incurred in the ordinary course of business and not for speculative purposes;

(23) Liens that are contractual rights of set-off (i) relating to the establishment of depository relations with banks not given in connection with the issuance of Indebtedness, (ii) relating to pooled deposit or sweep accounts of Parent or any of its Restricted Subsidiaries to permit satisfaction of overdraft or similar obligations incurred in the ordinary course of business of Parent and its Restricted Subsidiaries or (iii) relating to purchase orders and other agreements entered into with customers of Parent or any of its Restricted Subsidiaries in the ordinary course of business;

(24) Liens solely on any cash earnest money deposits made by Parent or any of its Restricted Subsidiaries in connection with any letter of intent or purchase agreement permitted under the Indenture;

(25) the rights reserved or vested in any Person by the terms of any lease, license, franchise, grant or permit held by Parent or any of its Restricted Subsidiaries or by a statutory provision, to terminate any such lease, license, franchise, grant or permit, or to require annual or periodic payments as a condition to the continuance thereof;

(26) Liens arising out of conditional sale, title retention, consignment or similar arrangements for sale of goods entered into by Parent or any Restricted Subsidiary in the ordinary course of business;

(27)(i) customary transfer restrictions and purchase options in joint venture and similar agreements, (ii) Liens on Equity Interests in joint ventures or Unrestricted Subsidiaries securing capital contributions to, or obligations of, such Persons and (iii) customary rights of first refusal and tag, drag and similar rights in joint venture agreements and agreements with respect to non-Wholly Owned Subsidiaries entered into in the ordinary course of business;

(28)(i) the prior rights of consignees and their lenders under consignment arrangements entered into in the ordinary course of business, (ii) Liens arising out of conditional sale, title retention or similar arrangements for the sale of goods in the ordinary course of business and (iii) Liens arising by operation of law under Article 2 of the Uniform Commercial Code;

(29) Liens on the assets of Non-Guarantor Subsidiaries (i) securing Indebtedness permitted to be incurred by Non-Guarantor Subsidiaries under the Indenture or (ii) to the extent arising mandatorily under applicable law;

(30) other Liens securing obligations (including Permitted Additional Notes Priority Debt) not to exceed the greater of (x) $100.0 million and (y) 7.5% of Consolidated Total Assets, at any one time outstanding;

(31) Liens securing reimbursement obligations in respect of documentary letters of credit or bankers' acceptances in the ordinary course of business; *provided* that such Liens attach only to the documents and goods covered thereby and proceeds thereof;

(32) Liens securing the Notes and the related Guarantees (not including any Additional Notes);

(33) Liens on assets of the Parent and its Restricted Subsidiaries securing obligations permitted to be incurred under any Credit Facility, including any letter of credit facility relating thereto, that was permitted to be incurred pursuant to clause (1) of the second paragraph of the "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock"; *provided* that (x) no assets of the Issuer or any Guarantor shall be the subject of a Lien pursuant to this clause (33) securing Indebtedness incurred by a Non-Guarantor Subsidiary and (y) any Lien incurred pursuant to this clause (33) on assets constituting Notes Collateral shall rank junior in priority to the Lien securing the Obligations under the Notes and be subject to a customary intercreditor agreement setting forth such junior priority;

(34) Liens securing Indebtedness (including Permitted Additional Notes Priority Debt) permitted by the terms of the indenture to be incurred pursuant to the covenant described under "—Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock"; *provided* that, with respect to Liens securing Indebtedness under this clause (34), at the time of incurrence and after giving *pro forma*

effect thereto, the Consolidated Secured Debt Ratio of Parent and its Restricted Subsidiaries would have been no greater than 2.00 to 1.00;

(35) Liens on Cash Equivalents used to satisfy or discharge Indebtedness; *provided* that such satisfaction or discharge is permitted under the Indenture; and

(36) Liens securing Guarantees of any Indebtedness or other obligations otherwise permitted to be secured by a Lien under the Indenture.

For purposes of determining compliance with this definition, (x) a Lien need not be incurred solely by reference to one category of Permitted Liens described in this definition but may be incurred under any combination of such categories (including in part under one such category and in part under any other such category), (y) in the event that a Lien (or any portion thereof) meets the criteria of one or more of such categories of Permitted Liens, Parent shall, in its sole discretion, classify or reclassify such Lien (or any portion thereof) in any manner that complies with this definition, and (z) in the event that a portion of Indebtedness secured by a Lien could be classified as secured in part pursuant to clauses (30), (32), (33) or (34) above (giving effect to the incurrence of such portion of such Indebtedness), Parent, in its sole discretion, may classify such portion of such Indebtedness (and any Obligations in respect thereof) as having been secured pursuant to clauses (30), (32), (33) or (34) above and thereafter the remainder of the Indebtedness as having been secured pursuant to one or more of the other clauses of this definition.

For purposes of this definition, the term "Indebtedness" shall be deemed to include interest on such Indebtedness.

"*Person*" means any individual, corporation, limited liability company, partnership, joint venture, association, joint stock company, trust, unincorporated organization, government or any agency or political subdivision thereof or any other entity.

"*Pledge Agreement*" means the Pledge Agreement to be entered into by the Issuer and the Guarantors in favor of the Collateral Agent in connection with the Notes, as amended, restated, supplemented or otherwise modified from time to time.

"*Preferred Stock*" means any Equity Interest with preferential rights of payment of dividends or upon liquidation, dissolution, or winding-up.

"*Rating Agencies*" means Moody's and S&P, or if Moody's and S&P or any of the foregoing shall not make a rating on the Notes publicly available, a nationally recognized statistical rating agency or agencies, as the case may be, selected by the Issuer which shall be substituted for Moody's and S&P or any of the foregoing, as the case may be.

"*Related Business Assets*" means assets (other than cash or Cash Equivalents) used or useful in a Similar Business; *provided* that any assets received by Parent or a Restricted Subsidiary in exchange for assets transferred by Parent or a Restricted Subsidiary shall not be deemed to be Related Business Assets if they consist of securities of a Person, unless upon receipt of the securities of such Person, such Person would become a Restricted Subsidiary.

"*Restricted Investment*" means an Investment other than a Permitted Investment.

"*Restricted Subsidiary*" means, at any time, any direct or indirect Subsidiary of Parent (including any Foreign Subsidiary and, for the avoidance of doubt, the Issuer) that is not then an

Unrestricted Subsidiary; *provided*, *however*, that upon the occurrence of an Unrestricted Subsidiary ceasing to be an Unrestricted Subsidiary, such Subsidiary shall be included in the definition of "Restricted Subsidiary."

"*S&P*" means Standard & Poor's, a division of The McGraw-Hill Companies, Inc., and any successor to its rating agency business.

"*SEC*" means the U.S. Securities and Exchange Commission.

"*Secured Indebtedness*" means any Indebtedness of Parent or any of its Restricted Subsidiaries secured by a Lien.

"*Securities Act*" means the Securities Act of 1933, as amended, and the rules and regulations of the SEC promulgated thereunder.

"*Security Documents*" means the Pledge Agreement, each security agreement, pledge agreement or other grants or transfers for security or agreements related thereto executed and delivered by the Issuer or any Guarantor creating or perfecting (or purporting to create or perfect) or perfecting a Lien upon Notes Collateral in favor of the Collateral Agent on behalf of the Trustee, the Holders of the Notes and the holders of any Permitted Additional Notes Priority Debt to secure the Obligations under the Notes, the Indenture, the Security Documents and the obligations under any Permitted Additional Notes Priority Debt, in each case, as amended, modified, restated, supplemented or replaced from time to time.

"*Significant Subsidiary*" means any Restricted Subsidiary that would be a "significant subsidiary" as defined in Article 1, Rule 1-02 of Regulation S-X, promulgated pursuant to the Securities Act, as such regulation is in effect on the Issue Date.

"*Similar Business*" means any business conducted or proposed to be conducted by Parent and its Restricted Subsidiaries on the Issue Date or any business that is a reasonable extension, development or expansion of any of the foregoing or is similar, reasonably related or complementary, incidental or ancillary thereto.

"*Subordinated Indebtedness*" means, with respect to the Notes:

(1) any Indebtedness of the Issuer which is by its terms subordinated in right of payment to the Notes, and

(2) any Indebtedness of any Guarantor which is by its terms subordinated in right of payment to the Guarantee of such entity of the Notes.

"*Subsidiary*" means, with respect to any Person, any corporation, partnership, limited liability company, association, joint venture or other business entity of which more than 50% of the total voting power of stock or other ownership interests entitled (without regard to the occurrence of any contingency) to vote in the election of the Person or Persons (whether directors, managers, trustees or other Persons performing similar functions) having the power to direct or cause the direction of the management and policies thereof is at the time owned or controlled, directly or indirectly, by such Person or one or more of the other subsidiaries of such Person or a combination thereof; *provided* that in determining the percentage of ownership interests of any Person controlled by another Person, no ownership interests in the nature of a "qualifying share" of the former Person shall be deemed to be outstanding.

"*Subsidiary Guarantors*" means the Subsidiaries of the Parent that provide Guarantees.

"*UCC*" means the Uniform Commercial Code as in effect in the State of New York or any other applicable jurisdiction.

"*Unrestricted Subsidiary*" means:

(1) any Subsidiary of Parent which at the time of determination is an Unrestricted Subsidiary (as designated by Parent, as provided below); and

(2) any Subsidiary of an Unrestricted Subsidiary.

Parent may designate any Subsidiary of Parent (including any existing Restricted Subsidiary or other Subsidiary and any newly acquired or newly formed Subsidiary but excluding the Issuer) to be an Unrestricted Subsidiary unless such Subsidiary or any of its Subsidiaries owns any Equity Interests or Indebtedness of, or owns or holds any Lien on, any property of, Parent or any Subsidiary of Parent (other than solely any Subsidiary of the Subsidiary to be so designated); *provided* that

(1) any Unrestricted Subsidiary must be an entity of which the Equity Interests entitled to cast at least a majority of the votes that may be cast by all Equity Interests having ordinary voting power for the election of directors or Persons performing a similar function are owned, directly or indirectly, by Parent;

(2) such designation complies with the covenants described under "—Certain Covenants—Limitation on Restricted Payments"; and

(3) each of:

(a) the Subsidiary to be so designated; and

(b) its Subsidiaries

has not at the time of designation, and does not thereafter, create, incur, issue, assume, guarantee or otherwise become directly or indirectly liable with respect to any Indebtedness pursuant to which the lender has recourse to any of the assets of Parent or any Restricted Subsidiary.

Parent may designate any Unrestricted Subsidiary to be a Restricted Subsidiary; *provided* that, immediately after giving effect to such designation, no Event of Default shall have occurred and be continuing and either:

(1) Parent could incur at least $1.00 of additional Indebtedness pursuant to the Fixed Charge Coverage Ratio test described in the first paragraph under "Certain Covenants—Limitation on Incurrence of Indebtedness and Issuance of Disqualified Stock and Preferred Stock"; or

(2) the Fixed Charge Coverage Ratio for Parent and its Restricted Subsidiaries would be equal to or greater than such ratio for Parent and its Restricted Subsidiaries immediately prior to such designation, in each case on a *pro forma* basis taking into account such designation.

Any such designation by Parent shall be notified by Parent to the Trustee by promptly filing with the Trustee a copy of the resolution of the board of directors of Parent or any committee thereof giving effect to such designation and an Officer's Certificate certifying that such designation complied with the foregoing provisions.

"*Weighted Average Life to Maturity*" means, when applied to any Indebtedness, Disqualified Stock or Preferred Stock, as the case may be, at any date, the quotient obtained by dividing:

(1) the sum of the products of the number of years from the date of determination to the date of each successive scheduled principal payment of such Indebtedness or redemption or similar payment with respect to such Disqualified Stock or Preferred Stock multiplied by the amount of such payment; by

(2) the sum of all such payments.

"*Wholly Owned Subsidiary*" of any Person means a Subsidiary of such Person, 100% of the outstanding Equity Interests of which (other than directors' qualifying shares and shares issued to foreign nationals as required under applicable law) shall at the time be owned by such Person or by one or more Wholly Owned Subsidiaries of such Person or by such Person and one or more Wholly Owned Subsidiaries of such Person.

BOOK ENTRY; DELIVERY AND FORM

General

Notes sold to qualified institutional buyers in reliance on Rule 144A under the Securities Act will initially be represented by a global note in registered form without interest coupons attached (the "Rule 144A Global Note"). Notes sold outside the United States in reliance on Regulation S under the Securities Act will initially be represented by a global note in registered form without interest coupons attached (the "Regulation S Global Note" and, together with the Rule 144A Global Note, the "Global Notes"). The Global Notes will be deposited, on the closing date, with a common depositary and registered in the name of the nominee of the common depositary for the account of Euroclear and Clearstream.

Ownership of interests in the Rule 144A Global Note (the "Rule 144A Book Entry Interests") and ownership of interests in the Regulation S Global Note (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 hold interests through such participants. Euroclear and Clearstream will hold interests in the Global Notes on behalf of their participants through customers' securities accounts in their respective names on the books of their respective depositories. Except under the limited circumstances described below, Book Entry Interests will not be issued in definitive form.

Book Entry Interests will be shown on, and transfers thereof will be effected only through, records maintained by Euroclear and Clearstream and their participants. The laws of some jurisdictions, including certain states of the United States, may require that certain purchasers of securities take physical delivery of those securities in definitive form. The foregoing limitations may impair your ability to own, transfer or pledge Book Entry Interests. In addition, while the Notes are in global form, holders of Book Entry Interests will not be considered the owners or "holders" of Notes for any purpose.

So long as the Notes are held in global form, Euroclear and/or Clearstream (or their respective nominees), as applicable, will be considered the sole holders of the Global Notes for all purposes under the Indenture. In addition, participants must rely on the procedures of Euroclear and Clearstream, and indirect participants must rely on the procedures of Euroclear and Clearstream and the participants through which they own Book Entry Interests, to transfer their interests or to exercise any rights of holders of the Notes under the Indenture.

Neither the Issuer, the trustee nor any agent will have any responsibility, or be liable, for any aspect of the records relating to the Book Entry Interests.

Definitive Registered Notes

Under the terms of the Indenture, owners of the Book Entry Interests will receive Definitive Registered Notes:

(1) if Euroclear or Clearstream notifies the Issuer that it is unwilling or unable to continue to act as depositary and a successor depositary is not appointed by the Issuer within 120 days; or

(2) if the owner of a Book Entry Interest requests such exchange in writing delivered through Euroclear or Clearstream following an event of default and commencement of enforcement action under the Indenture.

Euroclear and Clearstream have advised the Issuer that upon request by an owner of a Book Entry Interest described in the immediately preceding clause (2), their current procedure is to request that the Issuer issue or cause to be issued notes in definitive registered form to all owners of Book Entry Interests.

In such an event, the Registrar will issue Definitive Registered Notes, registered in the name or names and issued in any approved denominations, requested by or on behalf of Euroclear, Clearstream or the Issuer, 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 as provided in the relevant Indenture, unless that legend is not required by the Indenture or applicable law.

To the extent permitted by law, each of the Issuer, the trustee and each agent shall be entitled to treat the registered holder of any Global Note as the absolute owner thereof and no person will be liable for treating the registered holder as such. Ownership of the Global Notes will be evidenced through registration from time to time at the registered office of the Issuer, and such registration is a means of evidencing title to the Notes.

The Issuer will not impose any fees or other charges in respect of the Notes; however, owners of the Book Entry Interests may incur fees normally payable in respect of the maintenance and operation of accounts in Euroclear and Clearstream.

Redemption of the Global Notes

In the event that any Global Note (or any portion thereof) is redeemed, Euroclear and/or Clearstream, as applicable, will redeem an equal amount of the Book Entry Interests in such Global Note from the amount received by them in respect of the redemption of 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 Euroclear and Clearstream, as applicable, in connection with the redemption of such Global Note (or any portion thereof). The Issuer understands that, under the 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 participants' accounts on a proportionate basis (with adjustments to prevent fractions), by lot or on such other basis as they deem fair and appropriate, provided, however, that no Book Entry Interest of less than €100,000 principal amount may be redeemed in part.

Payments on Global Notes

The Issuer will make payments of any amounts owing in respect of the Global Notes (including principal, premium, if any, interest and Additional Amounts, if any) to the common depositary or its nominee for Euroclear and Clearstream. The common depositary will distribute such payments to participants in accordance with their customary procedures. The Issuer 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. The Issuer expects that standing customer instructions and customary practices will govern payments by participants to owners of Book Entry Interests held through such participants.

Under the terms of the Indenture, the Issuer, the Guarantors, the trustee and each agent will treat the registered holders of the Global Notes (e.g., Euroclear or Clearstream (or their respective nominee)) as the owner thereof for the purpose of receiving payments and for all other purposes. Consequently, neither the Issuer, the Guarantors, the trustee 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, or payments made on account of, a Book Entry Interest or for maintaining, supervising or reviewing the records of Euroclear or Clearstream or any participant or indirect participant relating to, or payments made on account of, a Book Entry Interest;
- Euroclear, Clearstream or any participant or indirect participant; or
- the records of the common depositary.

Currency of Payment for the Global Notes

The principal of, premium, if any, and interest on, and all other amounts payable in respect of, the Global Notes will be paid to holders of interests to such Notes through Euroclear or Clearstream in euro.

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 (including the presentation of Notes for exchange as described above) 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 or waivers or the taking of any other action in respect of the Global Notes. However, if there is an event of default under the Notes, Euroclear and Clearstream, at the request of the holders of the Notes, reserve the right to exchange the Global Notes for definitive registered notes in certificated form (the "Definitive Registered Notes"), and to distribute such Definitive Registered Notes to their participants.

Transfers

Transfers between participants in Euroclear or Clearstream will be effected in accordance with Euroclear and Clearstream's rules and will be settled in immediately available funds. If a holder of Notes requires physical delivery of Definitive Registered Notes for any reason, including to sell Notes to persons in jurisdictions which require physical delivery of such securities or to pledge such securities, such holder of Notes must transfer its interests in the Global Notes in accordance with the normal procedures of Euroclear and Clearstream and in accordance with the procedures set forth in the Indenture governing the Notes.

The Global Notes will bear a legend to the effect set forth under "Notice to Investors." Book Entry Interests in the Global Notes will be subject to the restrictions on transfers and certification requirements discussed under "Notice to Investors."

Transfers of Rule 144A Book Entry Interests to persons wishing to take delivery of Rule 144A Book Entry Interests will at all times be subject to such transfer restrictions.

Rule 144A Book Entry Interests may be transferred to a person who takes delivery in the form of a Regulation S Book Entry Interest 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 or Rule 144 under the Securities Act or any other exemption (if available under the Securities Act).

Regulation S Book Entry Interests may be transferred to a person who takes delivery in the form of a Rule 144A Book Entry Interest 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 under the Securities Act in a transaction meeting the requirements of Rule 144A under the Securities Act or otherwise in accordance with the transfer restrictions described under “Notice to Investors” and in accordance with any applicable securities laws of any other jurisdiction.

In connection with transfers involving an exchange of a Regulation S Book Entry Interest for a Rule 144A Book Entry Interest, appropriate adjustments will be made to reflect a decrease in the principal amount of the Regulation S Global Note and a corresponding increase in the principal amount of the Rule 144A Global Note.

Definitive Registered Notes may be transferred and exchanged for Book Entry Interests in a Global Note only as described under “Description of Notes—Transfer and Exchange” and, if required, only if the transferor first delivers to the trustee a written certificate (in the form provided in the Indenture) to the effect that such transfer will comply with the appropriate transfer restrictions applicable to such Notes. See “Notice to Investors.”

Any Book Entry Interest in one of the Global Notes that is transferred to a person who takes delivery in the form of a Book Entry Interest in any other 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 such 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 remains such a Book Entry Interest.

Information Concerning Euroclear and Clearstream

All Book Entry Interests will be subject to the operations and procedures of Euroclear and Clearstream, as applicable. The Issuer provides the following summaries of those operations and procedures solely for the convenience of investors. The operations and procedures of the settlement system are controlled by the settlement system and may be changed at any time. Neither the Issuer, the trustee, any agent nor the Initial Purchaser are responsible for those operations or procedures.

The Issuer understand as follows 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 the 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.

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 Global Notes only through Euroclear or Clearstream participants.

Global Clearance and Settlement Under the Book Entry System

The Notes represented by the Global Notes are expected to be listed on TISE. 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. Neither the Issuer, any Guarantor, the trustee nor any 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 Euro. Book Entry Interests owned through Euroclear or Clearstream accounts will follow the settlement procedures applicable to conventional bonds 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 of the settlement date.

Secondary Market Trading

The Book Entry Interests will trade through participants of Euroclear and Clearstream and will settle in same day funds. Since the purchase 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 the seller's accounts are located to ensure that settlement can be made on the desired value date.

NOTICE TO INVESTORS

The Notes have not been registered under the Securities Act or any securities laws of any jurisdiction, and may not be offered or sold, except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act and such other securities laws. Accordingly, the Notes are being offered hereby only (1) to persons reasonably believed to be "qualified institutional buyers" (as defined in Rule 144A under the Securities Act) in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 144A and (2) outside of the United States in reliance upon Regulation S under the Securities Act, to non- U.S. persons who will be required to make certain representations to us and others prior to the investment in the Notes.

Each purchaser of the Notes that is purchasing in a sale made in reliance on Rule 144A or Regulation S will be deemed to have represented and agreed as follows:

(1) The purchaser:

(a) (i) is a qualified institutional buyer and is aware that the sale to it is being made in reliance on Rule 144A and (ii) is acquiring the Notes for its own account or for the account of another qualified institutional buyer; or

(b) is not a U.S. person, as such term is defined in Rule 902 under the Securities Act, and is purchasing the Notes in accordance with Regulation S.

(2) The purchaser understands that the Notes are being offered in transactions not involving any public offering in the United States within the meaning of the Securities Act, that the Notes have not been registered under the Securities Act or any securities laws of any jurisdiction and that for so long as the Notes are "restricted securities" for purposes of the Securities Act:

(a) the Notes may be offered, resold, pledged or otherwise transferred only (i) to a person who is reasonably believed to be a qualified institutional buyer in a transaction meeting the requirements of Rule 144A, in a transaction meeting the requirements of Rule 144, outside the United States to a non- U.S. person in a transaction meeting the requirements of Rule 904 under the Securities Act, or in accordance with another exemption from the registration requirements of the Securities Act (and based upon an opinion of counsel, if the Issuer so requests), (ii) to us or (iii) pursuant to an effective registration statement and, in each case, in accordance with any applicable securities laws of any state of the United States or any other applicable jurisdiction; and

(b) the purchaser will, and each subsequent holder is required to, notify any subsequent purchaser from it of the resale restrictions set forth in (a) above.

(3) The purchaser confirms that:

(a) such purchaser has such knowledge and experience in financial and business matters, that it is capable of evaluating the merits and risks of purchasing the Notes and that such purchaser and any accounts for which it is acting are each able to bear the economic risks of its or their investment;

(b) such purchaser is not acquiring the Notes with a view towards any distribution thereof in a transaction that would violate the Securities Act or the securities laws of any state of the United States or any other applicable jurisdiction, provided that the disposition of its property and the property of any accounts for which such purchaser is acting as fiduciary will remain at all times within its control; and

(c) such purchaser has received a copy of the offering memorandum and acknowledges that such purchaser has had access to such financial and other information and has been afforded an opportunity to ask such questions of our representative and receive answers thereto as it has deemed necessary in connection with its decision to purchase the Notes.

(4) The purchaser understands that the certificates evidencing the Notes will, unless otherwise agreed by us and the holder thereof, for so long as the Notes are "restricted securities" for purposes of the Securities Act, bear a legend substantially to the following effect:

THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED EXCEPT IN ACCORDANCE WITH THE FOLLOWING SENTENCE. BY ITS ACQUISITION HEREOF OR OF A BENEFICIAL INTEREST HEREIN, THE ACQUIRER:

(1) REPRESENTS THAT IT, AND ANY ACCOUNT FOR WHICH IT IS ACTING, (A) IS A "QUALIFIED INSTITUTIONAL BUYER" (WITHIN THE MEANING OF RULE 144A UNDER THE SECURITIES ACT) OR (B) IS NOT A "U.S. PERSON" (WITHIN THE MEANING OF RULE 902 OF REGULATION S UNDER THE SECURITIES ACT), AND THAT IT EXERCISES SOLE INVESTMENT DISCRETION WITH RESPECT TO EACH SUCH ACCOUNT, AND

(2) AGREES FOR THE BENEFIT OF THE ISSUER THAT IT WILL NOT OFFER, SELL, PLEDGE OR OTHERWISE TRANSFER THIS SECURITY OR ANY BENEFICIAL INTEREST HEREIN PRIOR TO THE RESALE RESTRICTION TERMINATION DATE (AS DEFINED IN THE NEXT PARAGRAPH), EXCEPT:

(A) TO THE ISSUER OR ANY SUBSIDIARY THEREOF; OR

(B) PURSUANT TO A REGISTRATION STATEMENT THAT HAS BECOME EFFECTIVE UNDER THE SECURITIES ACT; OR

(C) TO PERSON REASONABLY BELIEVED TO BE A QUALIFIED INSTITUTIONAL BUYER IN COMPLIANCE WITH RULE 144A UNDER THE SECURITIES ACT; OR

(D) IN AN OFFSHORE TRANSACTION IN COMPLIANCE WITH RULE 903 OR RULE 904 OF REGULATION S UNDER THE SECURITIES ACT; OR

(E) PURSUANT TO AN EXEMPTION FROM REGISTRATION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT OR ANY OTHER AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT.

THE RESALE RESTRICTION TERMINATION DATE WILL BE THE DATE (1) THAT IS AT LEAST ONE YEAR AFTER THE LAST ORIGINAL ISSUE DATE HEREOF AND (2) ON WHICH THE ISSUER INSTRUCTS THE TRUSTEE THAT THIS LEGEND SHALL BE DEEMED REMOVED FROM THIS SECURITY, IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN THE INDENTURE RELATING TO THIS SECURITY.

PRIOR TO THE REGISTRATION OF ANY TRANSFER IN ACCORDANCE WITH (2)(E) ABOVE, THE ISSUER AND THE TRUSTEE 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.

This legend shall be deemed removed from the face of the note without further action of the Issuer, the Trustee or the noteholders at such time as the Issuer instructs the Trustee to remove this legend pursuant to the Indenture.

(5) The purchaser acknowledges that the Issuer and the initial purchaser and others will rely upon the truth and accuracy of the foregoing acknowledgements, representations and agreements and agrees that, if any of the foregoing acknowledgements, representations and agreements deemed to have been made by it are no longer accurate, it will promptly notify the initial purchaser. If such purchaser is acquiring the 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 such account and that it has full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.

(6) The purchaser and each subsequent transferee will be deemed to have represented and warranted that either (i) no portion of the assets used by such purchaser or transferee to acquire or hold Notes constitutes assets of any Plan (as defined herein) or (ii) the acquisition and holding of the Notes by such purchaser or transferee will not constitute or result in a non-exempt prohibited transaction under Section 406 of ERISA or Section 4975 of the Internal Revenue Code of 1986, as amended (the "Code") or a similar violation under any applicable Similar Laws (as defined herein), and if it is an ERISA Plan (as defined herein), the decision to acquire and hold the Notes has been made by a duly authorized fiduciary (each a "Plan Fiduciary") who is independent of the Transaction Parties (as defined herein), which Plan Fiduciary (A) is a fiduciary under ERISA or the Code, or both, with respect to the decision to acquire and hold the Notes, (B) is not an IRA owner (in the case of an IRA), (C) is capable of evaluating investment risks independently, both in general and with regard to the prospective investment in the Notes, (D) has exercised independent judgment in evaluating whether to invest the assets of such ERISA Plan in the Notes, and (E) is either a bank, an insurance carrier, a registered investment adviser, a registered broker-dealer or an independent fiduciary with at least $50 million of assets under management or control as specified in 29 C.F.R. Section 2510.3-21(c)(1)(i).

CERTAIN U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following is a discussion of certain material United States federal income tax considerations, as of the date of this offering memorandum, for U.S. Holders and Non-U.S. Holders (each as defined below and, in the aggregate, referred to as “holders”) of the Notes, but does not purport to be a complete analysis of all the potential tax considerations relating thereto. It does not address the U.S. federal income tax considerations related to the acquisition, ownership or disposition of Notes obtained other than pursuant to this offer.

This discussion is limited to persons purchasing the Notes for cash at original issue and at their “issue price” within the meaning of the Internal Revenue Code of 1986, as amended (the “Code”) (i.e., the first price at which a substantial amount of the Notes is sold to holders for cash, excluding sales to bond houses, brokers or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers) and deals only with Notes held as capital assets within the meaning of Section 1221 of the Code (generally property held for investment).

This discussion is based upon current provisions of the Code, its legislative history, and Treasury regulations thereunder, current administrative rulings and pronouncements, judicial decisions and other applicable authorities, each as of the date of this offering memorandum, and such authorities may be repealed, revoked, modified, or subject to different interpretations so as to result in United States federal income tax considerations different from those discussed below. Any such change may be applied retroactively in a manner that could adversely affect a holder and the continued validity of this discussion. No ruling from the United States Internal Revenue Service (the “IRS”) has been or is expected to be sought on any of the issues discussed below, and there can be no assurance that the IRS will concur with the conclusions reached herein. Furthermore, this discussion does not address the estate or gift tax or tax considerations arising under the tax laws of any state, locality or non-United States jurisdiction or any tax not specifically referenced herein.

This discussion does not purport to deal with all aspects of United States federal income taxation that may be relevant to specific holders in light of their personal investment circumstances (for example, holders subject to the alternative minimum tax), nor does it purport to deal with all United States federal income tax considerations applicable to certain types of holders subject to special treatment under United States federal income tax law (e.g., banks or other financial institutions, partnerships or other pass-through entities for United States federal income tax purposes, United States expatriates or former long-term residents or citizens of the United States, government instrumentalities or agencies, entities that are tax-exempt for United States federal income tax purposes, retirement plans, individual retirement accounts or other tax-deferred or tax-advantaged accounts, bond houses, broker-dealers or similar persons or organizations acting in the capacity of underwriters, dealers or traders in securities or currencies, traders in securities that elect to use a mark-to-market method of accounting for their securities holdings, insurance companies, real estate investment trusts and regulated investment companies and shareholders of such corporations, U.S. Holders whose functional currency is not the United States dollar, controlled foreign corporations, passive foreign investment companies, grantor trusts and persons that hold Notes as a position in a “straddle,” or as part of a “hedge,” “conversion transaction,” “constructive sale,” “wash sale,” “synthetic security” or other integrated investment). This discussion does not address the tax consequences to shareholders, beneficiaries or other owners of a holder of Notes.

In the case of a beneficial owner of Notes that is classified as a partnership for United States federal income tax purposes, the tax treatment of its partners will generally depend upon the status of the partner and the activities of the partnership. Entities or arrangements that are classified as partnerships for United States federal income tax purposes and persons holding Notes through an entity or arrangement classified as a partnership for United States federal income tax purposes should consult their tax advisors regarding their tax considerations related to this offer and the ownership and disposition of Notes.

For purposes of this discussion, the term "U.S. Holder" means a beneficial owner of Notes that is for United States federal income tax purposes: (i) an individual who is a citizen or resident of the United States; (ii) a corporation (or any other entity or arrangement taxable as a corporation for United States federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia; (iii) an estate, the income of which is subject to United States federal income taxation regardless of its source; or (iv) a trust if either (A) a court within the United States is able to exercise primary jurisdiction over the administration of such trust and one or more U.S. persons (within the meaning of the Code) have the authority to control all substantial decisions of such trust, or (B) the trust has a valid election in effect under applicable Treasury regulations to be treated as a U.S. person. As used herein, the term "Non-U.S. Holder" means a beneficial owner of Notes that is for United States federal income tax purposes an individual, corporation, estate or trust and is not a U.S. Holder or a partnership (including any entity treated as a partnership for United States federal income tax purposes).

THIS DISCUSSION IS PROVIDED FOR GENERAL INFORMATION ONLY AND DOES NOT CONSTITUTE LEGAL ADVICE TO ANY POTENTIAL PURCHASER OF NOTES. ADDITIONALLY, THIS DISCUSSION CANNOT BE USED BY ANY HOLDER FOR THE PURPOSE OF AVOIDING PENALTIES THAT MAY BE IMPOSED ON SUCH HOLDER. HOLDERS SHOULD CONSULT THEIR TAX ADVISORS AS TO THE TAX CONSIDERATIONS OF THE ACQUISITION, OWNERSHIP AND DISPOSITION OF THE NOTES BASED UPON THEIR PARTICULAR CIRCUMSTANCES, INCLUDING THE APPLICABILITY OF ANY FEDERAL, STATE, LOCAL, NON-U.S. OR OTHER TAX LAWS, INCLUDING MEDICARE AND GIFT AND ESTATE TAX LAWS, AND POSSIBLE CHANGES IN THE TAX LAWS OR INTERPRETATIONS THEREOF.

Effect of Certain Contingencies

We may be required in certain circumstances (e.g., a change in control as described in "Description of Notes—Repurchase at the Option of Holders," a redemption as described in "Description of Notes—Optional Redemption," or upon payment of Additional Amounts described in "Description of Notes—Payment of Additional Amounts") to pay amounts in addition to the stated principal amount of and stated interest on the Notes or to pay amounts in redemption of the Notes prior to their stated maturity. The obligation to make such payments may implicate the provisions of the Treasury regulations relating to contingent payment debt instruments, or CPDIs. Under applicable Treasury regulations, the possibility of such excess amounts being paid will not cause the Notes to be treated as CPDIs if either (i) such amounts would be paid pursuant to an option of the Issuers that would cause the yield on the debt instrument to increase or (ii) as of the issue date of the Notes, there is only a remote chance that these contingencies will occur or if such contingencies are considered to be "incidental." Although the issue is not free from doubt, we intend to take the position that the possibility of such payments does not result in the Notes being treated as CPDIs under applicable Treasury regulations. This position will be based in part on our determination that, as of the date of the issuance of the Notes, (i) the contingency described under "Description of Notes—Optional Redemption" relates to an option of ours that would cause the yield on the debt instrument to increase and (ii) the contingencies described under "Description of Notes—Repurchase at the Option of Holders" and "Description of Notes—Payment of Additional Amounts" are remote or incidental within the meaning of applicable Treasury regulations.

Our determination that the Notes should not be treated as CPDIs is binding on a holder, unless such holder explicitly discloses to the IRS on its tax return for the year during which it acquires the Notes that it is taking a different position. However, our position is not binding on the IRS. If the IRS takes a position contrary to that described above, the Notes may be treated as CPDIs. In that case, regardless of a holder's method of tax accounting, such holder may be required to accrue interest income on the Notes in excess of the stated interest. In addition, any gain on the sale, exchange, redemption, retirement or other taxable disposition of the Notes may be recharacterized as ordinary income rather than capital gain, and other tax consequences of the ownership and the disposition of the Notes could be materially and adversely different from those described herein. Holders of Notes should consult their tax advisors regarding the tax consequences of the Notes being treated as CPDIs. The remainder of this discussion assumes that the Notes will not be treated as CPDIs.

Tax Consequences of Ownership of the Notes to U.S. Holders

Interest on the Notes. Interest on the Notes will generally be taxable to a U.S. Holder as United States source ordinary income at the time the holder receives or accrues such amounts in accordance with the holder's regular method of accounting for United States federal income tax purposes.

The interest on the Notes will be paid in euros rather than in United States dollars. In general, a U.S. Holder who uses the cash method of accounting for United States federal income tax purposes and who receives a payment of stated interest in Euro (including a payment attributable to accrued but unpaid stated interest upon the sale, exchange, redemption, retirement or other disposition of a Note) will be required to include in income the United States dollar value of the Euro payment received (determined based on the spot rate of exchange on the date the payment is received), regardless of whether the payment is in fact converted to United States dollars at that time. A cash-basis U.S. Holder will not realize foreign currency exchange gain or loss on the receipt of stated interest income but may recognize exchange gain or loss attributable to the actual disposition of the Euro received.

A U.S. Holder who uses the accrual method of accounting for United States federal income tax purposes is generally required to accrue Euro-denominated stated interest income in Euro and translate that amount into United States dollars based on the average rate of exchange in effect for the accrual period or, with respect to an accrual period that spans two taxable years, at the average rate of exchange for the partial period within the applicable taxable year. For this purpose, the average rate is the simple average of spot rates of exchange for each business day of such period or other average exchange rate for the period reasonably derived and consistently applied by the U.S. Holder. Alternatively, an accrual-method U.S. Holder may elect to translate stated interest income received in Euro into United States dollars at the spot rate of exchange on the last day of the interest accrual period (or, in the case of a partial accrual period, the spot rate of exchange on the last day of such partial accrual period) or, if the date of receipt is within five business days of the last day of the interest accrual period, the spot rate of exchange on the date of receipt. A U.S. Holder that makes this election must apply it consistently to all debt instruments held by the U.S. Holder from year to year and cannot change the election without the consent of the IRS.

A U.S. Holder who uses the accrual method of accounting for United States federal income tax purposes will recognize foreign currency exchange gain or loss with respect to accrued Euro-denominated stated interest income on the date the interest payment (or proceeds from a sale, exchange, redemption, retirement or other disposition attributable to accrued but unpaid stated interest) is actually received. The amount of foreign currency exchange gain or loss recognized will be equal to the difference between the United States dollar value of the Euro payment received (determined based on the spot rate of exchange on the date the payment is received) in respect of the accrual period and the United States dollar value of stated interest income that has accrued during the accrual period (as determined above), regardless of whether the payment is in fact converted to United States dollars. In general, this foreign currency gain or loss will be treated, for United States foreign tax credit purposes, as United States-source ordinary income or loss, and will not be treated as an adjustment to interest income or expense.

Moreover, if Additional Amounts are required to be paid to a U.S. Holder in connection with the withholding or deduction of taxes imposed on payments on the Notes (see "Description of Notes—Payment of Additional Amounts"), such Additional Amounts generally will be included in the U.S. Holder's gross income as additional interest at the time such Additional Amounts are paid or accrued, in accordance with the U.S. Holder's regular method of accounting. As a result, the amount of interest income included in gross income for United States federal income tax purposes by a U.S. Holder with respect to a payment of interest may be greater than the amount of cash actually received by the U.S. Holder with respect to such payment. If such taxes are non-United States withholding taxes, subject to applicable limitations, a U.S. Holder generally may be entitled to claim either a credit against its United States federal income tax liability or a deduction in computing its United States federal taxable income in respect of foreign taxes withheld from payments on the Notes. Because the interest payments generally will be treated as United States source, the use of United States foreign tax credits relating to any non-United States tax imposed upon interest payments may be limited. The rules governing foreign tax credits are complex. U.S. Holders should consult their own tax advisors regarding the availability of foreign tax credits in their particular circumstances.

Sale, exchange, redemption, retirement or other taxable disposition of the Notes. In general, a sale, exchange, redemption, retirement or other taxable disposition of a Note will result in United States source capital gain or loss to a U.S. Holder in an amount equal to the difference between the amount realized on the disposition (not including the amount attributable to accrued but unpaid interest on the Note, which amount will be treated as ordinary interest income to the extent not previously included in the U.S. Holder's income) and the holder's adjusted tax basis in the Note immediately before the disposition. If a U.S. Holder receives Euro on a sale, exchange, retirement, redemption or other taxable disposition of a Note, the amount realized generally will be based on the United States dollar value of Euro translated at the spot rate of exchange on the date payment is received or the Note is disposed of. In the case of a Note that is considered to be traded on an established securities market, a cash-basis U.S. Holder and, if it so elects, an accrual-basis U.S. Holder, will determine the United States dollar value of Euro by translating such amount at the spot rate of exchange on the settlement date of the disposition. The special election available to accrual-basis U.S. Holders in regard to the disposition of Notes traded on an established securities market must be applied consistently to all debt instruments held by the U.S. Holder and cannot be changed without the consent of the IRS. If an accrual-basis U.S. Holder does not make the special settlement date election, such U.S. Holder will recognize exchange gain or loss to the extent that there are exchange rate fluctuations between the disposition date and the settlement date, and such gain or loss generally will constitute United States-source ordinary income or loss. A holder's adjusted tax basis in a Note will generally be the United States dollar value of the Euro paid for the Note, determined at the spot rate of exchange on the date of purchase (which generally should be the closing date), decreased by any principal payments received by such holder, determined at the spot rate of exchange on the date the payment is received.

The gain or loss realized at the time of the sale, exchange, redemption, retirement or other taxable disposition will be long-term capital gain or loss (excluding any amount attributable to accrued but unpaid interest, which will be taxable as ordinary interest income to the extent the U.S. Holder has not previously included the accrued interest in income) if the Note was held for more than one year at the time of the sale, exchange, redemption, retirement or other taxable disposition. Certain non-corporate U.S. Holders (including individuals) are eligible for reduced rates of taxation on long-term capital gain under certain circumstances. Long-term capital gains of corporations are not subject to reduced United States federal income tax rates and are subject to United States federal income tax at the same rate as the corporation's ordinary income. The ability to deduct capital losses is subject to limitations. U.S. Holders should consult their own tax advisors as to the deductibility of capital losses in their particular circumstances.

Gain or loss realized upon the sale, exchange, redemption, retirement or other taxable disposition of a Note that is attributable to fluctuations in currency exchange rates will be ordinary income or loss not treated as interest income or expense. Such foreign currency exchange gain or loss generally will be equal to the difference, if any, between (i) the United States dollar value of the purchase price for the Note, determined at the spot rate of exchange on the date the Note is disposed of, and (ii) the United States dollar value of the purchase price for the Note, determined at the spot rate of exchange on the date the Note was acquired. Payments received that are attributable to accrued interest will be treated in accordance with the rules applicable to payments of interest described above.

Any foreign currency exchange gain or loss (including with respect to accrued interest) will be recognized only to the extent of the total gain or loss realized by a U.S. Holder on the redemption, sale, exchange or other taxable disposition of the Note. Generally, the foreign currency exchange gain or loss will be United States-source ordinary income or loss for United States foreign tax credit purposes.

Reportable transactions. Treasury regulations issued under the Code meant to require the reporting of certain tax shelter transactions could be interpreted to cover transactions generally not regarded as tax shelters, including certain foreign currency transactions. Under the Treasury regulations, certain transactions are required to be reported to the IRS, including, in certain circumstances, a sale, exchange, redemption, retirement or other taxable disposition of a Note or Euros received in respect of a Note to the extent that such sale, exchange, redemption, retirement or other taxable disposition results in a tax loss in excess of a threshold amount. U.S. Holders should consult their tax advisors to determine the tax return obligations, if any, with respect to an investment in the Notes, including any requirement to file IRS Form 8886 (Reportable Transaction Disclosure Statement).

Net investment income. Certain U.S. Holders that are individuals, estates or trusts may be required to pay an additional 3.8% Medicare contribution tax on certain "net investment income" in excess of certain thresholds. Among other items, "net investment income" generally includes gross income from interest and net gain attributable to the disposition of certain investments (less certain deductions), unless such interest income and net gain is derived in the ordinary course of a trade or business (other than a trade or business that consists of certain passive or trading activities). In the case of a U.S. Holder that is an individual, the tax will be imposed on the lesser of (1) such individual's net investment income or (2) the amount by which the individual's modified adjusted gross income (defined as adjusted gross income plus certain net foreign income generally excluded from taxable income under the Code) exceeds $250,000 (if the individual is married and filing jointly or a surviving spouse), $125,000 (if the individual is married and filing separately) or $200,000 (in any other case). In the case of an estate or trust, the tax will be imposed on the lesser of (1) undistributed net investment income and (2) the excess adjusted gross income over the dollar amount at which the highest income tax bracket applicable to an estate or trust begins. U.S. Holders should consult their tax advisors concerning the implications of this Medicare contribution tax on their ownership and disposition of the Notes, based on their particular circumstances.

Backup withholding and information reporting. Under the backup withholding rules, payments of principal and interest on a Note and payments of proceeds from the disposition of a Note may be subject to backup withholding at the applicable tax rate (currently 28%) unless the U.S. Holder timely (i) establishes that it is an exempt recipient, such as a corporation or (ii) provides a correct taxpayer identification number, certifies that it is a U.S. person and that no loss of exemption from backup withholding has occurred, and otherwise complies with applicable requirements of the backup withholding rules. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules should generally be allowed as a credit against the U.S. Holder's United States federal income tax liability and, if backup withholding results in an overpayment of United States federal income tax, such U.S. Holder may be entitled to a refund, provided the required information is timely furnished to the IRS. Certain penalties may be imposed by the IRS on a recipient of payments that is required to supply information but that does not do so in the proper manner. U.S. Holders should consult their tax advisors as to their qualification for exemption from backup withholding and the procedure for obtaining such an exemption.

In addition, such payments to U.S. Holders that are not exempt recipients will generally be subject to information reporting requirements. When required, information will be reported to both U.S. Holders and the IRS regarding the amount of interest and principal paid on the Notes in each calendar year as well as the corresponding amount of tax withheld, if any. This obligation, however, does not apply with respect to payments to certain U.S. Holders, including corporations and tax-exempt organizations, provided that they establish entitlement to an exemption.

Tax Consequences of Ownership of the Notes to Non-U.S. Holders

Interest on the Notes. Subject to the discussions below regarding backup withholding and FATCA (as defined below), payments of interest on the Notes to a Non-U.S. Holder will not be subject to United States federal income or withholding tax provided that:

(i) the interest is not effectively connected with the conduct of a trade or business in the United States by the Non-U.S. Holder (or, if required under an applicable income tax treaty, is not attributable to a United States permanent establishment or fixed base maintained by such Non-U.S. Holder);

(ii) the Non-U.S. Holder does not directly, indirectly or constructively own stock constituting 10% or more of the total combined voting power of all classes of the stock of the Company entitled to vote, within the meaning of the Code and the Treasury regulations;

(iii) the Non-U.S. Holder is not a controlled foreign corporation that is related to the Company, actually or constructively through stock ownership; and

(iv)(a) the Non-U.S. Holder has timely provided a validly completed IRS Form W-8BEN or IRS Form W-8BEN-E (or other applicable form) and any relevant attachments establishing that such Non-U.S. Holder is a Non-U.S. Holder (or such Non-U.S. Holder satisfies certain documentary evidence requirements for establishing that it is a Non-U.S. Holder) and we or our paying agent do not have actual knowledge or reason to know that the beneficial owner of the Note is a U.S. person or (b) a financial institution or other intermediary that holds the applicable Note on behalf of the Non-U.S. Holder has entered into a withholding agreement with the IRS and submits an IRS Form W-8IMY (or suitable successor or substitute form) and certain other required documentation to us or our paying agent.

If a Non-U.S. Holder cannot satisfy the requirements described above, payments of interest on the Notes made to the Non-U.S. Holder will be subject to a 30% United States federal withholding tax, unless such Non-U.S. Holder timely provides us (or our paying agent) with a properly executed (i) IRS Form W-8BEN or IRS Form W-8BEN-E (or other applicable form) and any relevant attachments claiming an exemption from or reduction in withholding under the benefit of an applicable income tax treaty or (ii) IRS Form W-8ECI (or other applicable form) certifying that interest paid on the Notes is not subject to withholding tax because it is effectively connected with such Non-U.S. Holder's conduct of a trade or business in the United States.

If a Non-U.S. Holder is engaged in a trade or business in the United States and interest on the Notes is effectively connected with the conduct of that trade or business (and, if required under an applicable income tax treaty, is attributable to a United States permanent establishment or fixed base maintained by such Non-U.S. Holder), such Non-U.S. Holder may be subject to United States federal income tax on a net income basis in generally the same manner as if the Non-U.S. Holder were a "U.S. person" as defined under the Code. See discussion above under "—Tax Consequences of Ownership of the Notes to U.S. Holders." In addition, a corporate Non-U.S. Holder, may be subject to a branch profits tax equal to 30% (or a lower rate under an applicable income tax treaty) of such interest if the interest is effectively connected with the conduct of a trade or business in the United States by the Non-U.S. Holder, subject to adjustments.

Sale, exchange, redemption, retirement or other taxable disposition of the Notes. Subject to the discussions below regarding backup withholding and FATCA, any gain realized upon the sale, exchange, redemption, retirement or other taxable disposition of a Note by a Non-U.S. Holder generally will not be subject to United States federal income tax unless:

- the gain is effectively connected with the conduct of a trade or business in the United States by such Non-U.S. Holder (and, if required under an applicable income tax treaty, is attributable to a United States permanent establishment or fixed base maintained by such Non-U.S. Holder), in which case the gain will be subject to tax in the same manner as effectively connected interest income as described above under "—Interest on the Notes"; or
- such Non-U.S. Holder is an individual who is present in the United States for an aggregate of 183 days or more in the taxable year of that sale, exchange, redemption, retirement or other taxable disposition, and certain other conditions are met, in which case the gain will generally be subject to a 30% tax (or a lower rate if a treaty applies).

Backup withholding and information reporting. Information reporting on IRS Form 1099 and backup withholding will not apply to payments of principal and interest made by us or a paying agent to a Non-U.S. Holder on the Notes if the certification described above under "—Interest on the Notes" is received. However, interest may be required to be reported annually on IRS Form 1042-S.

Payments of the proceeds from a sale, exchange, redemption, retirement or other taxable disposition by a Non-U.S. Holder of a Note made to or through a foreign office of a broker generally will not be subject to backup withholding or information reporting, although information reporting may apply to such payments if the broker is (i) a U.S. person; (ii) a controlled foreign corporation for United States federal income tax purposes; (iii) a foreign person 50% or more of whose gross income is effectively connected with the conduct of a United States trade or business for a specified three-year period; or (iv) a foreign partnership with certain specified connections to the United States provided, in each case, the broker does not have actual knowledge or reason to know the holder is a U.S. person and the certification requirements described above are met or the holder otherwise establishes an exemption. Information reporting and backup withholding generally will apply to a payment by a United States office of a broker, unless the Non-U.S. Holder certifies its nonresident status or otherwise establishes an exemption. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules should generally be allowed as a credit against a Non-U.S. Holder's United States federal income tax liability, and if backup withholding results in an overpayment of United States federal income tax, such holder may be entitled to a refund, provided that the required information is timely furnished to the IRS. Non-U.S. Holders should consult their tax advisors regarding the filing of a United States federal income tax return to claim a refund of any such backup withholding tax.

FATCA

Sections 1471 through 1474 of the Code together with Treasury regulations and official IRS guidance promulgated thereunder (such provisions, regulations and guidance commonly known as "FATCA") generally impose a 30% withholding tax on interest and (beginning on January 1, 2019) gross proceeds from the disposition of a Note paid to (i) a "foreign financial institution" (as such term is defined under FATCA) unless such institution enters into an agreement with the United States to withhold on certain payments, to collect and disclose information regarding United States account holders of such institution (including certain debt and equity holders of such institution and certain account holders that are foreign entities with United States owners) and to comply with certain other requirements, or otherwise qualifies for an exemption from FATCA withholding and (ii) certain other non-financial foreign entities unless such an entity provides the payor a certification identifying the direct and indirect "substantial United States owners" (as defined under FATCA) of the entity or alternatively, provides a certification that no such owners exist and in either case, complies with certain other requirements, including in circumstances where such entity is acting as an intermediary, or otherwise qualifies for an exemption from FATCA withholding. The FATCA withholding tax will not apply if the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from FATCA and properly certifies its exempt status to a withholding agent by providing a properly executed IRS Form W-8BEN, IRS Form W-8BEN-E or IRS Form W-8ECI, as applicable. Application of this FATCA tax does not depend on whether the payment otherwise would be exempt from United States federal withholding tax under the other exemptions described above. Under certain circumstances, the withholding under FATCA may be credited against, and therefore reduce, such other withholding tax. Foreign financial institutions and non-financial foreign entities located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules. Prospective U.S. Holders and Non-U.S. Holders should consult their tax advisors regarding the implications of FATCA on their investment in the Notes.

THE UNITED STATES FEDERAL INCOME TAX DISCUSSION SET FORTH ABOVE IS INCLUDED FOR GENERAL INFORMATION ONLY AND MAY NOT BE APPLICABLE DEPENDING UPON A HOLDER'S PARTICULAR SITUATION. PROSPECTIVE HOLDERS OF THE NOTES SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE TAX CONSEQUENCES TO THEM OF THE ACQUISITION, OWNERSHIP AND DISPOSITION OF NOTES, INCLUDING THE TAX CONSEQUENCES UNDER UNITED STATES FEDERAL, STATE, LOCAL, NON-UNITED STATES AND OTHER TAX LAWS AND TAX TREATIES AND THE POSSIBLE EFFECTS OF CHANGES IN UNITED STATES OR OTHER TAX LAWS.

CERTAIN ERISA CONSIDERATIONS

The following is a summary of certain considerations associated with the purchase of the Notes by employee benefit plans that are subject to Title I of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"); plans, individual retirement accounts and other arrangements that are subject to Section 4975 of the Code or provisions under any federal, state, local, non-United States or other laws or regulations that are similar to such provisions of ERISA or the Code (collectively, "Similar Laws"); and entities whose underlying assets are considered to include "plan assets" (within the meaning of 29 C.F.R. Section 2510.3-101 (as modified by Section 3(42) of ERISA)) of any such plan, account or arrangement (each, a "Plan").

This discussion is based on current provisions of the Code, treasury regulations promulgated thereunder, ERISA, judicial opinions, published positions of the Internal Revenue Service and the United States Department of Labor, and other applicable authorities, all of which are subject to change (possibly with retroactive effect). This discussion does not address all aspects of United States and Similar Laws that may be important to a Plan in light of that Plan's particular circumstances and does not address any particular aspects of non-United States laws.

General Fiduciary Matters

ERISA and the Code impose certain duties on persons who are fiduciaries of a Plan subject to Title I of ERISA or Section 4975 of the Code (an "ERISA Plan") and prohibit certain transactions involving the assets of an ERISA Plan and its fiduciaries or other interested parties. Under ERISA and the Code, any person who exercises any discretionary authority or control over the administration of such an ERISA Plan or the management or disposition of the assets of such an ERISA Plan, or who renders investment advice for a fee or other compensation to such an ERISA Plan, is generally considered to be a fiduciary of the ERISA Plan.

When considering investing assets of any Plan in the Notes, a fiduciary should determine whether the investment is in accordance with the documents and instruments governing the Plan and the applicable provisions of ERISA, the Code or any Similar Law relating to a fiduciary's duties to the Plan including, without limitation, the prudence, diversification, delegation of control and prohibited transaction provisions of ERISA, the Code and any other applicable Similar Laws.

Each Plan should consider the fact that none of the Issuer, the initial purchaser or any of their respective affiliates (the "Transaction Parties") will act as a fiduciary to any Plan with respect to the decision to acquire Notes and is not undertaking to provide impartial investment advice, or to give advice in a fiduciary capacity, with respect to such decision. The decision to acquire Notes must be made by each prospective Plan purchaser on an arm's length basis. In addition, each ERISA Plan acquiring Notes must generally be represented by a fiduciary independent of the Transaction Parties (which may not be an owner of an IRA, in the case of an investor that is an IRA) that (i) is capable of evaluating investment risks independently, both in general and with regard to the prospective investment in the Notes, (ii) has exercised independent judgment in evaluating whether to invest the assets of such ERISA Plan in the Notes and (iii) is a bank, an insurance carrier, a registered investment adviser, a registered broker-dealer or an independent fiduciary with at least $50 million of assets under management or control.

Prohibited Transaction Issues

Section 406 of ERISA and Section 4975 of the Code prohibit ERISA Plans from engaging in specified transactions involving Plan assets with persons or entities who are "parties in interest", within the meaning of ERISA, or "disqualified persons", within the meaning of Section 4975 of the Code, unless an exemption is available. A party in interest or disqualified person who engages in a non-exempt prohibited transaction may be subject to excise taxes and other penalties and liabilities under ERISA and the Code. In addition, a fiduciary of an ERISA Plan that engages in such a non-exempt prohibited transaction may be subject to penalties and liabilities under ERISA and the Code. The acquisition and/or holding of Notes by an ERISA Plan with respect to which the Issuers, the initial purchaser, or the subsidiary guarantors are considered a party in interest or a disqualified person may constitute or result in a direct or indirect prohibited transaction under Section 406 of ERISA and/or Section 4975 of the Code, unless the investment is acquired and is held in accordance with an applicable statutory, class or individual prohibited transaction exemption.

In this regard, the United States Department of Labor has issued prohibited transaction class exemptions, ("PTCEs") that may apply to the acquisition and holding of the Notes. These class exemptions include, without limitation, PTCE 84-14 respecting transactions determined by independent qualified professional asset managers, PTCE 90-1 respecting insurance company pooled separate accounts, PTCE 91-38 respecting bank collective investment funds, PTCE 95-60 respecting life insurance company general accounts and PTCE 96-23 respecting transactions determined by in-house asset managers. In addition, Section 408(b)(17) of ERISA and Section 4975(d)(20) of the Code provide relief from the prohibited transaction provisions of ERISA and Section 4975 of the Code for certain transactions, provided that neither the issuer of the securities nor any of its affiliates (directly or indirectly) have or exercise any discretionary authority or control or render any investment advice with respect to the assets of any ERISA Plan involved in the transaction and provided further that the ERISA Plan pays no more than adequate consideration in connection with the transaction. There can be no assurance that all of the conditions of any such exemptions will be satisfied.

Because of the foregoing, the Notes should not be purchased or held by any person investing "plan assets" (within the meaning of 29 C.F.R. Section 2510.3-101 (as modified by Section 3(42) of ERISA)) of any Plan, unless such purchase and holding will not constitute a non-exempt prohibited transaction under ERISA or the Code or similar violation of any applicable Similar Laws.

Representation

Accordingly, by acceptance of a Note, each purchaser and subsequent transferee will be deemed to have represented and warranted, that either (i) no portion of the assets used by such purchaser or transferee to acquire or hold the Notes constitutes assets of any Plan or (ii) the acquisition and holding of the Notes by such purchaser or transferee will not constitute a non-exempt prohibited transaction under Section 406 of ERISA or Section 4975 of the Code or similar violation under any applicable Similar Laws, and if it is an ERISA Plan, the decision to acquire and hold the Notes has been made by a Plan Fiduciary who is independent of the Transaction Parties, which Plan Fiduciary (A) is a fiduciary under ERISA or the Code, or both, with respect to the decision to acquire and hold the Notes, (B) is not an IRA owner (in the case of an IRA), (C) is capable of evaluating investment risks independently, both in general and with regard to the prospective investment in the Notes, (D) has exercised independent judgment in evaluating whether to invest the assets of such ERISA Plan in the Notes, and (E) is either a bank, an insurance carrier, a registered investment adviser, a registered broker-dealer or an independent fiduciary with at least $50 million of assets under management or control as specified in 29 C.F.R. Section 2510.3-21(c)(1)(i).

The foregoing discussion is general in nature and is not intended to be all-inclusive. Due to the complexity of these rules and the penalties that may be imposed upon persons involved in non-exempt prohibited transactions, it is particularly important that fiduciaries, or other persons considering purchasing the Notes on behalf of, or with the assets of, any Plan, consult their counsel regarding the potential applicability of ERISA, Section 4975 of the Code and any Similar Laws to such investment, and to confirm that such investment will not constitute or result in a non-exempt prohibited transaction under ERISA or the Code or similar violation under any applicable Similar Laws or any other violation of an applicable requirement of ERISA.

The sale of the Notes to a Plan, or to a person using assets of any Plan to effect its acquisition or holding of the Notes, is in no respect a representation by the Issuer or the initial purchaser that such an investment meets all relevant legal requirements with respect to investments by Plans generally or any particular Plan, or that such an investment is appropriate for the Plans generally or any particular Plan.

PLAN OF DISTRIBUTION

Subject to the terms and conditions of the purchase agreement, the initial purchaser has agreed to purchase from us the entire principal amount of the Notes at the initial offering price set forth on the cover page of this offering memorandum less discounts and commissions. The purchase agreement provides that the obligations of the initial purchaser to purchase the Notes are subject to certain conditions precedent and that the initial purchaser will purchase all of the Notes offered by this offering memorandum if any of the Notes are purchased.

The initial purchaser proposes to offer the Notes initially at the offering price on the cover page of this offering memorandum. After the initial offering, the initial purchaser may change the offering price and other selling terms. Sales of the Notes in the United States may be made through an affiliate of the initial purchaser. The initial purchaser may use affiliates or other appropriately licensed entities for sales of the Notes in jurisdictions in which the initial purchaser is not otherwise permitted to make sales.

We have agreed to indemnify the initial purchaser against some specified types of liabilities, including liabilities under the Securities Act, and to contribute to payments the initial purchaser may be required to make in respect of any of these liabilities.

The Notes and the related guarantees have not been registered under the Securities Act. The initial purchaser has agreed that it will offer or sell the Notes only (i) in the United States to persons it reasonably believes to be qualified institutional buyers in reliance on Rule 144A under the Securities Act or (ii) in offshore transactions in reliance on Regulation S under the Securities Act. The Notes being offered and sold pursuant to Regulation S may not be offered, sold or delivered in the United States or to, or for the account or benefit of, any U.S. person, unless an exemption from the registration requirements of the Securities Act is available. Terms used above have the meanings given to them by Regulation S and Rule 144A under the Securities Act. See "Notice to Investors."

In addition, with respect to the Notes initially sold outside the United States in compliance with Regulation S, until the expiration of forty (40) days after the commencement of the offering, any offer or sale of Notes within the United States by a broker-dealer may violate the registration requirements of the Securities Act, unless such offer or sale is made pursuant to Rule 144A under the Securities Act or another available exemption from the registration requirements thereof.

We have agreed that, during the period beginning on the date of this offering memorandum and continuing to the date that is 60 days after the Notes are issued, without the prior written consent of Deutsche Bank AG, London Branch, we will not offer, sell or contract to sell, or otherwise dispose of, except as provided in the purchase agreement, any securities of the Issuer (or guaranteed by the Issuer) that are substantially similar to the Notes.

The Notes are a new issue of securities with no established trading market. We do not intend to list the Notes on any securities exchange or on any automated dealer quotation system, except that application will be made to list the Notes on TISE. We can provide no assurance that this application will be accepted. The initial purchaser may make a market in the Notes after completion of the offering, but will not be obligated to do so and may discontinue any market-making activities at any time without notice. No assurance can be given as to the liquidity of the trading market for the Notes or that an active public market for the Notes will develop. If an active public trading market for the Notes does not develop, the market price and liquidity of the Notes may be adversely affected. In connection with the offering, the initial purchaser may purchase and sell the Notes in the open market. These transactions may include short sales, purchases to cover positions created by short sales and stabilizing transactions.

Short sales involve the sale by the initial purchaser of a greater principal amount of Notes than they are required to purchase in the offering. The initial purchaser may close out any short position by purchasing Notes in the open market. A short position is more likely to be created if the initial purchaser is concerned that there may be downward pressure on the price of the Notes in the open market prior to the completion of the offering.

Stabilizing transactions consist of various bids for or purchases of the Notes made by the initial purchaser in the open market prior to the completion of the offering. Purchases to cover a short position and stabilizing transactions may have the effect of preventing or slowing a decline in the market price of the Notes. Additionally, these purchases, along with the imposition of the penalty bid, 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 might otherwise exist in the open market. These transactions may be effected in the over-the-counter market or otherwise.

We expect to deliver the Notes 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 this offering memorandum (such settlement cycle being referred to as "T + 5"). Under Rule 15c6-1 under 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 the Notes prior to the date that is two business days preceding the settlement date will be required, by virtue of the fact that the Notes will initially settle T + 5, to specify an alternative settlement cycle at the time of trade to prevent a failed settlement. Investors who wish to trade the Notes prior to the delivery date should consult their own advisors.

The initial purchaser and its affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. The initial purchaser and its affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our affiliates. They have received, or may in the future receive, customary fees and commissions for these transactions. An affiliate of the initial purchaser acts as a lender and agent under the European Credit Facility and will receive customary compensation in connection therewith. The initial purchaser will receive customary commissions and discounts under the purchase agreement upon the consummation of the offering of the Notes pursuant to this offering memorandum. An affiliate of the initial purchaser is a lender under the Term Loan Facility, and therefore may receive a portion of the net proceeds from this offering.

In addition, in the ordinary course of business, the initial purchaser and its 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. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. If the initial purchaser or its affiliates have a lending relationship with us, the initial purchaser or its affiliates routinely hedge, and certain other of the initial purchaser or its affiliates may hedge, their credit exposure to us consistent with their customary risk management policies. Typically, the initial purchaser and its affiliates would hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities, including potentially the Notes offered hereby. Any such credit default swaps or short positions could adversely affect future trading prices of the Notes offered hereby. The initial purchaser and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

LEGAL MATTERS

Certain legal matters in connection with the offering of the Notes will be passed upon for us by Locke Lord LLP, Dallas, Texas. Certain legal matters in connection with the offering of the Notes will be passed upon for the initial purchaser by Cahill Gordon & Reindel LLP, New York, New York.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The consolidated financial statements as of December 31, 2016 and 2015 and for each of the three years in the period ended December 31, 2016, included in this offering memorandum, have been audited by PricewaterhouseCoopers LLP, independent registered public accounting firm, as stated in their report appearing herein.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

Each purchaser of the Notes from the initial purchaser will be furnished with a copy of this offering memorandum and any related amendments or supplements to this offering memorandum. Each person receiving this offering memorandum acknowledges that:

(1) such person has been afforded an opportunity to request from us, and to review, and has received, all additional information considered by it to be necessary to verify the accuracy and completeness of the information herein;

(2) such person has not relied on the initial purchaser or any person affiliated with an initial purchaser in connection with its investigation of the accuracy of such information or its investment decision; and

(3) except as provided pursuant to (1) above, no person has been authorized to give any information or to make any representation concerning the Notes offered hereby other than those contained herein and, if given or made, such other information or representation should not be relied upon as having been authorized by us or the initial purchaser.

This offering memorandum contains summaries of certain of our agreements. While any Notes remain outstanding, we will make available, upon request to any beneficial owner and any prospective purchaser of the Notes the information required pursuant to Rule 144A(d)(4) under the Securities Act in order to permit compliance with Rule 144A in connection with any resale of Notes. Any such requests should be directed to Kronos International, Inc., 5430 LBJ Freeway, Suite 1700, Dallas, Texas 75240-2697, Attention: Gregory M. Swalwell. Our telephone number at this address is 972-450-4228. Additionally, we will provide the holders of the Notes with the reports required under "Description of Notes—Certain Covenants—Reports and Other Information."

We maintain an Internet site at www.kronostio2.com. The Parent's annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports are available on such website. These reports are available on the website, without charge, as soon as is reasonably practicable after we file or furnish them electronically with the Securities and Exchange Commission, or SEC. Additional information regarding our Parent, including its Audit Committee charter, Code of Business Conduct and Ethics and our Corporate Governance Guidelines, can also be found at this website. Our website and the information contained on that site, or connected to that site, are not incorporated into and are not part of this offering memorandum.

The public may read and copy any materials filed by the Parent with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. The public may obtain information about the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Our Parent is an electronic filer and the SEC maintains an internet website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC at www.sec.gov.

LISTING AND GENERAL INFORMATION

1. Application will be made to list the Notes on The International Stock Exchange ("TISE") pursuant to the listing requirements of The International Stock Exchange Authority Limited (the "Authority"). Neither the admission of the Notes to the list of securities admitted to listing on the TISE, which is published and maintained by the Authority (the "Official List"), nor the approval of this offering memorandum pursuant to the listing requirements of the Authority shall constitute a warranty or representation by the Authority as to the competence of the service providers to, or any other party connected with, the Issuer, the adequacy and accuracy of information contained in this offering memorandum or the suitability of the Issuer for investment or for any other purposes.

2. Except as set out below, the Issuer accepts responsibility for the information contained in this offering memorandum and, to the best of the knowledge and belief of the Issuer (which has taken all reasonable care to ensure that such is the case), the information contained in this offering memorandum is in accordance with the facts and does not omit anything likely to affect the import of such information.

3. The Notes are only intended to be offered in the primary market to, and held by, investors who are particularly knowledgeable in investment matters.

4. The following documents shall be deemed to be incorporated in, and to form part of, the listing document for the purposes of listing the Notes on the Official List of TISE:

(a) the most recently published audited consolidated annual financial statements of Parent included elsewhere in this offering memorandum;

(b) the Indenture (as defined herein); and

(c) all amendments and supplements to this offering memorandum prepared by the Issuer from time to time.

5. The Issuer has appointed Ogier Corporate Finance Limited ("OCFL") as listing agent in connection with the listing of the Notes on TISE. OCFL's business address is 44 Esplanade, St. Helier, Jersey JE4 9WG.

6. For so long as the Notes are listed on TISE, and beginning fourteen days from the date of listing, copies of the Issuer's certificate of incorporation, the Issuer's bylaws, this offering memorandum and any amendments or supplements thereto, and the Indenture governing the Notes, may be inspected and obtained at the registered office of the Issuer during normal business hours on any weekday.

7. The Issuer was incorporated in Delaware on December 27, 1988, and its registered office is Corporation Service Company, 251 Little Falls Drive, Wilmington, Delaware 19808.

8. Certain information relating to the direct and indirect subsidiaries of the Issuer is set forth below. None of the direct or indirect subsidiaries of the Issuer are Guarantors under the Notes.

The Issuer will pledge 65% of the voting stock and 100% of any non-voting stock of each of its four direct subsidiaries as part of the Notes Collateral.

Legal Name	**Jurisdiction of Formation**	**Date of Formation**	**Amount of Share Capital**	**Directly Owned By**
Kronos Limited	United Kingdom	14 November 1989	50,032	Kronos International, Inc.
Société Industrielle du Titane, S.A.	France	19 June 1925	209,906(1)	Kronos International, Inc.
Kronos Denmark ApS	Denmark	1 October 1999	10,000	Kronos International, Inc.
KRONOS TITAN GmbH	Germany	13 December 1985	100,010,000	Kronos International, Inc.
Kronos Europe S.A./N.V.	Belgium	31 December 1992	4,207,859	Kronos Denmark ApS(2)
Kronos Norge AS	Norway	11 January 1988	2,400,000	Kronos Denmark ApS
Kronos Titan AS	Norway	24 April 1902	50,000	Kronos Norge AS
Titania AS	Norway	31 October 1988	3,000	Kronos Norge AS
Unterstuetzungskasse KRONOS TITAN GmbH	Germany	21 December 1951	26,000	KRONOS TITAN GmbH

(1) The Issuer owns 99.8% of the share capital of Société Industrielle du Titane, S.A.

(2) KRONOS TITAN GmbH owns two shares out of 543,145 as nominee for Kronos Denmark ApS.

9. Certain information relating to the directors of the Issuer is set forth below:

Name	**Date of Appointment as Director**	**Business Address**
Gregory M. Swalwell	31 August 2011	Three Lincoln Centre, 5430 LBJ Freeway, Suite 1700, Dallas, Texas 75240
Hans Jürgen Theus	4 April 2016	Peschstraße 5, 51373 Leverkusen, Germany
Ulrich Kabelac	31 December 2014	Peschstraße 5, 51373 Leverkusen, Germany

10. There are no litigation or arbitration proceedings against or affecting the Issuer or any of its assets or revenues, nor is the Issuer aware of any pending or threatened proceedings of such kind, which would reasonably be expected to have, or which have had in the recent past (covering at least the previous 12 months), a significant effect on the Issuer's financial position.

11. Since the last audited consolidated annual financial statements of the Parent, incorporating the Issuer, there have been no material adverse changes to:

(a) the Issuer;

(b) the Issuer's group structure;

(c) the Issuer's business or accounting policies; or

(d) the financial or trading position of the Issuer.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

Index of Financial Statements

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of Kronos Worldwide, Inc.:

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, of comprehensive income (loss), of stockholders' equity and cash flows present fairly, in all material respects, the financial position of Kronos Worldwide, Inc. and its subsidiaries as of December 31, 2015 and 2016, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

Dallas, Texas
March 10, 2017

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS
(In millions, except per share data)

	December 31, 2015	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 92.5	$ 50.7
Restricted cash	1.8	1.6
Accounts and other receivables	218.3	241.1
Receivable from affiliate	2.5	3.5
Inventories, net	387.2	343.5
Prepaid expenses and other	8.5	10.0
Total current assets	710.8	650.4
Other assets:		
Investment in TiO_2 manufacturing joint venture	82.9	78.9
Marketable securities	2.4	6.0
Deferred income taxes	14.0	8.1
Other	3.1	2.2
Total other assets	102.4	95.2
Property and equipment:		
Land	37.8	37.3
Buildings	197.4	195.8
Equipment	941.6	947.4
Mining properties	102.6	108.1
Construction in progress	29.2	38.7
	1,308.6	1,327.3
Less accumulated depreciation and amortization	879.1	893.3
Net property and equipment	429.5	434.0
Total assets	$1,242.7	$1,179.6
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current maturities of long-term debt	$ 3.8	$ 3.6
Accounts payable and accrued liabilities	172.7	158.8
Payables to affiliates	19.5	14.7
Income taxes	5.7	5.0
Total current liabilities	201.7	182.1
Noncurrent liabilities:		
Long-term debt	337.2	335.4
Accrued pension cost	202.7	227.3
Accrued postretirement benefits cost	6.7	6.9
Deferred income taxes	8.1	10.5
Other	24.4	22.4
Total noncurrent liabilities	579.1	602.5
Stockholders' equity:		
Common stock, $.01 par value; 240.0 shares authorized; 115.9 shares issued	1.2	1.2
Additional paid-in capital	1,398.7	1,398.8
Retained deficit	(526.0)	(552.2)
Accumulated other comprehensive loss	(412.0)	(452.8)
Total stockholders' equity	461.9	395.0
Total liabilities and stockholders' equity	$1,242.7	$1,179.6

Commitments and contingencies (Notes 14 and 17)

See accompanying notes to consolidated financial statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS
(In millions, except per share data)

	Years ended December 31,		
	2014	2015	2016
Net sales	$1,651.9	$1,348.8	$1,364.3
Cost of sales	1,302.2	1,156.5	1,107.3
Gross margin	349.7	192.3	257.0
Selling, general and administrative expense	191.9	178.0	172.6
Other operating income (expense):			
Currency transaction gains (losses), net	4.0	(.1)	5.5
Disposition of property and equipment	(.9)	(.8)	(.3)
Other income (expense), net	(.7)	(.9)	4.2
Corporate expense	(10.5)	(13.6)	(12.7)
Income (loss) from operations	149.7	(1.1)	81.1
Other income (expense):			
Interest and dividend income	1.0	.8	.6
Securities transactions, net	—	(12.0)	—
Interest expense	(17.0)	(18.5)	(20.5)
Income (loss) before income taxes	133.7	(30.8)	61.2
Income tax expense	34.5	142.8	17.9
Net income (loss)	$ 99.2	$ (173.6)	$ 43.3
Net income (loss) per basic and diluted share	$ .86	$ (1.50)	$ .37
Cash dividends per share	$ .60	$ .60	$ .60
Weighted average shares used in the calculation of net income (loss) per share	115.9	115.9	115.9

See accompanying notes to consolidated financial statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In millions)

	Years ended December 31,		
	2014	**2015**	**2016**
Net income (loss)	$ 99.2	$(173.6)	$ 43.3
Other comprehensive income (loss), net of tax:			
Currency translation	(103.0)	(92.2)	(17.6)
Marketable securities	(13.7)	2.3	2.4
Defined benefit pension plans	(66.0)	16.2	(25.6)
Other postretirement benefit plans	(1.1)	(.2)	(.3)
Interest rate swap	—	(2.3)	.3
Total other comprehensive loss, net	(183.8)	(76.2)	(40.8)
Comprehensive income (loss)	$ (84.6)	$(249.8)	$ 2.5

See accompanying notes to consolidated financial statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

Years ended December 31, 2014, 2015 and 2016
(In millions)

	Common stock	Additional paid-in capital	Retained earnings (deficit)	Accumulated other comprehensive loss	Total
Balance at December 31, 2013	$1.2	$1,398.5	$(312.6)	$(152.0)	$ 935.1
Net income	—	—	99.2	—	99.2
Other comprehensive loss, net of tax	—	—	—	(183.8)	(183.8)
Issuance of common stock	—	.1	—	—	.1
Dividends paid—$.60 per share	—	—	(69.5)	—	(69.5)
Balance at December 31, 2014	1.2	1,398.6	(282.9)	(335.8)	781.1
Net loss	—	—	(173.6)	—	(173.6)
Other comprehensive loss, net of tax	—	—	—	(76.2)	(76.2)
Issuance of common stock	—	.1	—	—	.1
Dividends paid—$.60 per share	—	—	(69.5)	—	(69.5)
Balance at December 31, 2015	1.2	1,398.7	(526.0)	(412.0)	461.9
Net income	—	—	43.3	—	43.3
Other comprehensive income, net of tax	—	—	—	(40.8)	(40.8)
Issuance of common stock	—	.1	—	—	.1
Dividends paid—$.60 per share	—	—	(69.5)	—	(69.5)
Balance at December 31, 2016	$1.2	$1,398.8	$(552.2)	$(452.8)	$ 395.0

See accompanying notes to consolidated financial statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In millions)

	Years ended December 31,		
	2014	**2015**	**2016**
Cash flows from operating activities:			
Net income (loss)	$ 99.2	$(173.6)	$ 43.3
Depreciation and amortization	49.2	42.1	40.5
Deferred income taxes	19.6	138.5	7.7
Securities transactions, net	—	12.0	—
Benefit plan expense greater than cash funding	.5	5.1	5.8
Distributions from TiO_2 manufacturing joint venture, net	10.6	6.5	3.6
Other, net	10.7	6.3	3.0
Change in assets and liabilities:			
Accounts and other receivables	(27.8)	20.1	(37.4)
Inventories	(52.3)	(9.5)	38.8
Prepaid expenses	(.4)	(1.6)	(1.5)
Accounts payable and accrued liabilities	(21.1)	(12.0)	(12.9)
Income taxes	6.3	(1.5)	3.8
Accounts with affiliates	(4.1)	19.2	(5.8)
Other noncurrent assets	2.6	.3	.3
Other noncurrent liabilities	(5.3)	.2	.4
Net cash provided by operating activities	87.7	52.1	89.6
Cash flows from investing activities -			
Capital expenditures	(61.2)	(47.1)	(53.0)
Net cash used in investing activities	(61.2)	(47.1)	(53.0)
Cash flows from financing activities:			
Indebtedness:			
Borrowings	430.4	1.3	266.2
Principal payments	(265.2)	(3.9)	(270.0)
Deferred financing fees	(6.1)	—	—
Dividends paid	(69.5)	(69.5)	(69.5)
Net cash provided by (used in) financing activities	89.6	(72.1)	(73.3)
Cash, cash equivalents and restricted cash—net change from:			
Operating, investing and financing activities	$ 116.1	$ (67.1)	$ (36.7)
Effect of exchange rate changes	(10.0)	(8.5)	(5.3)
Net change for the year	106.1	(75.6)	(42.0)
Balance at beginning of year	63.8	169.9	94.3
Balance at end of year	$ 169.9	$ 94.3	$ 52.3
Supplemental disclosures:			
Cash paid for:			
Interest, net of amounts capitalized	$ 14.7	$ 16.6	$ 18.4
Income taxes	17.5	1.4	6.6
Accrual for capital expenditures	7.0	6.8	8.0

See accompanying notes to consolidated financial statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2016

Note 1—Summary of Significant Accounting Policies:

Organization and basis of presentation—At December 31, 2016, Valhi, Inc. (NYSE: VHI) held approximately 50% of our outstanding common stock and a wholly-owned subsidiary of NL Industries, Inc. (NYSE: NL) held approximately 30% of our common stock. Valhi owned approximately 83% of NL's outstanding common stock and a wholly-owned subsidiary of Contran Corporation held approximately 93% of Valhi's outstanding common stock. All of Contran's outstanding voting stock is held by a family trust established for the benefit of Lisa K. Simmons and Serena Simmons Connelly and their children, for which Ms. Simmons and Ms. Connelly are co-trustees, or is held directly by Ms. Simmons and Ms. Connelly or entities related to them. Consequently, Ms. Simmons and Ms. Connelly may be deemed to control Contran, Valhi, NL and us.

Unless otherwise indicated, references in this report to "we," "us" or "our" refers to Kronos Worldwide, Inc. and its subsidiaries, taken as a whole.

Management's estimates–In preparing our financial statements in conformity with accounting principles generally accepted in the United States of America (GAAP) we are required to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amount of revenues and expenses during the reporting period. Actual results may differ significantly from previously-estimated amounts under different assumptions or conditions.

Principles of consolidation—The consolidated financial statements include our accounts and those of our majority-owned subsidiaries. We have eliminated all material intercompany accounts and balances.

Translation of currencies—We translate the assets and liabilities of our subsidiaries whose functional currency is other than the U.S. dollar at year-end exchange rates, while we translate our revenues and expenses at average exchange rates prevailing during the year. We accumulate the resulting translation adjustments in stockholders' equity as part of accumulated other comprehensive income (loss), net of related deferred income taxes. We recognize currency transaction gains and losses in income currently.

Derivatives and hedging activities—We recognize derivatives as either assets or liabilities measured at fair value. We recognize the effect of changes in the fair value of derivatives either in net income or other comprehensive income (loss), depending on the intended use of the derivative. See Note 18.

Cash and cash equivalents—We classify bank time deposits and U.S. Treasury securities purchased under short-term agreements to resell with original maturities of three months or less as cash equivalents.

Restricted cash—We classify cash that has been segregated or is otherwise limited in use as restricted. Such restrictions or limitations relate to certain Norwegian payroll tax and unfunded employee benefit obligations. To the extent the restricted amount relates to a recognized liability, we classify such restricted amount as either a current or noncurrent asset to correspond with the classification of the liability. To the extent the restricted amount does not relate to a recognized liability, we classify restricted cash as a current asset. All of our restricted cash is classified as a current asset and is separately presented on the face of the statement of financial position.

Marketable securities and securities transactions—We carry marketable securities at fair value. Accounting Standard Codification (ASC) Topic 820, *Fair Value Measurements and Disclosures*, establishes a consistent framework for measuring fair value and (with certain exceptions) this framework is generally applied to all financial statement items required to be measured at fair value. The standard requires fair value measurements to be classified and disclosed in one of the following three categories:

- Level 1—Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;
- Level 2—Quoted prices in markets that are not active, or inputs which are observable, either directly or indirectly, for substantially the full term of the assets or liability; and
- Level 3—Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable.

We classify all of our marketable securities as available-for-sale and unrealized gains or losses on these securities are recognized through other comprehensive income, net of deferred income taxes, except for any decline in value we conclude is other than temporary, which is accounted for as a realized loss as a component of net income. We base realized gains and losses upon the specific identification of the securities sold.

We evaluate our investments whenever events or conditions occur to indicate that the fair value of such investments has declined below their carrying amounts. If the carrying amount for an investment declines below its historical cost basis, we evaluate all available positive and negative evidence including, but not limited to, the extent and duration of the impairment, business prospects for the investee and our intent and ability to hold the investment for a reasonable period of time sufficient for the recovery of fair value. If we determine the decline in fair value is other than temporary, the carrying amount of the investment is written down to fair value.

See Notes 6, 10 and 18.

Accounts receivable—We provide an allowance for doubtful accounts for known and estimated potential losses arising from sales to customers based on a periodic review of these accounts. See Note 3.

Inventories and cost of sales—We state inventories at the lower of cost or market, net of allowance for obsolete and slow-moving inventories. We generally base inventory costs for all inventory categories on average cost that approximates the first-in, first-out method. Inventories include the costs for raw materials, the cost to manufacture the raw materials into finished goods and overhead. Depending on the inventory's stage of completion, our manufacturing costs can include the costs of packing and finishing, utilities, maintenance, depreciation, and salaries and benefits associated with our manufacturing process. We allocate fixed manufacturing overheads based on normal production capacity. Unallocated overhead costs resulting from periods with abnormally low production levels are charged to expense as incurred. As inventory is sold to third parties, we recognize the cost of sales in the same period that the sale occurs. We periodically review our inventory for estimated obsolescence or instances when inventory is no longer marketable for its intended use, and we record any write-down equal to the difference between the cost of inventory and its estimated net realizable value based on assumptions about alternative uses, market conditions and other factors. See Note 4.

Investment in TiO_2 manufacturing joint venture— We account for our investment in a 50%-owned manufacturing joint venture by the equity method. Distributions received from such investee are classified for statement of cash flow purposes using the "nature of distribution" approach under ASC Topic 320. See Note 5.

Property and equipment and depreciation—We state property and equipment at cost, including capitalized interest on borrowings during the actual construction period of major capital projects. Capitalized interest costs were $2.9 million in 2014, $1.1 million in 2015 and $.9 million in 2016. We compute depreciation of property and equipment for financial reporting purposes (including mining equipment) principally by the straight-line method over the estimated useful lives of the assets as follows:

Asset	Useful lives
Buildings and improvements	10 to 40 years
Machinery and equipment	3 to 20 years
Mine development costs	units-of-production

We use accelerated depreciation methods for income tax purposes, as permitted. Upon the sale or retirement of an asset, we remove the related cost and accumulated depreciation from the accounts and recognize any gain or loss in income currently.

We expense costs incurred for maintenance, repairs and minor renewals (including planned major maintenance) while we capitalize expenditures for major improvements.

We have a governmental concession with an unlimited term to operate our ilmenite mines in Norway. Mining properties consist of buildings and equipment used in our Norwegian ilmenite mining operations. While we own the land and ilmenite reserves associated with the mining operations, such land and reserves were acquired for nominal value and we have no material asset recognized for the land and reserves related to our mining operations.

We perform impairment tests when events or changes in circumstances indicate the carrying value may not be recoverable. We consider all relevant factors. We perform the impairment test by comparing the estimated future undiscounted cash flows (exclusive of interest expense) associated with the asset to the asset's net carrying value to determine if a write-down to fair value or discounted cash flow value is required.

Long-term debt—We state long-term debt net of any unamortized original issue premium, discount or deferred financing costs (other than deferred financing costs associated with revolving credit facilities, which are recognized as an asset). We classify amortization of all deferred financing costs and any premium or discount associated with the issuance of indebtedness as interest expense and compute such amortization by either the interest method or the straight-line method over the term of the applicable issue. See Note 8.

Employee benefit plans—Accounting and funding policies for our retirement plans are described in Note 10.

Income taxes—We, Valhi and our qualifying subsidiaries are members of Contran's consolidated U.S. federal income tax group (the Contran Tax Group) and we and certain of our qualifying subsidiaries also file consolidated income tax returns with Contran in various U.S. state jurisdictions. As a member of the Contran Tax Group, we are jointly and severally liable for the federal income tax liability of Contran and the other companies included in the Contran Tax Group for all periods in which we are included in the Contran Tax Group. See Note 17. As a member of the Contran Tax Group, we are a party to a tax sharing agreement which provides that we compute our provision for U.S. income taxes on a separate-company basis using the tax elections made by Contran. Pursuant to the tax sharing agreement, we make payments to or receive payments from Valhi in amounts we would have paid to or received from the U.S. Internal Revenue Service or the applicable state tax authority had we not been a member of the Contran Tax Group. We made net payments of income taxes to Valhi of $8.2 million in 2014 and $.8 million in 2016, and received net income tax refunds from Valhi of $3.5 million in 2015.

We recognize deferred income tax assets and liabilities for the expected future tax consequences of temporary differences between the income tax and financial reporting carrying amounts of assets and liabilities, including investments in our subsidiaries and affiliates who are not members of the Contran Tax Group and undistributed earnings of non-U.S. subsidiaries which are not deemed to be permanently reinvested. The earnings of non-U.S. subsidiaries subject to permanent reinvestment plans aggregated $660 million at December 31, 2016. It is not practical for us to determine the amount of the unrecognized deferred income tax liability related to such earnings due to the complexities associated with the U.S. taxation on earnings of non-U.S. subsidiaries repatriated to the U.S. Deferred income tax assets and liabilities for each tax-paying jurisdiction in which we operate are netted and presented as either a noncurrent deferred income tax asset or liability, as applicable. We periodically evaluate our deferred tax assets in the various taxing jurisdictions in which we operate and adjust any related valuation allowance based on the estimate of the amount of such deferred tax assets that we believe does not meet the more-likely-than-not recognition criteria.

We record a reserve for uncertain tax positions for tax positions where we believe that it is more-likely-than-not our position will not prevail with the applicable tax authorities. The amount of the benefit associated with our uncertain tax positions that we recognize is limited to the largest amount for which we believe the likelihood of realization is greater than 50%. We accrue penalties and interest on the difference between tax positions taken on our tax returns and the amount of benefit recognized for financial reporting purposes. We classify our reserves for uncertain tax positions in a separate current or noncurrent liability, depending on the nature of the tax position. See Note 14.

Net sales—We record sales when products are shipped and title and other risks and rewards of ownership have passed to the customer. Shipping terms of products shipped are generally FOB shipping point, although in some instances shipping terms are FOB destination point (for which we do not recognize sales until the product is received by the customer) or other standard shipping terms. We state sales net of price, early payment and distributor discounts and volume rebates. We report any tax assessed by a governmental authority that we collect from our customers that is both imposed on and concurrent with our revenue-producing activities (such as sales, use, value added and excise taxes) on a net basis (meaning we do not recognize these taxes either in our revenues or in our costs and expenses).

Selling, general and administrative expense; shipping and handling costs—Selling, general and administrative expense includes costs related to marketing, sales, distribution, shipping and handling, research and development, legal, and administrative functions such as accounting, treasury and finance, and includes costs for salaries and benefits not associated with our manufacturing process, travel and entertainment, promotional materials and professional fees. We include shipping and handling costs in selling, general and administrative expense and these costs were $95 million in 2014, $87 million in 2015 and $90 million in 2016. We expense research, development and certain sales technical support costs as incurred and these costs approximated $19 million in 2014, $16 million in 2015 and $13 million in 2016. We expense advertising costs as incurred and these costs were not material in any year presented.

Note 2—Geographic Information:

Our operations are associated with the production and sale of titanium dioxide pigments (TiO_2). TiO_2 is used to impart whiteness, brightness, opacity and durability to a wide variety of products, including paints, plastics, paper, fibers and ceramics. Additionally, TiO_2 is a critical component of everyday applications, such as coatings, plastics and paper, as well as many specialty products such as inks, foods and cosmetics. At December 31, 2015 and 2016 the net assets of non-U.S. subsidiaries included in consolidated net assets approximated $123 million and $62 million, respectively.

For geographic information, we attribute net sales to the place of manufacture (point of origin) and to the location of the customer (point of destination); we attribute property and equipment to their physical location.

	Years ended December 31,		
	2014	2015	2016
		(In millions)	
Net sales—point of origin:			
Germany	$ 844.1	$ 690.0	$ 699.8
United States	783.1	657.8	664.2
Canada	252.3	216.9	257.7
Belgium	249.3	198.8	187.4
Norway	256.8	183.5	164.8
Eliminations	(733.7)	(598.2)	(609.6)
Total	$1,651.9	$1,348.8	$1,364.3
Net sales—point of destination:			
Europe	$ 882.9	$ 700.4	$ 697.6
North America	544.3	421.4	413.2
Other	224.7	227.0	253.5
Total	$1,651.9	$1,348.8	$1,364.3

	December 31,	
	2015	2016
	(In millions)	
Identifiable assets—net property and equipment:		
Germany	$212.1	$208.2
Belgium	80.1	78.6
Norway	69.5	73.3
Canada	53.8	59.3
Other	14.0	14.6
Total	$429.5	$434.0

Note 3—Accounts and Other Receivables:

	December 31, 2015	December 31, 2016
	(In millions)	
Trade receivables	$194.8	$224.8
Recoverable VAT and other receivables	17.8	16.7
Refundable income taxes	6.8	.3
Allowance for doubtful accounts	(1.1)	(.7)
Total	$218.3	$241.1

Note 4—Inventories, Net:

	December 31, 2015	December 31, 2016
	(In millions)	
Raw materials	$ 75.9	$ 68.7
Work in process	21.1	22.3
Finished products	232.4	195.7
Supplies	57.8	56.8
Total	$387.2	$343.5

Note 5—Investment in Tio_2 Manufacturing Joint Venture:

We own a 50% interest in Louisiana Pigment Company, L.P. (LPC). LPC is a manufacturing joint venture whose other 50%-owner is Huntsman P&A Investments LLC (HPA) (formerly Tioxide Americas LLC). HPA is a subsidiary of Huntsman Corporation. LPC owns and operates a chloride-process TiO_2 plant in Lake Charles, Louisiana.

We and HPA are both required to purchase one-half of the TiO_2 produced by LPC, unless we and HPA agree otherwise (such as in 2015, when we purchased approximately 52% of the production from the plant). LPC operates on a break-even basis and, accordingly, we report no equity in earnings of LPC. Each owner's acquisition transfer price for its share of the TiO_2 produced is equal to its share of the joint venture's production costs and interest expense, if any. Our share of net cost is reported as cost of sales as the related TiO_2 acquired from LPC is sold. We report distributions we receive from LPC, which generally relate to excess cash generated by LPC from its non-cash production costs, and contributions we make to LPC, which generally relate to cash required by LPC when it builds working capital, as part of our cash flows from operating activities in our Consolidated Statements of Cash Flows. The components of our net distributions from LPC are shown in the table below.

	Years ended December 31, 2014	2015	2016
		(In millions)	
Distributions from LPC	$ 48.0	$ 48.2	$ 35.0
Contributions to LPC	(37.4)	(41.7)	(31.4)
Net distributions	$ 10.6	$ 6.5	$ 3.6

Summary balance sheets of LPC are shown below:

	December 31, 2015	December 31, 2016
	(In millions)	
ASSETS		
Current assets	$ 96.2	$ 94.5
Property and equipment, net	110.1	111.6
Total assets	$206.3	$206.1
LIABILITIES AND PARTNERS' EQUITY		
Other liabilities, primarily current	$ 37.8	$ 45.2
Partners' equity	168.5	160.9
Total liabilities and partners' equity	$206.3	$206.1

Summary income statements of LPC are shown below:

	Years ended December 31, 2014	2015	2016
		(In millions)	
Revenues and other income:			
Kronos	$193.1	$176.5	$157.9
HPA	193.8	162.5	157.5
Total revenues and other income	386.9	339.0	315.4
Cost and expenses:			
Cost of sales	386.4	338.5	314.9
General and administrative	.5	.5	.5
Total costs and expenses	386.9	339.0	315.4
Net income	$ —	$ —	$ —

Note 6—Marketable Securities:

Our marketable securities consist of investments in the publicly-traded shares of related parties: Valhi, NL and CompX International Inc. NL owns the majority of CompX's outstanding common stock. All of our marketable securities are accounted for as available-for-sale securities, which are carried at fair value using quoted market prices in active markets for each marketable security and represent a Level 1 input within the fair value hierarchy. See Note 18. Because we have classified all of our marketable securities as available-for-sale, any unrealized gains or losses on the securities are recognized through other comprehensive income, net of deferred income taxes.

Marketable security	Fair value measurement level	Market value	Cost basis	Unrealized gain (loss)
		(In millions)		
December 31, 2015:				
Valhi common stock	1	$2.3	$3.2	$ (.9)
NL and CompX common stocks	1	.1	.1	—
Total		$2.4	$3.3	$ (.9)
December 31, 2016:				
Valhi common stock	1	$5.9	$3.2	$2.7
NL and CompX common stocks	1	.1	.1	—
Total		$6.0	$3.3	$2.7

At December 31, 2015 and 2016, we held approximately 1.7 million shares of Valhi's common stock. We also held a nominal number of shares of CompX and NL common stocks. At December 31, 2015 and 2016, the quoted per share market price of Valhi's common stock was $1.34 and $3.46, respectively.

The Valhi, CompX and NL common stocks we own are subject to the restrictions on resale pursuant to certain provisions of the Securities and Exchange Commission (SEC) Rule 144. In addition, as a majority-owned subsidiary of Valhi we cannot vote our shares of Valhi common stock under Delaware General Corporation Law, but we do receive dividends from Valhi on these shares, when declared and paid.

Securities transactions in 2015 includes a third-quarter aggregate $12.0 million pre-tax other than temporary impairment charge to write down the cost basis of our investment in the 1.7 million shares of Valhi's common stock to its aggregate market value at September 30, 2015.

Note 7—Other Noncurrent Assets:

	December 31, 2015	December 31, 2016
	(In millions)	
Pension asset	$ .4	$ .6
Deferred financing costs, net	1.0	.4
Other	1.7	1.2
Total	$3.1	$2.2

Note 8—Long-Term Debt:

	December 31,	
	2015	2016
	(In millions)	
Term loan	$338.0	$335.9
Other	3.0	3.1
Total debt	341.0	339.0
Less current maturities	3.8	3.6
Total long-term debt	$337.2	$335.4

Term loan—In February 2014, we entered into a new $350 million term loan. The term loan was issued at 99.5% of the principal amount, or an aggregate of $348.3 million. We used $170 million of the net proceeds of the term loan to prepay the outstanding principal balance of our note payable to Contran (along with accrued and unpaid interest through the prepayment date) and such note payable was cancelled. The remaining net proceeds of the term loan were available for our general corporate purposes. The term loan, as amended in May 2015:

- bears interest, at our option, at LIBOR (with LIBOR no less than 1.0%) plus 3.00%, or the base rate, as defined in the agreement, plus 2.00%;
- requires quarterly principal repayments of $875,000 which commenced in June 2014, other mandatory principal repayments of formula-determined amounts under specified conditions with all remaining principal balance due in February 2020. Voluntary principal prepayments are permitted at any time;
- is collateralized by, among other things, a first priority lien on (i) 100% of the common stock of certain of our U.S. wholly-owned subsidiaries, (ii) 65% of the common stock or other ownership interest of our Canadian subsidiary (Kronos Canada, Inc.) and certain first-tier European subsidiaries (Kronos Titan GmbH and Kronos Denmark ApS) and (iii) a $395.7 million unsecured promissory note issued by our wholly-owned subsidiary, Kronos International, Inc. (KII) to us;
- is also collateralized by a second priority lien on all of the U.S. assets which collateralize our North American revolving facility, as discussed below;
- contains a number of covenants and restrictions which, among other things, restrict our ability to incur additional debt, incur liens, pay dividends or merge or consolidate with, or sell or transfer substantially all of our assets to, another entity and contains other provisions and restrictive covenants customary in lending transactions of this type (however, there are no ongoing financial maintenance covenants); and
- contains customary default provisions, including a default under any of our other indebtedness in excess of $50 million.

Prior to the May 2015 amendment to the term loan, the applicable margin on outstanding LIBOR-based borrowings was 3.75% and the applicable margin on outstanding base rate borrowings was 2.75%. All other terms of the term loan, including principal repayments, maturity and collateral remain unchanged. We accounted for such amendment to our term loan as a modification of the terms of the term loan. We paid a $750,000 refinancing fee in connection with this amendment, which along with the existing unamortized deferred financing costs associated with the term loan are being amortized over the remaining term of the loan.

The average interest rate on the term loan borrowings was 4.0% as of and for the year ended December 31, 2016. The carrying value of the term loan at December 31, 2016 is stated net of unamortized original issue discount of $.9 million and debt issuance costs of $3.6 million (December 31, 2015—$1.2 million and $4.7 million).

See Note 18 for a discussion of the interest rate swap we entered into in the third quarter of 2015 pursuant to our interest rate risk management strategy.

Revolving credit facilities

Revolving North American credit facility—In June 2012, we entered into a $125 million revolving bank credit facility. As amended in January 2017, the facility matures the earlier of (i) January 30, 2022 or (ii) 90 days prior to the maturity date of our term loan (or the maturity date of any new term loan constituting a permitted refinancing of the existing term loan). Based on the February 2020 maturity date of our existing term loan, the maturity date of the North American credit facility is currently November 2019. Borrowings under the revolving credit facility are available for our general corporate purposes. Available borrowings on this facility are based on formula-determined amounts of eligible trade receivables and inventories, as defined in the agreement, of certain of our North American subsidiaries less any outstanding letters of credit up to $15 million issued under the facility (with revolving borrowings by our Canadian subsidiary limited to $25 million). Any amounts outstanding under the revolving credit facility bear interest, at our option, at LIBOR plus a margin ranging from 1.5% to 2.0% or at the applicable base rate, as defined in the agreement, plus a margin ranging from .5% to 1.0%. The credit facility is collateralized by, among other things, a first priority lien on the borrowers' trade receivables and inventories. The facility contains a number of covenants and restrictions which, among other things, restricts the borrowers' ability to incur additional debt, incur liens, pay dividends or merge or consolidate with, or sell or transfer all or substantially all of their assets to, another entity, contains other provisions and restrictive covenants customary in lending transactions of this type and under certain conditions requires the maintenance of a specified financial covenant (fixed charge coverage ratio, as defined) to be at least 1.1 to 1.0. We had no borrowings or repayments under this facility during 2015. During 2016, we borrowed $266.2 million and repaid $266.2 million under this facility. At December 31, 2016 we had approximately $74.8 million available for borrowing under this revolving facility.

Revolving European credit facility—Our operating subsidiaries in Germany, Belgium, Norway and Denmark have a €120 million secured revolving bank credit facility that matures in September 2017. We expect to extend the maturity date of this facility on or prior to its maturity date. We may denominate borrowings in euros, Norwegian kroner or U.S. dollars. Outstanding borrowings bear interest at LIBOR plus 1.90%. The facility is collateralized by the accounts receivable and inventories of the borrowers, plus a limited pledge of all of the other assets of the Belgian borrower. The facility contains certain restrictive covenants that, among other things, restrict the ability of the borrowers to incur debt, incur liens, pay dividends or merge or consolidate with, or sell or transfer all or substantially all of the assets to, another entity, and requires the maintenance of certain financial ratios. In addition, the credit facility contains customary cross-default provisions with respect to other debt and obligations of the borrowers, KII and its other subsidiaries.

We had no borrowings or repayments under this facility during 2015 and 2016 and at December 31, 2016, there were no outstanding borrowings under this facility. Our European revolving credit facility requires the maintenance of certain financial ratios, and one of such requirements is based on the ratio of net debt to last twelve months earnings before income tax, interest, depreciation and amortization expense (EBITDA) of the borrowers. Based upon the borrowers' last twelve months EBITDA as of December 31, 2016 and the net debt to EBITDA financial test, our borrowing availability at December 31, 2016 is approximately 47% of the credit facility, or €55.8 million ($58.5 million).

Aggregate maturities and other—Aggregate maturities of debt at December 31, 2016 are presented in the table below.

Year ending December 31,	Amount
	(In millions)
2017	$ 3.6
2018	4.1
2019	4.2
2020	330.6
2021	.7
2022 and thereafter	.3
Gross maturities	343.5
Less original issue discount and debt issuance costs	4.5
Total	$339.0

We are in compliance with all of our debt covenants at December 31, 2016.

Note 9—Accounts Payable and Accrued Liabilities:

	December 31,	
	2015	2016
	(In millions)	
Accounts payable	$ 96.1	$ 84.9
Accrued sales discounts and rebates	18.9	20.9
Employee benefits	14.2	17.7
Reserve for uncertain tax positions	—	3.3
Interest rate swap contract	3.3	2.9
Accrued workforce reduction costs	5.3	1.2
Other	34.9	27.9
Total	$172.7	$158.8

See Note 18 for a discussion of the interest rate swap contract, and Note 13 for a discussion on accrued workforce reduction costs.

Note 10—Employee Benefit Plans:

Defined contribution plans—We maintain various defined contribution pension plans with our contributions based on matching or other formulas. Defined contribution plan expense approximated $2.6 million in 2014, $2.7 million in 2015 and $2.8 million in 2016.

Accounting for defined benefit and postretirement benefits other than pensions (OPEB) plans—We recognize an asset or liability for the over or under funded status of each of our individual defined benefit pension plans on our Consolidated Balance Sheets. Changes in the funded status of these plans are recognized either in net income (loss), to the extent they are reflected in periodic benefit cost, or through other comprehensive income (loss).

Defined benefit plans—We sponsor various defined benefit pension plans. Certain non-U.S. employees are covered by plans in their respective countries. Our U.S. plan was closed to new participants in 1996, and existing participants no longer accrued any additional benefits after that date. The benefits under our plans are based upon years of service and employee compensation. Our funding policy is to contribute annually the minimum amount required under ERISA (or equivalent non-U.S.) regulations plus additional amounts as we deem appropriate.

We expect to contribute the equivalent of approximately $14.8 million to all of our defined benefit pension plans during 2017. Benefit payments to plan participants out of plan assets are expected to be the equivalent of:

Years ending December 31,	Amount (In millions)
2017	$ 20.1
2018	20.4
2019	20.9
2020	22.1
2021	22.6
Next 5 years	124.4

The funded status of our non-U.S. defined benefit pension plans is presented in the table below.

	December 31, 2015	December 31, 2016
	(In millions)	
Change in projected benefit obligations (PBO):		
Benefit obligations at beginning of the year	$ 648.4	$ 569.7
Service cost	11.2	9.9
Interest cost	14.6	14.7
Participant contributions	1.6	1.5
Actuarial losses (gains)	(8.7)	33.7
Change in currency exchange rates	(76.4)	(15.0)
Benefits paid	(21.0)	(20.4)
Benefit obligations at end of the year	569.7	594.1
Change in plan assets:		
Fair value of plan assets at beginning of the year	414.8	372.0
Actual return on plan assets	10.6	10.0
Employer contributions	17.1	15.3
Participant contributions	1.6	1.5
Change in currency exchange rates	(51.1)	(6.9)
Benefits paid	(21.0)	(20.4)
Fair value of plan assets at end of year	372.0	371.5
Funded status	$(197.7)	$(222.6)
Amounts recognized in the balance sheet:		
Noncurrent pension asset	$ .4	$ .6
Noncurrent accrued pension costs	(198.1)	(223.2)
Total	$(197.7)	$(222.6)
Accumulated other comprehensive loss:		
Actuarial losses	$ 230.6	$ 257.5
Prior service cost	1.9	1.6
Total	$ 232.5	$ 259.1
Accumulated benefit obligations (ABO)	$ 545.2	$ 569.5

The components of our net periodic defined benefit pension cost for our non-U.S. defined benefit pension plans are presented in the table below. The amounts shown below for the amortization of prior service cost, net transition obligations and recognized actuarial losses for 2014, 2015 and 2016 were recognized as components of our accumulated other comprehensive income (loss) at December 31, 2013, 2014 and 2015, respectively, net of deferred income taxes.

	Years ended December 31,		
	2014	2015	2016
		(In millions)	
Net periodic pension cost:			
Service cost benefits	$ 9.9	$ 11.2	$ 9.9
Interest cost on PBO	21.7	14.6	14.7
Expected return on plan assets	(20.0)	(16.6)	(14.4)
Settlement gain	(.3)	—	—
Recognized actuarial losses	10.0	13.6	11.3
Amortization of prior service cost	.5	.4	.2
Amortization of net transition obligations	.1	—	—
Total	$ 21.9	$ 23.2	$ 21.7

Information concerning certain of our non-U.S. defined benefit pension plans (for which the ABO exceeds the fair value of plan assets as of the indicated date) is presented in the table below.

	December 31,	
	2015	2016
	(In millions)	
Plans for which the ABO exceeds plan assets:		
PBO	$518.1	$541.5
ABO	498.7	521.8
Fair value of plan assets	321.6	319.5

The weighted-average rate assumptions used in determining the actuarial present value of benefit obligations for our non-U.S. defined benefit pension plans as of December 31, 2015 and 2016 are presented in the table below.

	December 31,	
Rate	2015	2016
Discount rate	2.6%	2.1%
Increase in future compensation levels	2.9%	2.6%

The weighted-average rate assumptions used in determining the net periodic pension cost for our non-U.S. defined benefit pension plans for 2014, 2015 and 2016 are presented in the table below.

	Years ended December 31,		
Rate	2014	2015	2016
Discount rate	3.8%	2.5%	2.6%
Increase in future compensation levels	2.7%	2.6%	2.9%
Long-term return on plan assets	5.0%	4.6%	3.9%

Variances from actuarially assumed rates will result in increases or decreases in accumulated pension obligations, pension expense and funding requirements in future periods.

The funded status of our U.S. defined benefit pension plan is presented in the table below.

	December 31, 2015	December 31, 2016
	(In millions)	
Change in PBO:		
Benefit obligations at beginning of the year	$19.8	$18.6
Interest cost	.8	.8
Actuarial gains	(1.0)	(.6)
Benefits paid	(1.0)	(1.0)
Benefit obligations at end of the year	18.6	17.8
Change in plan assets:		
Fair value of plan assets at beginning of the year	15.5	13.9
Actual return (loss) on plan assets	(.7)	.5
Employer contributions	.1	.2
Benefits paid	(1.0)	(1.0)
Fair value of plan assets at end of year	13.9	13.6
Funded status	$ (4.7)	$ (4.2)
Amounts recognized in the balance sheet:		
Accrued pension costs:		
Current	$ (.1)	$ (.1)
Noncurrent	(4.6)	(4.1)
Total	$ (4.7)	$ (4.2)
Accumulated other comprehensive loss—actuarial losses	$11.6	$11.0
ABO	$18.6	$17.8

The components of our net periodic defined benefit pension cost for our U.S. defined benefit pension plan is presented in the table below. The amounts shown below for recognized actuarial losses for 2014, 2015 and 2016 were recognized as components of our accumulated other comprehensive income (loss) at December 31, 2013, 2014 and 2015 respectively, net of deferred income taxes.

	Years ended December 31, 2014	2015	2016
	(In millions)		
Net periodic pension cost (income):			
Interest cost on PBO	$ .8	$ .8	$ .8
Expected return on plan assets	(1.2)	(1.1)	(1.0)
Recognized actuarial losses	.3	.5	.5
Total	$ (.1)	$ .2	$ .3

The discount rate assumptions used in determining the actuarial present value of the benefit obligation for our U.S. defined benefit pension plan as of December 31, 2015 and 2016 are 4.1% and 3.9%, respectively. The impact of assumed increases in future compensation levels does not have an effect on the benefit obligation as the plan is frozen with regards to compensation.

The weighted-average rate assumptions used in determining the net periodic pension cost for our U.S. defined benefit pension plan for 2014, 2015 and 2016 are presented in the table below. The impact of assumed increases in future compensation levels also does not have an effect on the periodic pension cost as the plan is frozen with regards to compensation.

Rate	Years ended December 31, 2014	2015	2016
Discount rate	4.5%	3.8%	4.1%
Long-term return on plan assets	7.5%	7.5%	7.5%

Variances from actuarially assumed rates will result in increases or decreases in accumulated pension obligations, pension expense and funding requirements in future periods.

The amounts shown in the above tables for actuarial losses and prior service cost at December 31, 2015 and 2016 have not yet been recognized as components of our periodic defined benefit pension cost as of those dates. These amounts will be recognized as components of our periodic defined benefit cost in future years and are recognized, net of deferred income taxes, in our accumulated other comprehensive income (loss) at December 2015 and 2016. We expect approximately $12.8 million and $.2 million of the unrecognized actuarial losses and prior service costs, respectively, will be recognized as components of our consolidated net periodic defined benefit pension cost in 2017.

The table below details the changes in our consolidated other comprehensive income (loss) during 2014, 2015 and 2016.

	Years ended December 31,		
	2014	2015	2016
		(In millions)	
Changes in plan assets and benefit obligations recognized in other comprehensive income (loss):			
Current year:			
Net actuarial gain (loss)	$(103.9)	$ 2.7	$(38.0)
Settlements	(.3)	—	—
Amortization of unrecognized:			
Net actuarial losses	10.3	14.1	11.8
Prior service cost	.5	.4	.2
Net transition obligations	.1	—	—
Total	$ (93.3)	$17.2	$(26.0)

At December 31, 2015 and 2016, substantially all of the assets attributable to our U.S. plan were invested in the Combined Master Retirement Trust (CMRT), a collective investment trust sponsored by Contran to permit the collective investment by certain master trusts that fund certain employee benefits plans sponsored by Contran and certain of its affiliates. For 2014, 2015 and 2016, the long-term rate of return assumption for plan assets invested in the CMRT was 7.5%, based on the long-term asset mix of the assets of the CMRT and the expected long-term rates of return for such asset components as well as advice from Contran's actuaries.

The CMRT unit value is determined semi-monthly, and the plans have the ability to redeem all or any portion of their investment in the CMRT at any time based on the most recent semi-monthly valuation. However, the plans do not have the right to individual assets held by the CMRT and the CMRT has the sole discretion in determining how to meet any redemption request. For purposes of our plan asset disclosure, we consider the investment in the CMRT as a Level 2 input because (i) the CMRT value is established semi-monthly and the plans have the right to redeem their investment in the CMRT, in part or in whole, at any time based on the most recent value and (ii) observable inputs from Level 1 or Level 2 (or assets not subject to classification in the fair value hierarchy) were used to value approximately 91% and 92% of the assets of the CMRT at December 31, 2015 and 2016, respectively, as noted below. CMRT assets not subject to classification in the fair value hierarchy consist principally of certain investments measured at net asset value per share in accordance with ASC 820-10. The aggregate fair value of all of the CMRT assets, including funds of Contran and its other affiliates that also invest in the CMRT, and supplemental asset mix details of the CMRT are as follows:

	December 31,	
	2015	2016
	(In millions)	
CMRT asset value	$648.8	$637.8
CMRT assets comprised of:		
Assets not subject to fair value hierarchy	30%	30%
Assets subject to fair value hierarchy:		
Level 1	54	54
Level 2	7	8
Level 3	9	8
	100%	100%
CMRT asset mix:		
Domestic equities, principally publicly traded	29%	31%
International equities, principally publicly traded	22	22
Fixed income securities, principally publicly traded	38	36
Privately managed limited partnerships	5	5
Hedge funds	5	5
Other, primarily cash	1	1
	100%	100%

In determining the expected long-term rate of return on non-U.S. plan asset assumptions, we consider the long-term asset mix (e.g. equity vs. fixed income) for the assets for each of our plans and the expected long-term rates of return for such asset components. In addition, we receive third-party advice about appropriate long-term rates of return. Such assumed asset mixes are summarized below:

- In Germany, the composition of our plan assets is established to satisfy the requirements of the German insurance commissioner. Our German pension plan assets represent an investment in a large collective investment fund established and maintained by Bayer AG in which several pension plans, including our German pension plan and Bayer's pension plans, have invested. Our plan assets represent a very nominal portion of the total collective investment fund maintained by Bayer. These plan assets are a Level 3 input because there is not an active market that approximates the value of our investment in the Bayer investment fund. We determine the fair value of the Bayer plan assets based on periodic reports we receive from the managers of the Bayer plan. These periodic reports are subject to audit by the German pension regulator.

- In Canada, we currently have a plan asset target allocation of 35% to equity securities and 65% to fixed income securities. We expect the long-term rate of return for such investments to average approximately 125 basis points above the applicable equity or fixed income index. The Canadian assets are Level 1 inputs because they are traded in active markets.

- In Norway, we currently have a plan asset target allocation of 11% to equity securities, 79% to fixed income securities, 7% to real estate and the remainder primarily to other investments and liquid investments such as money markets. The expected long-term rate of return for such investments is approximately 7%, 3%, 5% and 7%, respectively. The majority of Norwegian plan assets are Level 1 inputs because they are traded in active markets; however approximately 11% of our Norwegian plan assets are invested in real estate and other investments not actively traded and are therefore a Level 3 input.
- We also have plan assets in Belgium and the United Kingdom. The Belgian plan assets are invested in certain individualized fixed income insurance contracts for the benefit of each plan participant as required by the local regulators and are therefore a Level 3 input. The United Kingdom plan assets consist of marketable securities which are Level 1 inputs because they trade in active markets.

We regularly review our actual asset allocation for each plan, and will periodically rebalance the investments in each plan to more accurately reflect the targeted allocation and/or maximize the overall long-term return when considered appropriate.

The composition of our December 31, 2015 and 2016 pension plan assets by asset category and fair value level is shown in the table below.

	Fair Value Measurements at December 31, 2015			
	Total	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
	(In millions)			
Germany	$223.1	$ —	$ —	$223.1
Canada:				
Local currency equities	9.6	9.6	—	—
Non local currency equities	23.3	23.3	—	—
Local currency fixed income	50.6	50.6	—	—
Global mutual fund	6.8	6.8	—	—
Cash and other	.5	.5	—	—
Norway:				
Local currency equities	2.0	2.0	—	—
Non local currency equities	3.6	3.6	—	—
Local currency fixed income	24.5	24.5	—	—
Non local currency fixed income	4.7	4.7	—	—
Real estate	4.2	—	—	4.2
Cash and other	7.9	6.7	—	1.2
U.S.				
CMRT	13.9	—	13.9	—
Other	11.2	3.5	—	7.7
Total	$385.9	$135.8	$13.9	$236.2

The funded status of our OPEB plans is presented in the table below:

	December 31, 2015	December 31, 2016
	(In millions)	
Change in accumulated OPEB obligations:		
Obligations at beginning of the year	$ 8.5	$ 7.0
Service cost	.1	.1
Interest cost	.3	.3
Actuarial gains	(.2)	(.1)
Change in currency exchange rates	(1.3)	.2
Benefits paid from employer contributions	(.4)	(.3)
Obligations at end of the year	7.0	7.2
Fair value of plan assets	—	—
Funded status	$(7.0)	$(7.2)
Amounts recognized in the balance sheet:		
Current accrued OPEB costs	$ (.3)	$ (.3)
Noncurrent accrued OPEB costs	(6.7)	(6.9)
Total	$(7.0)	$(7.2)
Accumulated other comprehensive income:		
Net actuarial losses	$ 3.1	$ 2.9
Prior service credit	(6.2)	(5.5)
Total	$(3.1)	$(2.6)

The amounts shown in the table above for net actuarial losses and prior service credit at December 31, 2015 and 2016 have not yet been recognized as components of our periodic OPEB cost as of those dates. These amounts will be recognized as components of our periodic OPEB cost in future years and are recognized, net of deferred income taxes, in our accumulated other comprehensive income (loss). We expect to recognize approximately $.2 million of unrecognized actuarial losses and $.6 million of prior service credit as components of our periodic OPEB cost in 2017.

At December 31, 2016, the accumulated OPEB obligations for all OPEB plans comprised $.5 million related to U.S. plans and $6.7 million related to our Canadian plan (in 2015 the amounts were $.6 million and $6.4 million, respectively).

The components of our periodic OPEB costs are presented in the table below. The amounts shown below for amortization of prior service credit and recognized actuarial losses for 2014, 2015 and 2016 were recognized as components of our accumulated other comprehensive income (loss) at December 31, 2013, 2014 and 2015, respectively, net of deferred income taxes.

	Years ended December 31, 2014	2015	2016
		(In millions)	
Net periodic OPEB cost (benefit):			
Service cost	$ .1	$ .1	$ .1
Interest cost	.4	.3	.3
Amortization of prior service credit	(.9)	(.8)	(.8)
Recognized actuarial losses	.2	.3	.2
Total	$(.2)	$(.1)	$(.2)

The table below details the changes in benefit obligations recognized in accumulated other comprehensive income (loss) during 2014, 2015 and 2016.

	Years ended December 31,		
	2014	2015	2016
		(In millions)	
Changes in benefit obligations recognized in other comprehensive income (loss):			
Current year:			
Net actuarial gain (loss)	$ (.8)	$ .2	$ .1
Amortization of unrecognized:			
Net actuarial loss	.2	.3	.2
Prior service cost	(.9)	(.8)	(.8)
Total	$(1.5)	$(.3)	$(.5)

A summary of our key actuarial assumptions used to determine the net benefit obligation as of December 31, 2015 and 2016 are presented in the table below. The weighted average discount rate was determined using the projected benefit obligation as of such dates. The impact of assumed increases in future compensation levels does not have a material effect on the actuarial present value of the benefit obligation as substantially all of such benefits relate solely to eligible retirees, for which compensation is not applicable.

	2015	2016
Healthcare inflation:		
Initial rate	7.0%	7.0%
Ultimate rate	5.0%	5.0%
Year of ultimate rate achievement	2021	2021
Weighted average discount rate	3.9%	3.5%

Assumed health care cost trend rates affect the amounts we report for health care plans. A one percent change in assumed health care trend rates would not have a material effect on the net periodic OPEB cost for 2016 or on the accumulated OPEB obligation at December 31, 2016.

The weighted average discount rate used in determining the net periodic OPEB cost for 2016 was 3.9% (2015—3.7%; 2014—4.6%). Such weighted average rate was determined using the projected benefit obligation as of the beginning of each year. The impact of assumed increases in future compensation levels does not have a material effect on the net periodic OPEB cost as substantially all of such benefits relate solely to eligible retirees, for which compensation is not applicable. The impact of the assumed rate of return on plan assets also does not have a material effect on the net periodic OPEB cost as there were no plan assets as of December 31, 2015 or 2016.

Variances from actuarially-assumed rates will result in additional increases or decreases in accumulated OPEB obligations, net periodic OPEB cost and funding requirements in future periods.

Note 11—Other Noncurrent Liabilities:

	December 31,	
	2015	2016
	(In millions)	
Reserve for uncertain tax positions	$11.8	$ 7.3
Employee benefits	7.5	7.8
Interest rate swap contract	.2	.2
Other	4.9	7.1
Total	$24.4	$22.4

See Note 18 for a discussion on the interest rate swap contract.

Note 12—Other Operating Income (Expense), Net:

Other operating income (expense), net in 2016 includes income of $3.4 million, recognized in the first and second quarters, related to cash received from settlement of a business interruption insurance claim arising in 2014 and income of $.9 million recognized in the fourth quarter of 2016 related to cash received from settlement of another business interruption insurance claim arising in 2015. No additional material amounts are expected to be received with respect to such insurance claims.

Note 13—Restructuring Costs:

In the second quarter of 2015, we initiated a restructuring plan designed to improve our long-term cost structure. A portion of such expected cost savings is planned to occur through workforce reductions. During the second, third and fourth quarters of 2015 we implemented certain voluntary and involuntary workforce reductions at certain of our facilities impacting approximately 160 individuals. A substantial portion of such workforce reductions were accomplished through voluntary programs, for which eligible workforce reduction costs are recognized at the time both the employee and employer are irrevocably committed to the terms of the separation. For involuntary programs, eligible costs are recognized when management approves the separation program, the affected employees are properly notified and the costs are estimable. To the extent there is a statutorily-mandated notice period and the affected employee is not required to provide services to us during such notice period, severance and all wages during such notice period are accrued at the time of separation. To the extent the affected employee is required to provide services to us during all or a portion of such notice period, the severance (and if applicable notice period wages for any period beyond the time the affected employee is required to provide future services to us) is accrued ratably over the period in which services will be provided. As of December 31, 2015 we had recognized an aggregate $21.7 million charge for such workforce reductions we had implemented through that date (substantially all of which was recognized in the second quarter of 2015), $10.8 million of which is classified in cost of sales and $10.9 million of which is classified in selling, general and administrative expense. For workforce reductions implemented through December 31, 2015, we do not expect to accrue any further material amounts associated with the affected individuals who are providing service to us past December 31, 2015. Substantially all of the accrued severance costs at December 31, 2016 are expected to be paid in the first quarter of 2017.

The table below presents a summary of the activity in our accrued workforce reduction costs during 2015 and 2016:

	Years ended December 31, 2015	2016
	(In millions)	
Balance at beginning of the year	$ —	$ 5.6
Workforce reduction costs accrued	21.7	—
Workforce reduction costs paid	(15.9)	(4.1)
Currency translation adjustments, net	(.2)	(.1)
Balance at end of the year	$ 5.6	$ 1.4
Amounts recognized in the balance sheet:		
Current liability	$ 5.3	$ 1.2
Noncurrent liability	.3	.2
	$ 5.6	$ 1.4

Note 14—Income Taxes:

	Years ended December 31, 2014	2015	2016
		(In millions)	
Pre-tax income (loss):			
U.S.	$ 59.2	$ 5.5	$11.5
Non-U.S.	74.5	(36.3)	49.7
Total	$133.7	$ (30.8)	$61.2
Expected tax expense (benefit), at U.S. federal statutory income tax rate of 35%	$ 46.8	$ (10.8)	$21.4
Non-U.S. tax rates	(4.2)	.5	(4.3)
Incremental net tax (benefit) on earnings and losses of non-U.S. companies	(3.7)	(8.7)	2.2
Valuation allowance	—	159.0	(2.2)
U.S.—Canada APA	—	—	(3.4)
Adjustment to the reserve for uncertain tax positions, net	(5.1)	.7	2.4
Nondeductible expenses	1.9	2.1	1.5
U.S. state income taxes and other, net	(1.2)	—	.3
Provision for income taxes	$ 34.5	$142.8	$17.9
Components of income tax expense:			
Currently payable:			
U.S. federal and state	$ 1.9	$ .3	$ —
Non-U.S.	15.2	3.3	9.5
	17.1	3.6	9.5
Deferred income taxes (benefit):			
U.S. federal and state	10.0	(6.4)	4.3
Non-U.S.	7.4	145.6	4.1
	17.4	139.2	8.4
Provision for income taxes	$ 34.5	$142.8	$17.9

	Years ended December 31,		
	2014	2015	2016
		(In millions)	
Comprehensive provision for income taxes (benefit) allocable to:			
Net income	$ 34.5	$142.8	$17.9
Other comprehensive income (loss):			
Currency translation	(16.9)	—	—
Marketable securities	(6.7)	1.1	1.3
Pension plans	(30.1)	1.5	(.8)
OPEB plans	(.4)	(.1)	(.2)
Interest rate swap	—	(1.3)	.2
Total	$(19.6)	$144.0	$18.4

The amount shown in the above table of our income tax rate reconciliation for non-U.S. tax rates represents the result determined by multiplying the pre-tax earnings or losses of each of our non-U.S. subsidiaries by the difference between the applicable statutory income tax rate for each non-U.S. jurisdiction and the U.S. federal statutory tax rate of 35%. The amount shown on such table for incremental net tax expense (benefit) on earnings and losses on non-U.S. companies includes, as applicable, (i) current income taxes (including withholding taxes, if applicable), if any, associated with any current-year earnings of our non-U.S. subsidiaries to the extent such current-year earnings were distributed to us in the current year, (ii) deferred income taxes (or deferred income tax benefit) associated with the current-year change in the aggregate amount of undistributed earnings of our Canadian subsidiary, which earnings are not subject to a permanent reinvestment plan, in an amount representing the current-year change in the aggregate current income tax that would be generated (including withholding taxes, if applicable) when such aggregate undistributed earnings are distributed to us, and (iii) current U.S. income taxes (or current income tax benefit), including U.S. personal holding company tax, as applicable, attributable to current-year income (losses) of one of our non-U.S. subsidiaries, which subsidiary is treated as a dual resident for U.S. income tax purposes, to the extent the current-year income (losses) of such subsidiary is subject to U.S. income tax under the U.S. dual-resident provisions of the Internal Revenue Code.

The components of our net deferred income taxes at December 31, 2015 and 2016 are summarized in the following table.

	December 31,			
	2015		2016	
	Assets	Liabilities	Assets	Liabilities
	(In millions)			
Tax effect of temporary differences related to:				
Inventories	$ 3.2	$ (3.5)	$ 3.7	$ (3.7)
Property and equipment	—	(59.3)	—	(58.1)
Accrued OPEB costs	2.0	—	2.0	—
Accrued pension cost	39.4	—	48.3	—
Currency revaluation on intercompany debt	18.6	—	24.0	—
Other accrued liabilities and deductible differences	19.4	—	12.6	—
Other taxable differences	—	(.5)	—	(.4)
Tax on unremitted earnings of non-U.S. subsidiaries	—	(1.9)	—	(2.9)
Tax loss and tax credit carryforwards	157.4	—	145.5	—
Valuation allowance	(168.9)	—	(173.4)	—
Adjusted gross deferred tax assets (liabilities)	71.1	(65.2)	62.7	(65.1)
Netting by tax jurisdiction	(57.1)	57.1	(54.6)	54.6
Net noncurrent deferred tax asset (liability)	$ 14.0	$ (8.1)	$ 8.1	$(10.5)

We have substantial net operating loss (NOL) carryforwards in Germany (the equivalent of $638 million and $71 million for German corporate and trade tax purposes, respectively, at December 31, 2016) and in Belgium (the equivalent of $93 million for Belgian corporate tax purposes at December 31, 2016), all of which have an indefinite carryforward period. As a result, we have net deferred income tax assets recognized with respect to these two jurisdictions, primarily related to these NOL carryforwards. The German corporate tax is similar to the U.S. federal income tax, and the German trade tax is similar to the U.S. state income tax. Prior to June 30, 2015, and using all available evidence, we had concluded no deferred income tax asset valuation allowance was required to be recognized with respect to these net deferred income tax assets under the more-likely-than-not recognition criteria, primarily because (i) the carryforwards have an indefinite carryforward period, (ii) we utilized a portion of such carryforwards during the most recent three-year period, and (iii) we expect to utilize the remainder of the carryforwards over the long term. We had also previously indicated that facts and circumstances could change, which might in the future result in the recognition of a valuation allowance against some or all of such deferred income tax assets. However, as of June 30, 2015, and given our operating results during the second quarter of 2015 and our expectations at that time for our operating results for the remainder of 2015, we did not have sufficient positive evidence to overcome the significant negative evidence of having cumulative losses in the most recent twelve consecutive quarters in both our German and Belgian jurisdictions at June 30, 2015 (even considering that the carryforward period of our German and Belgian NOL carryforwards is indefinite, one piece of positive evidence). Accordingly, at June 30, 2015, we concluded that we were required to recognize a non-cash deferred income tax asset valuation allowance under the more-likely-than-not recognition criteria with respect to our German and Belgian net deferred income tax assets. Such valuation allowance aggregated

$150.3 million at June 30, 2015. We recognized an additional $8.7 million non-cash deferred income tax asset valuation allowance under the more-likely-than-not recognition criteria during the third and fourth quarters of 2015. During 2016, we recognized an aggregate $2.2 million non-cash tax benefit as the result of a net decrease in such deferred income tax valuation allowance, as the impact of utilizing a portion of our German NOLs during such period more than offset the impact of additional losses recognized by our Belgian operations during such period. In addition to the aggregate $159.0 million increase and $2.2 million decrease in the deferred income tax asset valuation allowance recognized as part of the provision for income taxes in 2015 and 2016, respectively, the deferred income tax asset valuation allowance also increased by an aggregate of $9.8 million in 2015 and $6.7 million in 2016 due to amounts recognized in other comprehensive income.

Tax authorities are examining certain of our U.S. and non-U.S. tax returns and have or may propose tax deficiencies, including penalties and interest. Because of the inherent uncertainties involved in settlement initiatives and court and tax proceedings, we cannot guarantee that these tax matters will be resolved in our favor, and therefore our potential exposure, if any, is also uncertain.

- In 2011 and 2012 we received notices of re-assessment from the Canadian federal and provincial tax authorities related to the years 2002 through 2004. We objected to the re-assessments and believed the position was without merit. Accordingly, we appealed the re-assessments and in connection with such appeal we were required to post letters of credit aggregating Cdn. $7.9 million. In 2014, the Appeals Division of the Canadian Revenue Authority ruled in our favor and reversed in their entirety such notices of re-assessment. As a result, we recognized a non-cash income tax benefit of $3.0 million related to the release of a portion of our reserve for uncertain tax positions in 2014 related to the completion of this Canadian income tax audit. In addition, the related letters of credit have been cancelled.
- Also during 2014, we recognized a non-cash income tax benefit of $3.1 million related to the release of a portion of our reserve for uncertain tax positions in conjunction with the completion of an audit of our U.S. income tax return for 2009.
- As a result of ongoing audits in certain jurisdictions, in 2008 we filed Advance Pricing Agreement Requests with the tax authorities in the U.S., Canada and Germany. These requests have been under review with the respective tax authorities since 2008 and prior to 2016, it was uncertain whether an agreement would be reached between the tax authorities and whether we would agree to execute and finalize such agreements. During 2016, Contran, as the ultimate parent of our U.S. Consolidated income tax group, executed and finalized an Advance Pricing Agreement with the U.S. Internal Revenue Service and our Canadian subsidiary executed and finalized an Advance Pricing Agreement with the Competent Authority for Canada (collectively, the "U.S.-Canada APA") effective for tax years 2005—2015. Pursuant to the terms of the U.S.-Canada APA, the U.S. and Canadian tax authorities agreed to certain prior year changes to taxable income of our U.S. and Canadian subsidiaries. As a result of such agreed-upon changes, we recognized a $3.4 million current U.S. income tax benefit in 2016. In addition, our Canadian subsidiary will incur a cash income tax payment of approximately CAD $3 million (USD $2.3 million) as a result of the U.S.-Canada APA, but such payment was fully offset by previously provided accruals (such USD $2.3 million has not been paid as of December 31, 2016, and is classified as part of income taxes payable at such date). We currently expect the Advance Pricing Agreement between Canada and Germany (collectively, the "Canada-Germany APA") to be executed and finalized within the next twelve months. We believe we have adequate accruals to cover any cash

income tax payment which might result from the finalization of the Canada-Germany APA, and accordingly we do not expect the execution of such APA to have a material adverse effect on our consolidated financial position, results of operations or liquidity.

We believe we have adequate accruals for additional taxes and related interest expense which could ultimately result from tax examinations. We believe the ultimate disposition of tax examinations should not have a material adverse effect on our consolidated financial position, results of operations or liquidity.

We accrue interest and penalties on our uncertain tax positions as a component of our provision for income taxes. The amount of interest and penalties we accrued during 2014, 2015 and 2016 was not material, and at December 31, 2014, 2015 and 2016, we had $2.8 million, $2.3 million and $2.5 million, respectively, accrued for interest and penalties for our uncertain tax positions.

The following table shows the changes in the amount of our uncertain tax positions (exclusive of the effect of interest and penalties discussed above) during 2014, 2015 and 2016:

	Years ended December 31,		
	2014	2015	2016
		(In millions)	
Changes in unrecognized tax benefits:			
Unrecognized tax benefits at beginning of year	$15.9	$10.4	$ 9.7
Net increase (decrease):			
Tax positions taken in prior periods	(5.4)	(.3)	(.1)
Tax positions taken in current period	1.1	1.1	2.5
Lapse due to applicable statute of limitations	—	(.2)	(.2)
Settlements with taxing authorities	—	—	(2.3)
Change in currency exchange rates	(1.2)	(1.3)	.3
Unrecognized tax benefits at end of year	$10.4	$ 9.7	$ 9.9

If our uncertain tax positions were recognized, a benefit of $8.8 million, $7.8 million and $10.6 million would affect our effective income tax rates for 2014, 2015 and 2016 respectively. At December 31, 2016, we currently estimate that our unrecognized tax benefits may decrease by $6.3 million excluding interest during the next twelve months related to certain adjustments to our prior year returns and the expiration of certain statutes of limitations.

We and Contran file income tax returns in U.S. federal and various state and local jurisdictions. We also file income tax returns in various non-U.S. jurisdictions, principally in Germany, Canada, Belgium and Norway. Our U.S. income tax returns prior to 2013 are generally considered closed to examination by applicable tax authorities. Our non-U.S. income tax returns are generally considered closed to examination for years prior to 2012 for Germany, 2013 for Belgium, 2011 for Canada and 2007 for Norway.

Note 15—Stockholders' Equity:

Long-term incentive compensation plan—Prior to 2014, our board of directors adopted a new plan that would provide for the award of stock to our board of directors, and up to a maximum of 200,000 shares could be awarded. We awarded 8,000 shares in each of 2014 and 2015 and 13,500 shares in 2016 under this plan, and 163,500 shares are available for future award under this plan at December 31, 2016.

Stock repurchase program—Prior to 2014, our board of directors authorized the repurchase of up to 2.0 million shares of our common stock in open market transactions, including block purchases, or in privately-negotiated transactions at unspecified prices and over an unspecified period of time. We may repurchase our common stock from time to time as market conditions permit. The stock repurchase program does not include specific price targets or timetables and may be suspended at any time. Depending on market conditions, we may terminate the program prior to its completion. We would use cash on hand or other sources of liquidity to acquire the shares. Repurchased shares will be added to our treasury and cancelled. At December 31, 2016, 1,951,000 shares are available for repurchase under this authorization.

Accumulated other comprehensive loss—Changes in accumulated other comprehensive loss for 2014, 2015 and 2016 are presented in the table below.

	Years ended December 31, 2014	2015	2016
	(In millions)		
Accumulated other comprehensive loss, net of tax:			
Currency translation:			
Balance at beginning of year	$ (56.8)	$(159.8)	$(252.0)
Other comprehensive loss	(103.0)	(92.2)	(17.6)
Balance at end of year	$(159.8)	$(252.0)	$(269.6)
Marketable securities:			
Balance at beginning of year	$ 10.8	$ (2.9)	$ (.6)
Other comprehensive income (loss):			
Unrealized gains (losses) arising during the year	(13.7)	(6.5)	2.4
Less reclassification adjustment for amounts included in realized loss	—	8.8	—
Balance at end of year	$ (2.9)	$ (.6)	$ 1.8
Defined benefit pension plans:			
Balance at beginning of year	$(109.4)	$(175.4)	$(159.2)
Other comprehensive income (loss):			
Amortization of prior service cost and net losses included in net periodic pension cost	7.2	10.0	8.5
Net actuarial gain (loss) arising during year	(73.2)	6.2	(34.1)
Balance at end of year	$(175.4)	$(159.2)	$(184.8)
OPEB plans:			
Balance at beginning of year	$ 3.4	$ 2.3	$ 2.1
Other comprehensive (income) loss:			
Amortization of prior service credit and net losses included in net periodic OPEB cost	(.5)	(.4)	(.4)
Net actuarial gain (loss) arising during year	(.6)	.2	.1
Balance at end of year	$ 2.3	$ 2.1	$ 1.8
Interest rate swap:			
Balance at beginning of year	$ —	$ —	$ (2.3)
Other comprehensive loss:			
Unrealized losses arising during the year	—	(2.9)	(2.0)
Less reclassification adjustment for amounts included in interest expense	—	.6	2.3
Balance at end of year	$ —	$ (2.3)	$ (2.0)
Total accumulated other comprehensive loss:			
Balance at beginning of year	$(152.0)	$(335.8)	$(412.0)
Other comprehensive loss	(183.8)	(76.2)	(40.8)
Balance at end of year	$(335.8)	$(412.0)	$(452.8)

See Note 6 for further discussion of our marketable securities, Note 10 for amounts related to our defined benefit pension plans and OPEB plans and Note 18 for discussion of our interest rate swap contract.

Note 16—Related Party Transactions:

We may be deemed to be controlled by Ms. Simmons and Ms. Connelly. See Note 1. Corporations that may be deemed to be controlled by or affiliated with such individuals sometimes engage in (a) intercorporate transactions such as guarantees, management and expense sharing arrangements, shared fee arrangements, joint ventures, partnerships, loans, options, advances of funds on open account, and sales, leases and exchanges of assets, including securities issued by both related and unrelated parties and (b) common investment and acquisition strategies, business combinations, reorganizations, recapitalizations, securities repurchases, and purchases and sales (and other acquisitions and dispositions) of subsidiaries, divisions or other business units, which transactions have involved both related and unrelated parties and have included transactions which resulted in the acquisition by one related party of a publicly-held noncontrolling interest in another related party. While no transactions of the type described above are planned or proposed with respect to us other than as set forth in these financial statements, we continuously consider, review and evaluate, and understand that Contran and related entities consider, review and evaluate such transactions. Depending upon the business, tax and other objectives then relevant, it is possible that we might be a party to one or more such transactions in the future.

Current receivables from and payables to affiliates are summarized in the table below.

	December 31,	
	2015	2016
	(In millions)	
Current receivable from affiliate:		
Income taxes receivable from Valhi	$ —	$ .7
Other	2.5	2.8
	$ 2.5	$ 3.5
Current payables to affiliates:		
LPC	$19.4	$14.7
Income taxes payable to Valhi	.1	—
Total	$19.5	$14.7

Amounts payable to LPC are generally for the purchase of TiO_2, while amounts receivable from LPC are generally from the sale of TiO_2 feedstock. See Note 5. Purchases of TiO_2 from LPC were $193.1 million in 2014, $176.5 million in 2015 and $157.9 million in 2016. Sales of feedstock to LPC were $98.4 million in 2014, $80.6 million in 2015 and $68.8 million in 2016.

From time to time, we may have loans and advances outstanding between us and various related parties pursuant to term and demand notes. We generally enter into these loans and advances for cash management purposes. When we loan funds to related parties, we are generally able to earn a higher rate of return on the loan than we would earn if we invested the funds in other instruments, and when we borrow from related parties, we are generally able to pay a lower rate of interest than we would pay if we had incurred third-party indebtedness. While certain of these loans to affiliates may be of a lesser credit quality than cash equivalent instruments otherwise available to us, we believe we have considered the credit risks in the terms of the applicable loans. In this regard:

- In November 2010, we entered into an unsecured revolving demand promissory note with Valhi whereby, as amended, we agreed to loan Valhi up to $60 million. Our loan to Valhi bears interest at prime plus 1.00%, payable quarterly, with all principal due on demand, but in any event no earlier than December 31, 2018. The amount of our outstanding loans to Valhi at any time is at our discretion. As of December 31, 2015 and 2016, we had no outstanding loans to Valhi under this promissory note; and
- In February 2013, we entered into a promissory note with Contran in which we borrowed $190 million on this note and subsequently repaid $20 million during 2013. We prepaid and cancelled this note payable to Contran in February 2014 using a portion of the net proceeds of our new term loan. See Note 8.

Interest income (including unused commitment fees) on our loan to Valhi was $.5 million in each of 2014 and 2015 and $.4 million in 2016. Interest expense on our loan from Contran was $1.6 million in 2014.

Under the terms of various intercorporate services agreements (ISAs) entered into between us and various related parties, including Contran, employees of one company will provide certain management, tax planning, financial and administrative services to the other company on a fee basis. Such charges are based upon estimates of the time devoted by the employees of the provider of the services to the affairs of the recipient, and the compensation and associated expenses of such persons. Because of the large number of companies affiliated with Contran, we believe we benefit from cost savings and economies of scale gained by not having certain management, financial and administrative staffs duplicated at each entity, thus allowing certain individuals to provide services to multiple companies but only be compensated by one entity. The net ISA fee charged to us, approved by the independent members of our board of directors, is included in selling, general and administrative expense and corporate expense and was $12.3 million in 2014, $13.4 million in 2015 and $15.2 million in 2016. This agreement is renewed annually and we expect to pay approximately $15.7 million under the ISA during 2017.

Contran and certain of its subsidiaries and affiliates, including us, purchase certain of their insurance policies as a group, with the costs of the jointly-owned policies being apportioned among the participating companies. Tall Pines Insurance Company and EWI RE, Inc., each subsidiaries of Valhi, provide for or broker certain insurance policies for Contran and certain of its subsidiaries and affiliates, including ourselves. Tall Pines purchases reinsurance from third-party insurance carriers with an A.M. Best Company rating of generally at least A-(excellent) for substantially all of the risks it underwrites. Consistent with insurance industry practices, Tall Pines and EWI receive commissions from insurance and reinsurance underwriters and/or assess fees for the policies that they provide or broker. The aggregate premiums paid to Tall Pines and EWI by us and our joint venture were $10.7 million in 2014, $10.3 million in 2015 and $9.2 million in 2016. These amounts principally represent payments for insurance premiums, which include premiums or fees paid to Tall Pines or fees paid to EWI. These amounts also include payments to insurers or reinsurers through EWI for the reimbursement of claims within our applicable deductible or retention ranges that such insurers or reinsurers paid to third parties on our behalf, as well as amounts for claims and risk management services and various other third-party fees and expenses incurred by the program. We expect these relationships with Tall Pines and EWI will continue in 2017.

With respect to certain of such jointly-owned policies, it is possible that unusually large losses incurred by one or more insureds during a given policy period could leave the other participating companies without adequate coverage under that policy for the balance of the policy period. As a result, and in the event that the available coverage under a particular policy would become exhausted by one or more claims, Contran and certain of its subsidiaries and affiliates, including us, have entered into a loss sharing agreement under which any uninsured loss arising because the available coverage had been exhausted by one or more claims will be shared ratably amongst those entities that had submitted claims under the relevant policy. We believe the benefits, in the form of reduced premiums and broader coverage associated with the group coverage for such policies, justifies the risk associated with the potential for any uninsured loss.

Contran and certain of its subsidiaries, including us, participate in a combined information technology data recovery program that Contran provides from a data recovery center that it established. Pursuant to the program, Contran and certain of its subsidiaries, including us, as a group share information technology data recovery services. The program apportions its costs among the participating companies. We paid Contran $.1 million in each of 2014, 2015 and 2016 for such services. We expect that this relationship with Contran will continue in 2017.

Note 17—Commitments and Contingencies:

Environmental matters—Our operations are governed by various environmental laws and regulations. Certain of our operations are and have been engaged in the handling, manufacture or use of substances or compounds that may be considered toxic or hazardous within the meaning of applicable environmental laws and regulations. As with other companies engaged in similar businesses, certain of our past and current operations and products have the potential to cause environmental or other damage. We have implemented and continue to implement various policies and programs in an effort to minimize these risks. Our policy is to maintain compliance with applicable environmental laws and regulations at all of our facilities and to strive to improve our environmental performance. From time to time, we may be subject to environmental regulatory enforcement under U.S. and non-U.S. statutes, the resolution of which typically involves the establishment of compliance programs. It is possible that future developments, such as stricter requirements of environmental laws and enforcement policies thereunder, could adversely affect our production, handling, use, storage, transportation, sale or disposal of such substances. We believe all of our manufacturing facilities are in substantial compliance with applicable environmental laws.

Litigation matters—We are involved in various environmental, contractual, product liability, patent (or intellectual property), employment and other claims and disputes incidental to our business. At least quarterly our management discusses and evaluates the status of any pending litigation to which we are a party. The factors considered in such evaluation include, among other things, the nature of such pending cases, the status of such pending cases, the advice of legal counsel and our experience in similar cases (if any). Based on such evaluation, we make a determination as to whether we believe (i) it is probable a loss has been incurred, and if so if the amount of such loss (or a range of loss) is reasonably estimable, or (ii) it is reasonably possible but not probable a loss has been incurred, and if so if the amount of such loss (or a range of loss) is reasonably estimable, or (iii) the probability a loss has been incurred is remote. We have not accrued any amounts for either of the two pending matters discussed below, as it is not reasonably possible we have incurred a loss in either case that would be material to our consolidated financial condition, results of operations or liquidity.

In March 2013, we were served with the complaint, Los Gatos Mercantile, Inc. d/b/a Los Gatos Ace Hardware, et al v. E.I. Du Pont de Nemours and Company, et al. (United States District Court, for the Northern District of California, Case No. 3:13-cv-01180-SI). The defendants include us, E.I. Du Pont de Nemours & Company, Huntsman International LLC and Millennium Inorganic Chemicals, Inc. As amended by plaintiffs' third amended complaint (Harrison, Jan, et al v. E.I. Du Pont de Nemours and Company, et al), plaintiffs seek to represent a class consisting of indirect purchasers of titanium dioxide in the states of Arizona, Arkansas, California, the District of Columbia, Florida, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Mexico, New York, North Carolina, Oregon and Tennessee that indirectly purchased titanium dioxide from one or more of the defendants on or after March 1, 2002. The complaint alleges that the defendants conspired and combined to fix, raise, maintain, and stabilize the price at which titanium dioxide was sold in the United States and engaged in other anticompetitive conduct. The case is now proceeding in the trial court. We believe the action is without merit, will deny all allegations of wrongdoing and liability and intend to defend against the action vigorously. Based on our quarterly status evaluation of this case, we have determined that it is not reasonably possible that a loss has been incurred in this case.

In September 2016, we were served with the complaint, Home Depot U.S.A., Inc. v. E.I. Dupont Nemours and Company, et al. (United States District Court, for the Northern District of California, Case No. 3:16-cv-04865). The defendants include us, E.I. Du Pont de Nemours & Company, Huntsman International LLC and Millennium Inorganic Chemicals, Inc. The plaintiff alleges that it indirectly purchased titanium dioxide from one or more of the defendants on or after March 1, 2002. The complaint alleges that the defendants conspired and combined to fix, raise, maintain, and stabilize the price at which titanium dioxide was sold in the United States and engaged in other anticompetitive conduct. The case is now proceeding in the trial court. We believe the action is without merit, will deny all allegations of wrongdoing and liability and intend to defend against the action vigorously. Based on our quarterly status evaluation of this case, we have determined that it is not reasonably possible that a loss has been incurred in this case.

Concentrations of credit risk—Sales of TiO_2 accounted for 90%, 92% and 93% of our sales in 2014, 2015 and 2016, respectively. The remaining sales result from the mining and sale of ilmenite ore (a raw material used in the sulfate pigment production process), and the manufacture and sale of iron-based water treatment chemicals and certain titanium chemical products (derived from co-products of the TiO_2 production processes). TiO_2 is generally sold to the paint, plastics and paper industries. Such markets are generally considered "quality-of-life" markets whose demand for TiO_2 is influenced by the relative economic well-being of the various geographic regions. We sell TiO_2 to over 4,000 customers, with the top ten customers approximating 35% of net sales in 2014, 34% in 2015 and 33% in 2016. In each of 2014, 2015 and 2016 one customer, Behr Process Corporation, accounted for approximately 10% of our net sales. The table below shows the approximate percentage of our TiO_2 sales by volume for our significant markets, Europe and North America, for the last three years.

	2014	2015	2016
Europe	50%	52%	51%
North America	33%	29%	29%

Long-term contracts—We have long-term supply contracts that provide for certain of our TiO_2 feedstock requirements through 2019. The agreements require us to purchase certain minimum quantities of feedstock with minimum purchase commitments aggregating approximately $605 million over the life of the contracts in years subsequent to December 31, 2016. In addition, we have other long-term supply and service contracts that provide for various raw materials and services. These agreements require us to purchase certain minimum quantities or services with minimum purchase commitments aggregating approximately $158 million at December 31, 2016.

Operating leases—Our principal German operating subsidiary leases the land under its Leverkusen TiO_2 production facility pursuant to a lease with Bayer AG that expires in 2050. The Leverkusen facility itself, which we own and which represents approximately one-third of our current TiO_2 production capacity, is located within Bayer's extensive manufacturing complex. We periodically establish the amount of rent for the land lease associated with the Leverkusen facility by agreement with Bayer for periods of at least two years at a time. The lease agreement provides for no formula, index or other mechanism to determine changes in the rent for such land lease; rather, any change in the rent is subject solely to periodic negotiation between Bayer and us. We recognize any change in the rent based on such negotiations as part of lease expense starting from the time such change is agreed upon by both parties, as any such change in the rent is deemed "contingent rentals" under GAAP. Under the terms of various supply and services agreements, majority-owned subsidiaries of Bayer provide raw materials, including chlorine, auxiliary and operating materials, utilities and services necessary to operate the Leverkusen facility. These agreements, as amended, expire in 2017 through 2019. We expect to renew these agreements prior to expiration at similar terms and conditions.

We also lease various other manufacturing facilities and equipment. Some of the leases contain purchase and/or various term renewal options at fair market and fair rental values, respectively. In most cases we expect that, in the normal course of business, such leases will be renewed or replaced by other leases. Net rent expense approximated $16 million in 2014 and $14 million in each of 2015 and 2016. At December 31, 2016, future minimum payments under non-cancellable operating leases having an initial or remaining term of more than one year were as follows:

Years ending December 31,	Amount (In millions)
2017	$10.8
2018	6.3
2019	5.0
2020	4.1
2021	3.5
2022 and thereafter	23.3
Total	$53.0

Approximately $16 million of the $53.0 million aggregate future minimum rental commitments at December 31, 2016 relates to our Leverkusen facility lease discussed above. The minimum commitment amounts for such lease included in the table above for each year through the 2050 expiration of the lease are based upon the current annual rental rate as of December 31, 2016. As discussed above, any change in the rent is based solely on negotiations between Bayer and us, and any such change in the rent is deemed "contingent rentals" under GAAP which is excluded from the future minimum lease payments disclosed above.

Income taxes—We and Valhi are a party to a tax sharing agreement providing for the allocation of tax liabilities and tax payments as described in Note 1. Under applicable law, we, along with every other member of the Contran Tax Group, are each jointly and severally liable for the aggregate federal income tax liability of Contran and the other companies included in the Contran Tax Group for all periods in which we are included in the Contran Tax Group. Valhi has agreed, however, to indemnify us for any liability for income taxes of the Contran Tax Group in excess of our tax liability computed in accordance with the tax sharing agreement.

Note 18—Financial Instruments:

The following table summarizes the valuation of our financial instruments recorded on a fair value basis as of December 31, 2015 and 2016:

	Fair value measurements			
	Total	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
	(In millions)			
Asset (liability)				
December 31, 2015:				
Currency forward contracts	$(1.2)	$(1.2)	$ —	$—
Interest rate swap contract	(3.5)	—	(3.5)	—
Noncurrent marketable securities (See Note 6)	2.4	2.4	—	—
December 31, 2016:				
Interest rate swap contract	$(3.1)	$ —	$(3.1)	$—
Noncurrent marketable securities (See Note 6)	6.0	6.0	—	—

Our earnings and cash flows are subject to fluctuations due to changes in currency exchange rates and interest rates. Our risk management policy allows for the use of derivative financial instruments to prudently manage exposure to currency exchange rates and interest rates. Derivatives that we use are primarily currency forward contracts and interest rate swaps. We have not entered into these contracts for trading or speculative purposes in the past, nor do we currently anticipate entering into such contracts for trading or speculative purposes in the future.

Currency forward contracts—Certain of our sales generated by our non-U.S. operations are denominated in U.S. dollars. We periodically use currency forward contracts to manage a very nominal portion of currency exchange rate risk associated with trade receivables denominated in a currency other than the holder's functional currency or similar exchange rate risk associated with future sales. Derivatives used to hedge forecasted transactions and specific cash flows associated with financial assets and liabilities denominated in currencies other than the U.S. dollar and which meet the criteria for hedge accounting are designated as cash flow hedges. Consequently, the effective portion of gains and losses is deferred as a component of accumulated other comprehensive income and is recognized in earnings at the time the hedged item affects earnings. Contracts that do not meet the criteria for hedge accounting are marked-to-market at each balance sheet date with any resulting gain or loss recognized in income currently as part of net currency transaction gains and losses. The fair value of the currency forward contracts is determined using Level 1 inputs based on the currency spot forward rates quoted by banks or currency dealers.

At December 31, 2016, we had no currency forward contracts outstanding. The estimated value of such currency forward contracts at December 31, 2015 was a $1.2 million net liability, which is recognized as part of accounts payable and accrued liabilities in our Consolidated Balance Sheet at such date. We did not use hedge accounting for any of our contracts to the extent we held such contracts during 2014, 2015 and 2016.

Interest rate swap contract—As part of our interest rate risk management strategy, in August 2015 we entered into a pay-fixed/receive-variable interest rate swap contract with Wells

Fargo Bank, N.A. to minimize our exposure to volatility in LIBOR as it relates to our forecasted outstanding variable-rate indebtedness. Under this interest rate swap, we will pay a fixed rate of 2.016% per annum, payable quarterly, and receive a variable rate of three-month LIBOR (subject to a 1.00% floor), also payable quarterly, in each case based on the notional amount of the swap then outstanding. The effective date of the swap contract was September 30, 2015. The notional amount of the swap started at $344.8 million and declines by $875,000 each quarter beginning December 31, 2015, with a final maturity of the swap contract in February 2020. The notional amount of the swap as of December 31, 2016 was $340.4 million. This swap contract has been designated as a cash flow hedge and qualified as an effective hedge at inception under ASC Topic 815. The effective portion of changes in fair value on this interest rate swap is recorded as a component of other comprehensive income, net of deferred income taxes. Commencing in the fourth quarter of 2015, as interest expense accrues on LIBOR-based variable rate debt, we classify the amount we pay under the pay-fixed leg of the swap and the amount we receive under the receive-variable leg of the swap as part of interest expense, with the net effect that the amount of interest expense we recognize on our LIBOR-based variable rate debt each quarter, as it relates to the notional amount of the swap outstanding each quarter, to be based on a fixed rate of 2.016% per annum in lieu of the level of LIBOR prevailing during the quarter. The amount of hedge ineffectiveness, if any, related to the swap will be recorded in earnings (also as part of interest expense). Since the inception of the swap through December 31, 2016, there have been no gains or losses recognized in earnings in the current period representing hedge ineffectiveness with respect to the interest rate swap.

During 2015 and 2016, the pretax unrealized loss arising during the year and recognized in other comprehensive income related to the interest rate swap contract was $4.4 million and $3.1 million, respectively. During 2015 and 2016, $.9 million and $3.5 million, respectively, were reclassified from accumulated other comprehensive income into earnings (interest expense). During the next twelve months, the amount of the December 31, 2016 accumulated other comprehensive income balance that is expected to be reclassified to earnings is $3.5 million pre-tax.

The fair value of the interest rate swap contract at December 31, 2016 was a $3.1 million liability including $2.9 million recognized as part of accounts payable and accrued liabilities and $.2 million recognized as part of other noncurrent liabilities in our Condensed Consolidated Balance Sheet (at December 31, 2015, we had a $3.5 million liability of which $3.3 million was recognized as part of accounts payable and accrued liabilities and $.2 million recognized as part of other noncurrent liabilities). See Notes 9 and 11. The fair value of the interest rate swap was estimated by a third party using inputs that are observable or that can be corroborated by observable market data such as interest rate yield curves, and therefore, is classified within Level 2 of the valuation hierarchy.

The following table presents the financial instruments that are not carried at fair value but which require fair value disclosure as of December 31, 2015 and 2016.

	December 31, 2015		December 31, 2016	
	Carrying amount	Fair value	Carrying amount	Fair value
	(In millions)			
Cash, cash equivalents and restricted cash	$ 94.3	$ 94.3	$ 52.3	$ 52.3
Variable rate term loan	338.0	309.5	335.9	334.6
Common stockholders' equity	461.9	653.6	395.0	1,383.8

At December 31, 2016, the estimated market price of our term loan was $983 per $1,000 principal amount. The fair value of our term loan was based on quoted market prices; however, these quoted market prices represented Level 2 inputs because the markets in which the term loan trades were not active. The fair value of our common stockholders' equity is based upon quoted market prices at each balance sheet date, which represent Level 1 inputs. Due to their near-term maturities, the carrying amounts of accounts receivable and accounts payable are considered equivalent to fair value. See Notes 3 and 9.

Note 19—Recent Accounting Pronouncements:

Adopted

In August 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*. This standard provides guidance on eight specific cash flow issues including: debt prepayment or debt extinguishment costs, proceeds from the settlement of insurance claims, distributions from equity method investees and separately identifiable cash flows and application of the predominance principle. The new standard is effective for us beginning with the first quarter of 2018. We have elected to adopt this ASU with this Annual Report without any material effect on the presentation of cash flows in our previously issued Consolidated Financial Statements.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. This standard provides guidance on the cash flow classification of changes in restricted cash and additional disclosure requirements regarding the nature of restrictions on cash. The new standard is effective for us beginning with the first quarter of 2018. We have elected to adopt this ASU retrospectively beginning with this Annual Report and accordingly we have presented all changes in cash, cash equivalents and restricted cash in the statement of cash flows and provided additional disclosure regarding the composition and classification of cash, cash equivalents and restricted cash in our Consolidated Balance Sheets and related Footnotes. As a result, net cash used in investing activities increased from $54.0 million to $61.2 million for the year ended December 31, 2014, and increased from $46.8 million to $47.1 million for the year ended December 31, 2015, and the negative effect of exchange rate changes on cash, cash equivalents and restricted cash increased from $9.4 million to $10.0 million for the year ended December 31, 2014, and increased from $8.4 million to $8.5 million for the year ended December 31, 2015.

Pending adoption

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*. This standard replaces existing revenue recognition guidance, which in many cases was tailored for specific industries, with a uniform accounting standard applicable to all industries and transactions. The new standard, as amended, is currently effective for us beginning with the first quarter of 2018. Entities may elect to adopt ASU No. 2014-09 retrospectively for all periods for all contracts and transactions which occurred during the period (with a few exceptions for practical expediency) or retrospectively with a cumulative effect recognized as of the date of adoption. ASU No. 2014-09 is a fundamental rewriting of existing GAAP with respect to revenue recognition, and we are still evaluating the effect the standard will have on our Consolidated Financial Statements. We currently expect to adopt the standard in the first quarter of 2018 using the modified retrospective approach to adoption. Our sales generally involve single performance obligations to ship goods pursuant to customer purchase orders without further underlying contracts, and as such we expect adoption of this standard will have a minimal effect on our revenues. We are in the process of evaluating the additional disclosure requirements.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, which addresses certain aspects related to the recognition, measurement, presentation and disclosure of financial instruments. The ASU requires equity investments (except for those accounted for under the equity method of accounting or those that result in the consolidation of the investee) to generally be measured at fair value with changes in fair value recognized in net income. The amendment also requires a number of other changes, including among others: simplifying the impairment assessment for equity instruments without readily determinable fair values; eliminating the requirement for public business entities to disclose methods and assumptions used to determine fair value for financial instruments measured at amortized cost; requiring an exit price notion when measuring the fair value of financial instruments for disclosure purposes; and requiring separate presentation of financial assets and liabilities by measurement category and form of asset. The changes indicated above will be effective for us beginning in the first quarter of 2018, with prospective application required, and early adoption is not permitted. The most significant aspect of adopting this ASU will be the requirement to recognize changes in fair value of our available-for-sale marketable equity securities in net income (currently changes in fair value of such securities are recognized in other comprehensive income).

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*, which is a comprehensive rewriting of the lease accounting guidance which aims to increase comparability and transparency with regard to lease transactions. The primary change will be the recognition of lease assets for the right-of-use of the underlying asset and lease liabilities for the obligation to make payments by lessees on the balance sheet for leases currently classified as operating leases. The ASU also requires increased qualitative disclosure about leases in addition to quantitative disclosures currently required. Companies are required to use a modified retrospective approach to adoption with a practical expedient which will allow companies to continue to account for existing leases under the prior guidance unless a lease is modified, other than the requirement to recognize the right-of-use asset and lease liability for all operating leases. The changes indicated above will be effective for us beginning in the first quarter of 2019, with early adoption is permitted. We are in the process of assessing all of our current leases. We have not yet evaluated the effect this ASU will have on our Consolidated Financial Statements, but given the material amount of our future minimum payments under non-cancellable operating leases at December 31, 2016 discussed in Note 17, we expect to recognize a material right-of-use lease asset and lease liability upon adoption of the ASU.

Note 20—Quarterly Results of Operations (Unaudited):

	Quarter ended			
	March 31	June 30	September 30	December 31
	(In millions, except per share data)			
Year ended December 31, 2015				
Net sales	$365.1	$ 360.2	$336.5	$287.0
Gross margin	77.4	46.5	43.2	25.2
Net income (loss)	18.4	(159.8)	(11.8)	(20.4)
Basic and diluted income (loss) per share	$ .16	$ (1.38)	$ (.10)	$ (.18)
Year ended December 31, 2016				
Net sales	$318.4	$ 356.1	$356.1	$333.7
Gross margin	40.4	55.5	75.5	85.6
Net income (loss)	(3.8)	1.7	22.2	23.2
Basic and diluted income (loss) per share	$ (.03)	$ .01	$ .19	$ .20

We recognized the following amounts during 2015:

- pretax charges of $21.1 million, $.4 million and $.2 million in the second, third and fourth quarters, respectively, in workforce reduction charges (see Note 13),
- a $12.0 million non-cash pretax impairment charge in the third quarter due to other-than-temporary impairment on our investment in a marketable security held for sale (see Note 6), and
- non-cash deferred income tax expense of $150.3 million, $2.3 million and $6.4 million in the second, third and fourth quarters, respectively, related to the recognition of a deferred income tax asset valuation allowance related to our German and Belgium operations (see Note 14).

We recognized the following amounts during 2016:

- pre-tax insurance settlement gains of $2.0 million, $1.4 million and $.9 million in the first, second and fourth quarters, respectively, (see Note 12),
- current income tax benefit of $5.6 million in the third quarter, and current income tax expense of $2.2 million in the fourth quarter, related to the execution and finalization of an Advance Pricing Agreement between the U.S. and Canada (see Note 14),
- non-cash deferred income tax expense (benefit) of $2.9 million, $(.8) million and $(4.3) million in the second, third and fourth quarters, respectively, as the result of a net decrease in our deferred income tax asset valuation allowance related to our German and Belgian operations (see Note 14), and
- non-cash income tax expense of $2.4 million related to an increase in our reserve for uncertain tax positions, mostly in the fourth quarter.

The sum of the quarterly per share amounts may not equal the annual per share amounts due to relative changes in the weighted average number of shares used in the per share computations.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED BALANCE SHEETS
(In millions)

	December 31, 2016	June 30, 2017
		(unaudited)
ASSETS		
Current assets:		
Cash and cash equivalents	$ 50.7	$ 114.1
Restricted cash	1.6	1.3
Accounts and other receivables	244.6	334.8
Inventories, net	343.5	341.8
Prepaid expenses and other	10.0	8.0
Total current assets	650.4	800.0
Other assets:		
Investment in TiO_2 manufacturing joint venture	78.9	70.5
Marketable securities	6.0	5.2
Deferred income taxes	8.1	127.8
Other	2.2	3.0
Total other assets	95.2	206.5
Property and equipment:		
Land	37.3	40.0
Buildings	195.8	210.3
Equipment	947.4	1,031.5
Mining properties	108.1	112.5
Construction in progress	38.7	47.5
	1,327.3	1,441.8
Less accumulated depreciation and amortization	893.3	975.4
Net property and equipment	434.0	466.4
Total assets	$1,179.6	$1,472.9
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current maturities of long-term debt	$ 3.6	$ 3.6
Accounts payable and accrued liabilities	173.5	195.9
Income taxes	5.0	11.4
Total current liabilities	182.1	210.9
Noncurrent liabilities:		
Long-term debt	335.4	350.8
Accrued pension cost	227.3	246.0
Accrued postretirement benefits cost	6.9	7.1
Deferred income taxes	10.5	8.6
Other	22.4	28.7
Total noncurrent liabilities	602.5	641.2
Stockholders' equity:		
Common stock	1.2	1.2
Additional paid-in capital	1,398.8	1,399.0
Retained deficit	(552.2)	(353.7)
Accumulated other comprehensive loss	(452.8)	(425.7)
Total stockholders' equity	395.0	620.8
Total liabilities and stockholders' equity	$1,179.6	$1,472.9

Commitments and contingencies (Notes 11 and 13)

See accompanying notes to Condensed Consolidated Financial Statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In millions, except per share data)

	Six months ended June 30,	
	2016	2017
	(unaudited)	
Net sales	$674.5	$ 811.2
Cost of sales	578.6	578.0
Gross margin	95.9	233.2
Selling, general and administrative expense	86.1	99.4
Other operating income (expense):		
Currency transaction gains (losses), net	4.2	(3.7)
Other operating expense, net	(3.8)	(7.7)
Income from operations	10.2	122.4
Other income (expense):		
Interest and dividend income	.4	.3
Interest expense	(10.2)	(9.5)
Income before income taxes	.4	113.2
Income tax expense (benefit)	2.5	(120.1)
Net income (loss)	$ (2.1)	$ 233.3
Net income (loss) per basic and diluted share	$ (.02)	$ 2.01
Cash dividends per share	$ .30	$ .30
Weighted average shares used in the calculation of net income (loss) per share	115.9	115.9

See accompanying notes to Condensed Consolidated Financial Statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In millions)

	Six months ended June 30, 2016	Six months ended June 30, 2017
	(unaudited)	
Net income (loss)	$ (2.1)	$233.3
Other comprehensive income (loss), net of tax:		
Currency translation	9.4	23.8
Marketable securities	.2	(.6)
Defined benefit pension plans	5.8	3.9
Other postretirement benefit plans	(.2)	(.2)
Interest rate swap	(3.7)	.2
Total other comprehensive income, net	11.5	27.1
Comprehensive income	$ 9.4	$260.4

See accompanying notes to Condensed Consolidated Financial Statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY

Six months ended June 30, 2017
(In millions)

	Common stock	Additional paid-in capital	Retained earnings (deficit)	Accumulated other comprehensive loss	Total
			(unaudited)		
Balance at December 31, 2016	$1.2	$1,398.8	$(552.2)	$(452.8)	$395.0
Net income	—	—	233.3	—	233.3
Other comprehensive income, net of tax	—	—	—	27.1	27.1
Issuance of common stock	—	.2	—	—	.2
Dividends paid	—	—	(34.8)	—	(34.8)
Balance at June 30, 2017	$1.2	$1,399.0	$(353.7)	$(425.7)	$620.8

See accompanying notes to Condensed Consolidated Financial Statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In millions)

	Six months ended June 30, 2016	Six months ended June 30, 2017
	(unaudited)	
Cash flows from operating activities:		
Net income (loss)	$ (2.1)	$ 233.3
Depreciation and amortization	20.8	20.2
Deferred income taxes	.5	(144.4)
Benefit plan expense greater than cash funding	1.8	5.1
Distributions from TiO_2 manufacturing joint venture, net	6.6	8.4
Other, net	(.9)	.9
Change in assets and liabilities:		
Accounts and other receivables	(47.9)	(75.1)
Inventories	57.6	22.9
Prepaid expenses	2.4	2.5
Accounts payable and accrued liabilities	(9.5)	15.2
Income taxes	(4.4)	6.5
Accounts with affiliates	(8.7)	2.6
Other, net	.4	3.5
Net cash provided by operating activities	16.6	101.6
Cash flows from investing activities—		
Capital expenditures	(23.7)	(26.6)
Net cash used in investing activities	(23.7)	(26.6)
Cash flows from financing activities:		
Indebtedness:		
Borrowings	108.2	160.8
Principal payments	(80.1)	(146.3)
Deferred financing fees	—	(.1)
Dividends paid	(34.8)	(34.8)
Net cash used in financing activities	(6.7)	(20.4)
Cash, cash equivalents and restricted cash—net change from:		
Operating, investing and financing activities	(13.8)	54.6
Currency translation	.1	8.5
Balance at beginning of period	94.3	52.3
Balance at end of period	$ 80.6	$ 115.4
Supplemental disclosures:		
Cash paid for:		
Interest, net of amount capitalized	$ 9.2	$ 8.5
Income taxes	6.9	12.2
Accrual for capital expenditures	4.6	4.1

See accompanying notes to Condensed Consolidated Financial Statements.

KRONOS WORLDWIDE, INC. AND SUBSIDIARIES

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

June 30, 2017
(unaudited)

Note 1—Organization and Basis of Presentation:

Organization—At June 30, 2017, Valhi, Inc. (NYSE: VHI) held approximately 50% of our outstanding common stock and a wholly-owned subsidiary of NL Industries, Inc. (NYSE: NL) held approximately 30% of our common stock, Valhi owned approximately 83% of NL's outstanding common stock and a wholly-owned subsidiary of Contran Corporation held approximately 93% of Valhi's outstanding common stock. All of Contran's outstanding voting stock is held by a family trust established for the benefit of Lisa K. Simmons and Serena Simmons Connelly and their children, for which Ms. Simmons and Ms. Connelly are co-trustees, or is held directly by Ms. Simmons and Ms. Connelly or entities related to them. Consequently, Ms. Simmons and Ms. Connelly may be deemed to control Contran, Valhi, NL and us.

Basis of presentation—The unaudited Condensed Consolidated Financial Statements contained in this Quarterly Report have been prepared on the same basis as the audited Consolidated Financial Statements in our Annual Report on Form 10-K for the year ended December 31, 2016 that we filed with the Securities and Exchange Commission (SEC) on March 10, 2017 (2016 Annual Report). In our opinion, we have made all necessary adjustments (which include only normal recurring adjustments, other than the reversal of the deferred income tax asset valuation allowance recognized in the second quarter of 2017, as discussed in Note 11) in order to state fairly, in all material respects, our consolidated financial position, results of operations and cash flows as of the dates and for the periods presented. We have condensed the Consolidated Balance Sheet at December 31, 2016 contained in this Quarterly Report as compared to our audited Consolidated Financial Statements at that date, and we have omitted certain information and footnote disclosures (including those related to the Consolidated Balance Sheet at December 31, 2016) normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). Our results of operations for the interim periods ended June 30, 2017 may not be indicative of our operating results for the full year. The Condensed Consolidated Financial Statements contained in this Quarterly Report should be read in conjunction with our 2016 Consolidated Financial Statements contained in our 2016 Annual Report.

Unless otherwise indicated, references in this report to "we," "us" or "our" refer to Kronos Worldwide, Inc. and its subsidiaries (NYSE: KRO) taken as a whole.

Note 2—Accounts and Other Receivables:

	December 31, 2016	June 30, 2017
	(In millions)	
Trade receivables	$224.8	$314.7
Recoverable VAT and other receivables	16.7	17.6
Receivable from affiliates:		
Income taxes, net—Valhi	.7	—
Other	2.8	3.2
Refundable income taxes	.3	—
Allowance for doubtful accounts	(.7)	(.7)
Total	$244.6	$334.8

Note 3—Inventories, Net:

	December 31, 2016	June 30, 2017
	(In millions)	
Raw materials	$ 68.7	$ 80.6
Work in process	22.3	18.9
Finished products	195.7	180.2
Supplies	56.8	62.1
Total	$343.5	$341.8

Note 4—Marketable Securities:

Our marketable securities consist of investments in the publicly-traded shares of related parties: Valhi, NL and CompX International Inc. NL owns the majority of CompX's outstanding common stock. All of our marketable securities are accounted for as available-for-sale securities, which are carried at fair value using quoted market prices in active markets for each marketable security, and represent a Level 1 input within the fair value hierarchy. See Note 14. Because we have classified all of our marketable securities as available-for-sale, any unrealized gains or losses on the securities are recognized through other comprehensive income, net of deferred income taxes.

Marketable security	Fair value measurement level	Market value	Cost basis	Unrealized gain
		(In millions)		
December 31, 2016:				
Valhi common stock	1	$5.9	$3.2	$2.7
NL and CompX common stocks	1	.1	.1	—
Total		$6.0	$3.3	$2.7
June 30, 2017:				
Valhi common stock	1	$5.1	$3.2	$1.9
NL and CompX common stocks	1	.1	.1	—
Total		$5.2	$3.3	$1.9

At December 31, 2016 and June 30, 2017, we held approximately 1.7 million shares of Valhi's common stock. We also held a nominal number of shares of CompX and NL common stocks. At December 31, 2016 and June 30, 2017, the quoted per share market price of Valhi's common stock was $3.46 and $2.98, respectively.

The Valhi, CompX and NL common stocks we own are subject to the restrictions on resale pursuant to certain provisions of SEC Rule 144. In addition, as a majority-owned subsidiary of Valhi we cannot vote our shares of Valhi common stock under Delaware General Corporation law, but we do receive dividends from Valhi on these shares, when declared and paid.

Note 5—Other Noncurrent Assets:

	December 31, 2016	June 30, 2017
	(In millions)	
Pension asset	$ .6	$ .9
Deferred financing costs, net	.4	.3
Other	1.2	1.8
Total	$2.2	$3.0

Note 6—Long-Term Debt:

	December 31, 2016	June 30, 2017
	(In millions)	
Term loan	$335.9	$334.9
North American revolving credit facility	—	16.3
Other	3.1	3.2
Total debt	339.0	354.4
Less current maturities	3.6	3.6
Total long-term debt	$335.4	$350.8

Term loan—During the first six months of 2017, we made our required quarterly term loan principal payments aggregating $1.8 million. The average interest rate on the term loan borrowings as of and for the six months ended June 30, 2017 was 4.3% and 4.1%, respectively. The carrying value of the term loan at June 30, 2017 is stated net of unamortized original issue discount of $.7 million and debt issuance costs of $3.0 million.

See Note 14 for a discussion of the interest rate swap we entered into in 2015 pursuant to our interest rate risk management strategy.

North American revolving credit facility—In January 2017, we extended the maturity date of our North American revolving credit facility to the earlier of (i) January 30, 2022 or (ii) 90 days prior to the maturity date of our existing term loan indebtedness (or 90 days prior to the maturity date of any indebtedness incurred in a permitted refinancing of such existing term loan indebtedness). Based on the February 2020 maturity date of our existing term loan, the maturity date of the North American revolving credit facility is currently November 2019.

During the first six months of 2017, we borrowed a net $16.3 million under our North American revolving credit facility. The average interest rate on outstanding borrowings as of and for the six months ended June 30, 2017 was 5.0% and 4.8%, respectively. At June 30, 2017, we had approximately $91.4 million available for additional borrowing under this revolving credit facility.

European revolving credit facility—Our European revolving credit facility requires the maintenance of certain financial ratios, and one of such requirements is based on the ratio of net debt to last twelve months earnings before income tax, interest, depreciation and amortization expense (EBITDA) of the borrowers. Based upon the borrowers' last twelve months EBITDA as of June 30, 2017 and the net debt to EBITDA financial test, the full €120.0 million amount of the credit facility ($137.1 million) is available for borrowing at June 30, 2017.We expect to extend the maturity date of this facility on or prior to its maturity date in September 2017.

Other—We are in compliance with all of our debt covenants at June 30, 2017.

Note 7—Accounts Payable and Accrued Liabilities:

	December 31, 2016	June 30, 2017
	(In millions)	
Accounts payable	$ 84.9	$ 95.8
Accrued sales discounts and rebates	20.9	21.0
Employee benefits	17.7	19.2
Reserve for uncertain tax positions	3.3	3.3
Interest rate swap contract	2.9	2.0
Accrued workforce reduction costs	1.2	.2
Payable to affiliates:		
Louisiana Pigment Company, L.P.	14.7	14.7
Income taxes, net—Valhi	—	4.5
Other	27.9	35.2
Total	$173.5	$195.9

See Note 14 for a discussion of the interest rate swap contract.

Note 8—Other Noncurrent Liabilities:

	December 31, 2016	June 30, 2017
	(In millions)	
Reserve for uncertain tax positions	$ 7.3	$ 8.2
Employee benefits	7.8	8.3
Interest rate swap contract	.2	.8
Other	7.1	11.4
Total	$22.4	$28.7

Note 9—Employee Benefit Plans:

Defined benefit plans—The components of net periodic defined benefit pension cost are presented in the table below.

	Six months ended June 30,	
	2016	2017
	(In millions)	
Service cost	$ 5.0	$ 5.5
Interest cost	7.7	6.7
Expected return on plan assets	(7.7)	(5.0)
Amortization of prior service cost	.4	.2
Recognized actuarial losses	5.7	6.5
Total	$11.1	$13.9

Postretirement benefits—The components of net periodic postretirement benefits other than pension (OPEB) cost are presented in the table below.

	Six months ended June 30, 2016	Six months ended June 30, 2017
	(In millions)	
Service cost	$ .1	$ .1
Interest cost	.1	.1
Amortization of prior service cost	(.4)	(.3)
Recognized actuarial losses	.1	.1
Total	$(.1)	$ —

Contributions—We expect our 2017 contributions for our pension and other postretirement plans to be approximately $15 million.

Note 10—Other Operating Income (Expense), Net:

Other operating income (expense), net in the first six months of 2016 includes income of $3.4 million related to cash received from settlement of a business interruption insurance claim arising in 2014. No additional material amounts are expected to be received with respect to such insurance claim.

Note 11—Income Taxes:

	Six months ended June 30, 2016	Six months ended June 30, 2017
	(In millions)	
Expected tax expense, at U.S. federal statutory income tax rate of 35%	$ .1	$ 39.6
Non-U.S. tax rates	(.4)	(4.8)
Incremental net tax expense (benefit) on earnings and losses of non-U.S. companies	(.8)	6.6
Valuation allowance	2.9	(162.6)
Adjustment to reserve for uncertain tax positions, net	.2	.5
Nondeductible expenses	.4	.6
U.S. state income tax and other, net	.1	—
Income tax expense (benefit)	$ 2.5	$(120.1)
Comprehensive provision for income taxes allocable to:		
Net income (loss)	$ 2.5	$(120.1)
Other comprehensive income (loss):		
Currency translation	—	13.3
Marketable securities	.1	(.3)
Pension plans	.3	2.1
OPEB plans	(.1)	(.1)
Interest rate swap	(2.0)	.1
Total	$ .8	$(105.0)

The amount shown in the above table of our income tax rate reconciliation for non-U.S. tax rates represents the result determined by multiplying the pre-tax earnings or losses of each of our non-U.S. subsidiaries by the difference between the applicable statutory income tax rate for each non-U.S. jurisdiction and the U.S. federal statutory tax rate of 35%. The amount shown on such table for incremental net tax expense (benefit) on earnings and losses on non-U.S. companies includes, as applicable, (i) current income taxes (including withholding taxes, if applicable), if any, associated with any current-year earnings of our non-U.S. subsidiaries to the extent such current-year earnings were distributed to us in the current year, (ii) deferred income taxes (or deferred income tax benefit) associated with the current-year change in the aggregate amount of undistributed earnings of our Canadian subsidiary, which earnings are not subject to a permanent reinvestment plan, in an amount representing the current-year change in the aggregate current income tax that would be generated (including withholding taxes, if applicable) when such aggregate undistributed earnings are distributed to us, and (iii) current U.S. income taxes (or current income tax benefit), including U.S. personal holding company tax, as applicable, attributable to current-year income (losses) of one of our non-U.S. subsidiaries, which subsidiary is treated as a dual resident for U.S. income tax purposes, to the extent the current-year income (losses) of such subsidiary is subject to U.S. income tax under the U.S. dual-resident provisions of the Internal Revenue Code.

We have substantial net operating loss (NOL) carryforwards in Germany (the equivalent of $638 million for German corporate purposes and $71 million for German trade tax purposes at December 31, 2016) and in Belgium (the equivalent of $93 million for Belgian corporate tax purposes at December 31, 2016), all of which have an indefinite carryforward period. As a result, we have net deferred income tax assets with respect to these two jurisdictions, primarily related to these NOL carryforwards. The German corporate tax is similar to the U.S. federal income tax, and the German trade tax is similar to the U.S. state income tax. Prior to June 30, 2015, and using all available evidence, we had concluded no deferred income tax asset valuation allowance was required to be recognized with respect to these net deferred income tax assets under the more-likely-than-not recognition criteria, primarily because (i) the carryforwards have an indefinite carryforward period, (ii) we utilized a portion of such carryforwards during the most recent three-year period, and (iii) we expected to utilize the remainder of the carryforwards over the long term. We had also previously indicated that facts and circumstances could change, which might in the future result in the recognition of a valuation allowance against some or all of such deferred income tax assets. However, as of June 30, 2015, and given our operating results during the second quarter of 2015 and our expectations at that time for our operating results for the remainder of 2015, we did not have sufficient positive evidence to overcome the significant negative evidence of having cumulative losses in the most recent twelve consecutive quarters in both our German and Belgian jurisdictions at June 30, 2015 (even considering that the carryforward period of our German and Belgian NOL carryforwards is indefinite, one piece of positive evidence). Accordingly, at June 30, 2015, we concluded that we were required to recognize a non-cash deferred income tax asset valuation allowance under the more-likely-than-not recognition criteria with respect to our German and Belgian net deferred income tax assets at such date. We recognized an additional non-cash deferred income tax asset valuation allowance during the second half of 2015 due to losses recognized by our German and Belgian operations during such period. During 2016, we recognized an aggregate $2.2 million non-cash tax benefit as the result of a net decrease in such deferred income tax valuation allowance, as the impact of utilizing a portion of our German NOLs during such period more than offset the impact of additional losses recognized by our Belgian operations during such period. Such valuation allowance aggregated approximately $173 million at December 31, 2016 ($153 million with respect to Germany and $20 million with respect to Belgium). During the first six months of 2017, we recognized an aggregate non-cash income tax benefit of $12.7 million as a result of a net decrease in such deferred income tax asset valuation allowance, due to utilizing a portion of both the German and Belgian NOLs during such period, including $7.7 million in the second quarter of 2017. At June 30, 2017, we concluded we now have sufficient positive evidence under the more-likely-than-not recognition criteria to support reversal of the entire valuation allowance related to our German and Belgian operations. As discussed below, a large portion of the remaining valuation allowance is reversed as of June 30, 2017, but a portion of the remaining valuation allowance will be reversed during the second half of 2017. Such sufficient positive evidence at June 30, 2017 includes, among other things, the existence of cumulative profits in the most recent twelve consecutive quarters (Germany) or profitability in recent quarters during which such profitability was trending upward throughout such period (Belgium), the ability to demonstrate future profitability in Germany and Belgium for a sustainable period, and the indefinite carryforward period for the German and Belgian NOLs. Accordingly, our income tax benefit in the second quarter of 2017 includes an aggregate non-cash income tax benefit of $149.9 million related to such reversal at June 30, 2017 ($141.9 million related to Germany, and $8.0 million related to Belgium). Such second quarter 2017 income tax benefit associated with reversal of the German and Belgian valuation allowance excludes the non-cash income tax benefit of $7.7 million, also recognized in the second quarter, as discussed above. In addition to the above amounts, our deferred income tax asset valuation allowance increased by $9.5 million during the first six months of 2017 as a result of changes in currency exchange rates, which was recognized as part of other comprehensive income (loss).

In accordance with the ASC 740-270 guidance regarding accounting for income taxes at interim dates, the amount of the valuation allowance reversed at June 30, 2017 ($149.9 million) relates to our change in judgment regarding the realizability of the related deferred income tax asset as it relates to future years (i.e. 2018 and after). A change in judgment regarding the realizability of deferred tax assets as it relates to the current year is considered in determining the estimated annual effective tax rate for the year. Accordingly, of the aggregate $173 million deferred income tax asset valuation allowance recognized at December 31, 2016, approximately $163 million has been reversed through June 30, 2017, and the remaining $20 million (which relates to the expected level of profitability of our German and Belgian operations in calendar 2017) will be reversed during the third and fourth quarters of 2017 (such aggregate reversal amount includes the $9.5 million increase to our deferred income tax asset valuation allowance as a result of changes in currency exchange rates recognized as part of other comprehensive income (loss)).

Tax authorities are examining certain of our U.S. and non-U.S. tax returns and have or may propose tax deficiencies, including penalties and interest. Because of the inherent uncertainties involved in settlement initiatives and court and tax proceedings, we cannot guarantee that these matters will be resolved in our favor, and therefore our potential exposure, if any, is also uncertain. As a result of ongoing audits in certain jurisdictions, in 2008 we filed Advance Pricing Agreement Requests with the tax authorities in the U.S., Canada and Germany. These requests have been under review with the respective tax authorities since 2008 and prior to 2016, it was uncertain whether an agreement would be reached between the tax authorities and whether we would agree to execute and finalize such agreements. During 2016, Contran, as the ultimate parent of our U.S. Consolidated income tax group, executed and finalized an Advance Pricing Agreement with the U.S. Internal Revenue Service and our Canadian subsidiary executed and finalized an Advance Pricing Agreement with the Competent Authority for Canada (collectively, the “U.S.-Canada APA”) effective for tax years 2005—2015. Pursuant to the terms of the U.S.-Canada APA, the U.S. and Canadian tax authorities agreed to certain prior year changes to taxable income of our U.S. and Canadian subsidiaries. As a result of such agreed-upon changes, our Canadian subsidiary incurred a cash income tax payment of approximately CAD $3 million (USD $2.3 million) related to the U.S.-Canada APA, but such payment was fully offset by previously provided accruals. We currently expect the Advance Pricing Agreement between Canada and Germany (collectively, the “Canada-Germany APA”) to be executed and finalized within the next twelve months. We believe we have adequate accruals to cover any cash income tax payment which might result from the finalization of the Canada-Germany APA, and accordingly we do not expect the execution of such APA to have a material adverse effect on our consolidated financial position, results of operations or liquidity.

We believe we have adequate accruals for additional taxes and related interest expense which could ultimately result from tax examinations. We believe the ultimate disposition of tax examinations should not have a material adverse effect on our consolidated financial position, results of operations or liquidity. We currently estimate that our unrecognized tax benefits may decrease by approximately $7.0 million excluding accrued interest during the next twelve months related to certain adjustments to our prior year returns.

Note 12—Accumulated Other Comprehensive Loss:

Changes in accumulated other comprehensive loss are presented in the table below. See Note 4 for further discussion of our marketable securities, Note 9 for discussion of our defined benefit pension plans and OPEB plans, and Note 14 for discussion of our interest rate swap contract.

	Six months ended June 30,	
	2016	2017
	(In millions)	
Accumulated other comprehensive loss, net of tax:		
Currency translation:		
Balance at beginning of period	$(252.0)	$(269.6)
Other comprehensive income	9.4	23.8
Balance at end of period	$(242.6)	$(245.8)
Marketable securities:		
Balance at beginning of period	$ (.6)	$ 1.8
Other comprehensive income (loss)—unrealized gains (losses) arising during the period	.2	(.6)
Balance at end of period	$ (.4)	$ 1.2
Defined benefit pension plans:		
Balance at beginning of period	$(159.2)	$(184.8)
Other comprehensive income—amortization of prior service cost and net losses included in net periodic pension cost	5.8	3.9
Balance at end of period	$(153.4)	$(180.9)
OPEB plans:		
Balance at beginning of period	$ 2.1	$ 1.8
Other comprehensive loss—amortization of prior service credit and net losses included in net periodic OPEB cost	(.2)	(.2)
Balance at end of period	$ 1.9	$ 1.6
Interest rate swap:		
Balance at beginning of period	$ (2.3)	$ (2.0)
Other comprehensive income (loss):		
Unrealized losses arising during the period	(4.8)	(.8)
Less reclassification adjustment for amounts included in interest expense	1.1	1.0
Balance at end of period	$ (6.0)	$ (1.8)

	Six months ended June 30,	
	2016	2017
	(In millions)	
Total accumulated other comprehensive loss:		
Balance at beginning of period	$(412.0)	$(452.8)
Other comprehensive income	11.5	27.1
Balance at end of period	$(400.5)	$(425.7)

Note 13—Commitments and Contingencies:

We are involved in various environmental, contractual, product liability, patent (or intellectual property), employment and other claims and disputes incidental to our business. At least quarterly our management discusses and evaluates the status of any pending litigation to which we are a party. The factors considered in such evaluation include, among other things, the nature of such pending cases, the status of such pending cases, the advice of legal counsel and our experience in similar cases (if any). Based on such evaluation, we make a determination as to whether we believe (i) it is probable a loss has been incurred, and if so if the amount of such loss (or a range of loss) is reasonably estimable, or (ii) it is reasonably possible but not probable a loss has been incurred, and if so if the amount of such loss (or a range of loss) is reasonably estimable, or (iii) the probability a loss has been incurred is remote. We have not accrued any material amounts for either of the two pending matters discussed below, as it is not reasonably possible we have incurred a loss that would be material to our consolidated financial condition, results of operations or liquidity.

In March 2013, we were served with the complaint, Los Gatos Mercantile, Inc. d/b/a Los Gatos Ace Hardware, et al v. E.I. Du Pont de Nemours and Company, et al. (United States District Court, for the Northern District of California, Case No. 3:13-cv-01180-SI). The defendants include us, E.I. Du Pont de Nemours & Company, Huntsman International LLC and Millennium Inorganic Chemicals, Inc. As amended by plaintiffs' third amended complaint (Harrison, Jan, et al v. E.I. Du Pont de Nemours and Company, et al), plaintiffs seek to represent a class consisting of indirect purchasers of titanium dioxide in the states of Arizona, Arkansas, California, the District of Columbia, Florida, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Mexico, New York, North Carolina, Oregon and Tennessee that indirectly purchased titanium dioxide from one or more of the defendants on or after March 1, 2002. The complaint alleges that the defendants conspired and combined to fix, raise, maintain, and stabilize the price at which titanium dioxide was sold in the United States and engaged in other anticompetitive conduct. The case is now proceeding in the trial court. We believe the action is without merit, will deny all allegations of wrongdoing and liability and intend to defend against the action vigorously. Based on our quarterly status evaluation of this case, we have determined that it is not reasonably possible that a loss that is material has been incurred in this case.

In September 2016, we were served with the complaint, Home Depot U.S.A., Inc. v. E.I. Dupont Nemours and Company, et al. (United States District Court, for the Northern District of California, Case No. 3:16-cv-04865). The defendants include us, E.I. Du Pont de Nemours & Company, Huntsman International LLC and Millennium Inorganic Chemicals, Inc. The plaintiff alleges that it indirectly purchased titanium dioxide from one or more of the defendants on or after March 1, 2002. The complaint alleges that the defendants conspired and combined to fix, raise, maintain, and stabilize the price at which titanium dioxide was sold in the United States and engaged in other anticompetitive conduct. The case is now proceeding in the trial court. We believe the action is without merit, will deny all allegations of wrongdoing and liability and intend to defend against the action vigorously. Based on our quarterly status evaluation of this case, we have determined that it is not reasonably possible that a loss has been incurred in this case.

Note 14—Financial Instruments:

The following table summarizes the valuation of our financial instruments recorded on a fair value basis as of December 31, 2016 and June 30, 2017:

	Fair Value Measurements			
	Total	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
			(In millions)	
Asset (liability)				
December 31, 2016:				
Interest rate swap contract	$(3.1)	$ —	$(3.1)	$—
Noncurrent marketable securities (See Note 4)	6.0	6.0	—	—
June 30, 2017:				
Interest rate swap contract	$(2.8)	$ —	$(2.8)	$—
Noncurrent marketable securities (See Note 4)	5.2	5.2	—	—

Our earnings and cash flows are subject to fluctuations due to changes in currency exchange rates and interest rates. Our risk management policy allows for the use of derivative financial instruments to prudently manage exposure to currency exchange rates and interest rates. Derivatives that we use are primarily currency forward contracts and interest rate swaps. We have not entered into these contracts for trading or speculative purposes in the past, nor do we currently anticipate entering into such contracts for trading or speculative purposes in the future.

Currency forward contracts—Certain of our sales generated by our non-U.S. operations are denominated in U.S. dollars. We periodically use currency forward contracts to manage a very nominal portion of currency exchange rate risk associated with trade receivables denominated in a currency other than the holder's functional currency or similar exchange rate risk associated with future sales. Derivatives used to hedge forecasted transactions and specific cash flows associated with financial assets and liabilities denominated in currencies other than the U.S. dollar and which meet the criteria for hedge accounting are designated as cash flow hedges. Consequently, the effective portion of gains and losses is deferred as a component of accumulated other comprehensive income and is recognized in earnings at the time the hedged item affects earnings. Contracts that do not meet the criteria for hedge accounting are marked-to-market at each balance sheet date with any resulting gain or loss recognized in income currently as part of net currency transaction gains and losses. The fair value of the currency forward contracts is determined using Level 1 inputs based on the currency spot forward rates quoted by banks or currency dealers.

At December 31, 2016 and June 30, 2017, we had no currency forward contracts outstanding. We did not use hedge accounting for any of our contracts to the extent we held such contracts in 2016.

Interest rate swap contract—As part of our interest rate risk management strategy, in August 2015 we entered into a pay- fixed/receive-variable interest rate swap contract with Wells

Fargo Bank, N.A. to minimize our exposure to volatility in LIBOR as it relates to our forecasted outstanding variable-rate indebtedness. Under this interest rate swap, we will pay a fixed rate of 2.016% per annum, payable quarterly, and receive a variable rate of three-month LIBOR (subject to a 1.00% floor), also payable quarterly, in each case based on the notional amount of the swap then outstanding. The effective date of the swap contract was September 30, 2015. The notional amount of the swap started at $344.8 million and declines by $875,000 each quarter beginning December 31, 2015, with a final maturity of the swap contract in February 2020. The notional amount of the swap as of June 30, 2017 was $338.6 million. This swap contract has been designated as a cash flow hedge and qualified as an effective hedge at inception under ASC Topic 815. The effective portion of changes in fair value on this interest rate swap is recorded as a component of other comprehensive income, net of deferred income taxes. Commencing in the fourth quarter of 2015, as interest expense accrues on LIBOR-based variable rate debt, we classify the amount we pay under the pay-fixed leg of the swap and the amount we receive under the receive-variable leg of the swap as part of interest expense, with the net effect that the amount of interest expense we recognize on our LIBOR-based variable rate debt each quarter, as it relates to the notional amount of the swap outstanding each quarter, to be based on a fixed rate of 2.016% per annum in lieu of the level of LIBOR prevailing during the quarter. The amount of hedge ineffectiveness, if any, related to the swap will be recorded in earnings (also as part of interest expense). Since the inception of the swap through June 30, 2017, there have been no gains or losses recognized in earnings representing hedge ineffectiveness with respect to the interest rate swap.

During the first six months of June 30, 2017, the pretax unrealized loss arising during the period and recognized in other comprehensive income (loss) related to the interest rate swap contract was $1.4 million. During the same period, $1.6 million was reclassified from accumulated other comprehensive loss into earnings (interest expense). During the next twelve months, the amount of the June 30, 2017 accumulated other comprehensive loss balance that is expected to be reclassified to interest expense is $2.4 million pre-tax.

The fair value of the interest rate swap contract at June 30, 2017 was a $2.8 million liability including $2.0 million recognized as part of accounts payable and accrued liabilities and $.8 million recognized as part of other noncurrent liabilities in our Condensed Consolidated Balance Sheet. See Notes 7 and 8. The fair value of the interest rate swap was estimated by a third party using inputs that are observable or that can be corroborated by observable market data such as interest rate yield curves, and therefore, is classified within Level 2 of the valuation hierarchy.

The following table presents the financial instruments that are not carried at fair value but which require fair value disclosure as of December 31, 2016 and June 30, 2017.

	December 31, 2016		June 30, 2017	
	Carrying amount	Fair value	Carrying amount	Fair value
	(In millions)			
Cash, cash equivalents and restricted cash	$ 52.3	$ 52.3	$115.4	$ 115.4
Long-term debt:				
Variable rate:				
Term loan	335.9	334.6	334.9	340.3
North American revolving credit facility	—	—	16.3	16.3
Common stockholders' equity	395.0	1,383.8	620.8	2,111.7

At June 30, 2017, the estimated market price of our term loan was $1,005 per $1,000 principal amount. The fair value of our term loan is based on quoted market prices; however, these quoted market prices represented Level 2 inputs because the markets in which the term loan trades were not active. The fair value of our common stockholders' equity is based upon quoted market prices at each balance sheet date, which represent Level 1 inputs. Due to their near-term maturities, the carrying amounts of accounts receivable, accounts payable and the revolving credit facility are considered equivalent to fair value. See Notes 2, 6 and 7.

Note 15—Recent Accounting Pronouncements Not Yet Adopted:

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*. This standard replaces existing revenue recognition guidance, which in many cases was tailored for specific industries, with a uniform accounting standard applicable to all industries and transactions. The new standard, as amended, is currently effective for us beginning with the first quarter of 2018. Entities may elect to adopt ASU No. 2014-09 retrospectively for all periods for all contracts and transactions which occurred during the period (with a few exceptions for practical expediency) or retrospectively with a cumulative effect recognized as of the date of adoption. ASU No. 2014-09 is a fundamental rewriting of existing GAAP with respect to revenue recognition, and we are still evaluating the effect the standard will have on our Consolidated Financial Statements. We currently expect to adopt the standard in the first quarter of 2018 using the modified retrospective approach to adoption. Our sales generally involve single performance obligations to ship goods pursuant to customer purchase orders without further underlying contracts, and as such we expect adoption of this standard will have a minimal effect on our revenues. We are in the process of evaluating the additional disclosure requirements.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, which addresses certain aspects related to the recognition, measurement, presentation and disclosure of financial instruments. The ASU requires equity investments (except for those accounted for under the equity method of accounting or those that result in the consolidation of the investee) to generally be measured at fair value with changes in fair value recognized in net income. The amendment also requires a number of other changes, including among others: simplifying the impairment assessment for equity instruments without readily determinable fair values; eliminating the requirement for public business entities to disclose methods and assumptions used to determine fair value for financial instruments measured at amortized cost; requiring an exit price notion when measuring the fair value of financial instruments for disclosure purposes; and requiring separate presentation of financial assets and liabilities by measurement category and form of asset. The changes indicated above will be effective for us beginning in the first quarter of 2018, with prospective application required, and early adoption is not permitted. The most significant aspect of adopting this ASU will be the requirement to recognize changes in fair value of our available-for-sale marketable equity securities in net income (currently changes in fair value of such securities are recognized in other comprehensive income).

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*, which is a comprehensive rewriting of the lease accounting guidance which aims to increase comparability and transparency with regard to lease transactions. The primary change will be the recognition of lease assets for the right-of-use of the underlying asset and lease liabilities for the obligation to make payments by lessees on the balance sheet for leases currently classified as operating leases. The ASU also requires increased qualitative disclosure about leases in addition to quantitative disclosures currently required. Companies are required to use a modified retrospective approach to adoption with a practical expedient which will allow companies to continue to account for existing leases under the prior guidance unless a lease is modified, other than the requirement to recognize the right-of-use asset and lease liability for all operating leases. The changes indicated above will be effective for us beginning in the first quarter of 2019, with early adoption permitted. We are in the process of assessing all of our current leases. We have not yet evaluated the effect this ASU will have on our Consolidated Financial Statements, but given the material amount of our future minimum payments under non-cancellable operating leases at December 31, 2016 discussed in Note 17 to our 2016 Annual Report, we expect to recognize a material right-of-use lease asset and lease liability upon adoption of the ASU.

In March 2017, the FASB issued ASU 2017-07, *Compensation—Retirement Benefits (Topic 715) Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, which requires that the service cost component of net periodic defined benefit pension and OPEB cost be reported in the same line item as other compensation costs for applicable employees incurred during the period. Other components of such net benefit cost are required to be presented in the income statement separately from the service cost component, and below income from operations (if such a subtotal is presented). These other net benefit cost components must be disclosed either on the face of the financial statements or in the notes to the financial statements. In addition only the service cost component is eligible for capitalization in assets where applicable (inventory or internally constructed fixed assets for example). The amendments in ASU 2017-06 are effective for us beginning in the first quarter of 2018, early adoption as of the beginning of an annual period is permitted, retrospective presentation is required for the income statement presentation of the service cost component and other components of net benefit cost, and prospective application is required for the capitalization in assets of the service cost component of net benefit cost. We expect to adopt this ASU in the first quarter of 2018.

We currently include all of our net benefit cost for defined benefit pension plans as part of compensation expense which is capitalized into inventory, we present a subtotal for income from operations and our net periodic defined benefit pension cost is currently included in the determination of income from operations. Accordingly, adoption of this standard will change the amount of our aggregate compensation cost capitalized in inventory, and change the determination of the amount we report as income from operations. As disclosed in Note 10 to our 2016 Annual Report, the service cost component represented approximately $9.9 million of our total net periodic defined benefit pension costs of $22.0 million in 2016. None of the components of our net OPEB cost, or our total OPEB cost, were material in 2016.

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