

Tronox Ltd  
Form 10-K  
February 28, 2019  
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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549**

**Form 10-K**

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the Year ended December 31, 2018

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the transition period from to

1-35573  
(Commission file number)

**TRONOX LIMITED**  
**(ACN 153 348 111)**  
**(Exact name of registrant as specified in its charter)**

Western Australia, Australia  
(State or other jurisdiction of incorporation or organization)  
263 Tresser Boulevard, Suite 1100  
Stamford, Connecticut 06901

98-1026700  
(I.R.S. Employer Identification No.)  
Lot 22 Mason Road  
Kwinana Beach WA 6167 Australia

**Registrant's telephone number, including area code: (203) 705-3800**

**Securities registered pursuant to Section 12(b) of the Act:**

Title of each class	Name of each exchange on which registered
Class A Ordinary Shares, par value \$0.01 per share	New York Stock Exchange

**Securities registered pursuant to Section 12(g) of the Act: None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.  
Yes No o

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes o  
No

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Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of large accelerated filer, accelerated filer, smaller reporting company and emerging growth company in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer ☐

Non-accelerated filer ☐ Smaller reporting company ☐

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No

The aggregate market value of the ordinary shares held by non-affiliates of the registrant as of June 30, 2018 was approximately \$2,418,666,706.

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Section 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes No ☐

As of January 31, 2019, the registrant had 94,388,170 shares of Class A ordinary shares and 28,729,280 shares of Class B ordinary shares outstanding.

### DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement for its 2019 annual general meeting of shareholders are incorporated by reference in this Form 10-K in response to Part III Items 10, 11, 12, 13 and 14.

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FOR THE FISCAL YEAR ENDED DECEMBER 31, 2018  
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### **SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

We have made statements under the captions Business, Risk Factors, Management's Discussion and Analysis of Financial Condition and Results of Operations, and in other sections of this Form 10-K that are forward-looking statements. Forward-looking statements also can be identified by words such as future, anticipates, believes, estimates, expects, intends, plans, predicts, will, would, could, can, may, and similar terms. These forward-looking statements, which are subject to known and unknown risks, uncertainties and assumptions about us, may include projections of our future financial performance based on our growth strategies and anticipated trends in our business. These statements are only predictions based on our current expectations and projections about future events. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from the results, level of activity, performance or achievements expressed or implied by the forward-looking statements. In particular, you should consider the numerous risks and uncertainties outlined in Risk Factors.

These risks and uncertainties are not exhaustive. Other sections of this Form 10-K may include additional factors, which could adversely impact our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible for our management to predict all risks and uncertainties, nor can management assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

Although we believe the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, level of activity, performance or achievements. Moreover, neither we nor any other person assumes responsibility for the accuracy or completeness of any of these forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. Unless otherwise required by applicable law, we are under no duty to update any of these forward-looking statements after the date of this Form 10-K to conform our prior statements to actual results or revised expectations and we do not intend to do so.

When considering forward-looking statements, you should keep in mind the risks, uncertainties and other cautionary statements made in this Form 10-K and the documents incorporated by reference, including, in particular, the factors discussed below. These factors may be revised or supplemented in subsequent reports on Forms 10-Q and 8-K.

Factors that may affect future results include, but are not limited to:

- the failure to close the Cristal Transaction (as defined below), including by failure to satisfy closing conditions, and the resulting negative impact on our share price, our business and our financial results;
- if the Cristal Transaction is consummated we may not realize its anticipated benefits, may experience unexpected difficulties integrating its operations and may assume unexpected liabilities;
- if the Cristal Transaction is consummated it will concentrate our share ownership in the hands of Cristal Inorganic and Exxaro (each as defined below), which may result in conflicts of interest and/or prevent minority shareholders from influencing the Company;
- assuming consummation of the Re-Domicile Transaction (as defined below), English law and the new articles of association may limit our flexibility to manage our capital structure and/or have anti-takeover effects;
- the risk that our customers might reduce demand for our products;
- market conditions and price volatility for titanium dioxide (  $\text{TiO}_2$  ) and feedstock materials, as well as global and regional economic downturns, that adversely affect the demand for our end-use products;
- changes in prices or supply of energy or other raw materials may negatively impact our business;
- an unpredictable regulatory environment in South Africa where we have significant mining and beneficiation operations, including amendments by the South African Department of Mineral Resources to the Mining

Charter;

- the risk that our ability to use our tax attributes to offset future income may be limited;

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- that the agreements governing our debt may restrict our ability to operate our business in certain ways, as well as impact our liquidity;
- our inability to obtain additional capital on favorable terms;
- the risk that we may not realize expected investment returns on our capital expenditure projects;
- fluctuations in currency exchange rates;
- compliance with, or claims under environmental, health and safety regulations may result in unanticipated costs or liabilities, including the potential classification of TiO<sub>2</sub> as a Category 2 Carcinogen in the EU, which could have an adverse impact on our business; and
- the possibility that cybersecurity incidents or other security breaches may seriously impact our results of operations and financial condition.

We are committed to providing timely and accurate information to the investing public, consistent with our legal and regulatory obligations. To that end, we use our website to convey information about our businesses, including the anticipated release of quarterly financial results, quarterly financial and statistical and business-related information. Investors can access announcements about the Company through our website available at <http://www.tronox.com>. Our website is included as an inactive textual reference only and the information contained therein or connected thereto shall not be deemed to be incorporated into this Form 10-K.

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### **PART I**

*For the purposes of this discussion, references to we, us, and, our refer to Tronox Limited, together with its consolidated subsidiaries (collectively referred to as Tronox or the Company ), when discussing the business following the completion of the 2012 Exxaro transaction (as defined herein), and to Tronox Incorporated, together with its consolidated subsidiaries (collectively referred to as Tronox Incorporated ), when discussing the business prior to the completion of the Exxaro Transaction.*

#### **Item 1. Business**

##### **Overview**

Tronox Limited is the world's leading integrated manufacturer of titanium dioxide (  $\text{TiO}_2$  ) pigment. We operate titanium-bearing mineral sand mines and accompanying beneficiation and smelting operations in Australia and South Africa to produce feedstock materials that can then be used in the manufacturing process for our  $\text{TiO}_2$  pigment products. We consume a substantial part of our feedstock materials in our own  $\text{TiO}_2$  pigment facilities located in the United States, Australia and the Netherlands with a goal of delivering low cost, high-quality pigment to our approximately 700  $\text{TiO}_2$  customers in approximately 100 countries. In addition, the mining, beneficiation and smelting of titanium bearing mineral sands creates meaningful quantities of two co-products – zircon and pig iron – which we also supply to customers around the world.

The following chart highlights the  $\text{TiO}_2$  value chain we participate in:

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The following sets forth the percentage of our revenue derived from sales of our products by geographic region for the year ended December 31, 2018.

The below sets forth the percentage of our revenue derived from sales of our products for the year ended December 31, 2018.

For further financial information regarding our products and geographic regions, see the section entitled *Management's Discussion and Analysis of Financial Condition and Results of Operations*, as well as Notes 3 and 23 of notes to our consolidated financial statements, each included elsewhere in this Form 10-K.

### **2018 Key Strategic Initiatives**

The following sets forth the key strategic initiatives undertaken during 2018 that we believe will set a strong foundation for our future growth and results of operations.

#### ***Pending Cristal Acquisition***

Throughout 2018 and into 2019 we continued to work diligently on obtaining regulatory approval for our proposed acquisition of the TiO<sub>2</sub> business of The National Titanium Dioxide Company Ltd., a limited company organized under the laws of the Kingdom of Saudi Arabia ( *Cristal* ). The transaction was originally announced approximately two years ago when on February 21, 2017, we entered into a definitive agreement with Cristal and one of its affiliates to acquire the TiO<sub>2</sub> business of Cristal for \$1.673 billion of cash, subject to a working capital adjustment at closing, plus 37,580,000 Class A Shares (the *Cristal Transaction* ). Our shareholders approved the Cristal Transaction on October 2, 2017 as well as gave us the authority to issue the Class A Shares in connection with the transaction. On February 27, 2019, we agreed with Cristal to extend the date on which our acquisition agreement expires from March 31, 2019 to May 19, 2019.

To date, we have received final approval from eight of the nine regulatory jurisdictions whose approvals are required to close the Cristal Transaction including the European Commission ( *EC* ) and are still seeking approval from the U.S. Federal Trade Commission ( *FTC* ). With regard to the EC approval, on July 16, 2018, we announced the submittal to the EC of an executed definitive agreement with Venator Materials PLC ( *Venator* ) to divest our 8120 paper-laminate product grade (the *8120 Grade* ) currently supplied to customers from our Botlek facility in the Netherlands. Our agreement with Venator is terminable by either party under certain circumstances if the closing does not occur on or prior to April 12, 2019. On August 20, 2018, the EC approved the Cristal Transaction based on the conclusion that Venator is a suitable buyer of the 8120 Grade. The EC's initial approval required that the Cristal Transaction to be consummated by November 16, 2018 but that deadline has been more recently extended by the EC to May 19, 2019.



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With respect to the FTC, on December 5, 2017, the FTC announced that it would not approve the Cristal Transaction as proposed and filed an administrative action to prevent the parties from consummating the transaction alleging that the Cristal Transaction would violate Section 7 of the Clayton Antitrust Act and Section 5 of the FTC Act. The administrative complaint sought, among other things, a permanent injunction to prevent the transaction from being completed. On December 9, 2018, the administrative law judge (the ALJ) issued an initial decision enjoining Tronox from consummating the proposed Cristal Transaction. We filed an appeal of the administrative law judge's initial decision on February 4, 2019 in which we sought to narrow the geographic scope of the proposed order included in the initial decision. The ALJ's initial decision will not become final until the FTC rules on our appeal. In addition, on September 5, 2018, the U.S. District Court in the District of Columbia granted the FTC a preliminary injunction blocking the Cristal Transaction.

Following the issuance of a preliminary injunction by the U.S. District Court, we commenced settlement discussions with the FTC. We proposed to divest all of Cristal's North American operations including the Ashtabula, Ohio two-plant TiO<sub>2</sub> production complex to a purchaser acceptable to the FTC. Initially, we intended to divest Cristal's North American operations to Venator. When we announced the divestiture of the 8120 Grade to Venator on July 16, 2018 we also announced that we had entered into a binding Memorandum of Understanding (MOU) with Venator providing for the negotiation in good faith of a definitive agreement to sell the entirety of Cristal's North American operations to Venator if a divestiture of all or a substantial part of Ashtabula was required to secure final FTC regulatory approval for the Cristal Transaction. The MOU granted Venator exclusivity for a period of 75 days to negotiate a definitive agreement for the sale of the entirety of the Ashtabula complex. The MOU also provided for a \$75 million break fee if, among other things, the parties, despite negotiating in good-faith and in conformity with the terms in the MOU, failed to reach a definitive agreement for the sale of Cristal's North American operations and Tronox was able to consummate both the Cristal Transaction and the paper-laminate grade divestiture to Venator. On October 1, 2018, we announced that the 75-day exclusivity period under the MOU with Venator had expired without the two companies agreeing to terms.

Subsequent to the expiration of the exclusivity period with Venator, we announced an agreement in principle with INEOS Enterprises A.G., a unit of INEOS and one of the world's largest chemicals companies (INEOS), to divest Cristal's North American operations for approximately \$700 million. We, Cristal and INEOS have been engaged in on-going discussions with the FTC since that time regarding the terms and conditions under which the FTC would allow the Cristal Transaction to be consummated. Most recently, on February 11, 2019, in recognition of the progress made to date in settling the dispute with the FTC, we and the FTC staff filed a joint motion with the FTC Commissioners requesting a delay of the deadline for the FTC to respond to our appeal of the ALJ's initial December 10, 2018 decision finding that the proposed acquisition of Cristal may substantially lessen competition for the sale of chloride-based TiO<sub>2</sub> in North America

### ***Jazan Slagger and Option Agreement***

On May 9, 2018, we entered into an Option Agreement (the Option Agreement) with Advanced Metal Industries Cluster Company Limited (AMIC) pursuant to which AMIC granted us an option (the Option) to acquire 90% of a special purpose vehicle (the SPV), to which AMIC's ownership in a titanium slag smelter facility (the Slagger) in The Jazan City for Primary and Downstream Industries in the Kingdom of Saudi Arabia (KSA) will be contributed together with \$322 million of indebtedness currently held by AMIC (the AMIC Debt). The execution of the Option Agreement occurred shortly after we entered into a Technical Services Agreement (the Technical Services Agreement) with AMIC pursuant to which we agreed to immediately commence providing technical assistance to AMIC to facilitate the start-up of the Slagger. National Industrialization Company (TASNEE) and Cristal each own 50% of AMIC. The strategic intent of the Option Agreement and Technical Services Agreement is to enable us to further optimize the vertical integration between our TiO<sub>2</sub> pigment production and TiO<sub>2</sub> feedstock production after the closing of the Cristal Transaction. Pursuant to the Option Agreement and during its term, we agreed to lend AMIC

and, upon the creation of the SPV, the SPV up to \$125 million for capital expenditures and operational expenses intended to facilitate the start-up of the Slagger. Such funds may be drawn down by AMIC and the SPV, as the case may be, on a quarterly basis as needed based on a budget reflecting the anticipated needs of the Slagger start-up. The obligation to fund up to \$125 million is contingent on our continued reasonable belief that such amounts will be sufficient (in addition to any amounts supplied by AMIC) to bring the Slagger up to certain sustained production levels. If we do not acquire the Slagger for any reason, the loans mature on the date that is eighteen

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months from the termination of the Option Agreement. Pursuant to the Option Agreement, subject to certain conditions, we may exercise the Option at any time on or prior to May 9, 2023. If the Slagger achieves certain production criteria related to sustained quality and tonnage of slag produced (and the other conditions referenced above are satisfied), AMIC may require us to acquire the Slagger (the Put). If the Option or Put is exercised, we will acquire a 90% ownership interest in the SPV; provided, that the Option and the Put may not be exercised if the Cristal Transaction is not consummated. During the year ended December 31, 2018, we loaned \$64 million for capital expenditures and operational expenses to facilitate the start-up of the Slagger. An additional \$25 million was loaned on January 4, 2019.

### ***Re-Domiciliation from Australia to the United Kingdom***

In November 2018, we announced our intention to re-domicile from Western Australia to the United Kingdom (the Re-Domicile Transaction). The Re-Domicile Transaction will be effected via a scheme of arrangement overseen by an Australian Court. Pursuant to such scheme of arrangement, holders of our Class A Shares and Class B ordinary shares (Class B Shares) will be required to exchange their shares in Tronox Limited on a 1:1 basis for ordinary shares in Tronox Holdings plc, a newly formed entity incorporated under the laws of England and Wales (New Tronox), which shares are proposed to be listed on the New York Stock Exchange (the NYSE). On February 8, 2019, the first Australian Court hearing occurred whereby the Court approved the Class A and Class B shareholder meetings to be convened for the purpose of approving the Re-Domicile Transaction, as well as approved the mailing by us of the definitive proxy statement in connection with such shareholder meetings. We have scheduled a general meeting of our Class A shareholders and a separate meeting of our Class B shareholder to approve the Re-Domicile Transaction on March 8, 2019. Assuming we receive the requisite shareholder approvals, the final Australian court approval and other customary conditions are satisfied, we expect such transaction to be fully implemented by the end of the first quarter 2019. We do not anticipate that the Re-Domicile Transaction will have a material impact on our shareholders from a financial, governance or tax perspective. Rather, we believe the Re-Domicile Transaction is the next logical step in our stated strategic goal of becoming the world's most vertically integrated and lowest cost producer of TiO<sub>2</sub> and will benefit our shareholders in a number of important ways, including:

- increasing the attractiveness of our shares to certain investors by eliminating the dual class share structure, and by providing our Board with greater authority and flexibility to undertake share repurchases than our current Constitution or Australian law permits;
- facilitating the ability of our Board to periodically refresh itself as we believe it will be easier to recruit new Board members to a UK incorporated company, we will have more flexibility in terms of board size and composition, and there will no longer be a requirement that two of our Board members are Australian residents;
- providing greater certainty with respect to certain tax matters in light of the Multilateral Instrument by the Governments of Australia and the UK; and
- bringing our jurisdiction of incorporation more into line with some of our peers and the majority of other non-US companies listed on the NYSE thereby potentially more easily attracting investors.

### ***Exxaro Mineral Sands Transaction Completion Agreement***

On November 26, 2018, we and certain of our subsidiaries (collectively, the Tronox Parties) and Exxaro Resources Limited (Exxaro) entered into the Exxaro Mineral Sands Transaction Completion Agreement (the Completion Agreement). The Completion Agreement provides for the orderly sale of Exxaro's remaining approximately 23% ownership interest in us during 2019, helps to facilitate the Re-Domicile Transaction, as well as addresses several legacy issues related to our 2012 acquisition of Exxaro's mineral sands business (the 2012 Exxaro transaction).

### ***Orderly Sale of Exxaro's 23% Ownership in Tronox***

In the 2012 Exxaro transaction, as part of the consideration for Exxaro's mineral sands business, we issued to Exxaro approximately 38.5% of our then outstanding voting securities in the form of Class B Shares. On March 8, 2017, Exxaro announced its intention to begin to sell its ownership stake in us over time. On October 10, 2017, in order to sell a portion of its ownership interest in us, Exxaro converted 22,425,000 of

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its Class B Shares into Class A Shares and sold those shares in an underwritten registered offering. The Completion Agreement sets forth the terms under which Exxaro may convert and then sell its remaining 28,729,280 Class B Shares during the course of 2019. The Completion Agreement contemplates that the sale of Exxaro's remaining ownership interest in Tronox will be undertaken in a manner that we believe will not cause us to lose, under limitations set forth in Section 382 of the U.S Internal Revenue Code of 1985, as amended (the "Code"), the benefit of approximately \$4.1 billion of net operating losses and/or the approximately \$1.1 billion of Section 163(j) of the Code interest expense carryforwards. For further information regarding the risk of us losing certain tax attributes, see the section included elsewhere in this Form 10-K entitled "Risk Factors – Risks Relating to our Business – Our ability to use our tax attributes to offset future income may be limited."

### *Specific Provisions in the Exxaro Completion Agreement relating to the Re-Domicile Transaction*

Pursuant to the terms of the Completion Agreement, Exxaro agreed to vote its Class B Shares in favor of the Re-domicile Transaction. In addition, the Completion Agreement contains several other provisions that are material with respect to the Re-Domicile Transaction, including:

- We have the right to repurchase from Exxaro any Class B Shares (or from the completion date of the Re-Domicile Transaction, any of its ordinary shares in New Tronox) that Exxaro desires to sell. The purchase price of any such repurchase will be based on market-related prices;  
One of the Tronox Parties has covenanted to pay Exxaro an amount equal to any South African capital gains tax assessed on Exxaro in respect of any profit arising to it on a disposal of any of its ordinary shares in New Tronox subsequent to the completion date of the Re-Domicile Transaction where such tax would not have been assessed but for the Re-Domicile Transaction. Similarly, Exxaro has covenanted to pay one of the Tronox Parties an amount equal to any South African tax savings Exxaro may realize in certain situations from any tax relief that would not have arisen but for the Re-Domicile Transaction (such as losses on a disposal of any of Exxaro's ordinary shares in the New Tronox subsequent to the completion date of the Re-Domicile Transaction); and
- Exxaro has also agreed that it will enter into a new shareholder agreement with us conditional upon completion of the Re-Domicile Transaction which, among other things, will enable us to eliminate the Class B Shares.

### *Legacy issues related to the 2012 Exxaro transaction addressed in the Completion Agreement*

Pursuant to the 2012 Exxaro transaction, Exxaro retained a 26% ownership interest in our two South African subsidiaries related to the mineral sands business to enable us to satisfy certain Black Economic Empowerment regulations promulgated by the South African Department of Mineral Resources (the "DMR"). The 2012 Exxaro transaction agreements contemplated that by 2022, Exxaro would sell to us its remaining 26% interests in those two South African subsidiaries for 7.2 million additional Class B Shares. The Completion Agreement allows Exxaro and us to conclude matters from that transaction in a way that we believe is mutually beneficial to both parties by, among other things, providing us with the option to pay cash consideration for Exxaro's remaining 26% interests in the two South African subsidiaries in lieu of issuing additional Class B Shares. Additionally, the Completion Agreement amends such "flip-in" rights granted to Exxaro by accelerating the triggering of such right based upon the application of the once-empowered-always-empowered principle that has recently been confirmed by the South African High Court. See "Risk Factors – Our South African mining rights are subject to onerous regulatory requirements imposed by legislation and the Department of Mineral Resources, the compliance of which could have a material adverse effect on our business, financial condition and results of operations."

Furthermore, pursuant to the Completion Agreement, the parties agreed to accelerate the date on which we will buy from Exxaro its 26% membership interest in Tronox Sands LLP, a U.K. limited liability partnership ("Tronox Sands"). Tronox Sands holds intercompany loans that Exxaro held prior to our 2012 acquisition of Exxaro's mineral sands

business. On February 15, 2019, we completed the redemption of Exxaro's ownership interest in Tronox Sands for consideration of approximately ZAR 2.06 billion (or approximately \$148 million) in cash, which represents Exxaro's indirect share of the loan accounts in our South African subsidiaries.

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### ***Sale of our Electrolytic Business***

On September 1, 2018, Tronox LLC, our indirect wholly owned subsidiary sold to EMD Acquisition LLC certain of the assets and liabilities of our Henderson Electrolytic Operations based in Henderson, Nevada (the Henderson Electrolytic Operations), a component of our TiO<sub>2</sub> segment, for \$1.3 million in cash and a secured promissory note of \$4.7 million which was paid in full on December 27, 2018. The total pre-tax loss on the sale of \$31 million has been recorded in Impairment loss in the Consolidated Statements of Operations.

### **Our Principal Products**

**TiO<sub>2</sub> pigment:** TiO<sub>2</sub> pigment is used in a wide range of products due to its ability to impart whiteness, brightness, and opacity. TiO<sub>2</sub> pigment is used extensively in the manufacture of paint and other coatings, plastics and paper, and in a wide range of other applications. Moreover, it is a critical component of everyday consumer applications due to its superior ability to cover or mask other materials effectively and efficiently relative to alternative white pigments and extenders. TiO<sub>2</sub> pigment is considered to be a quality of life product. At present, it is our belief that there is no effective substitute for TiO<sub>2</sub> pigment because no other white pigment has the physical properties for achieving comparable opacity and brightness, or can be incorporated as cost effectively. In 2018, we generated \$1.265 billion in revenue from sales of TiO<sub>2</sub> pigment.

**Zircon:** Zircon (ZrSiO<sub>4</sub>) is a co-product of mining mineral sands deposits for titanium feedstock. Zircon is primarily used as an additive in ceramic glazes, which makes the ceramic glaze more water, chemical and abrasion resistant. It is also used for the production of zirconium metal and zirconium chemicals, in refractories, as molding sand in foundries, and for TV screen glass, where it is noted for its structural stability at high temperatures and resistance to abrasive and corrosive conditions. Zircon typically represents a relatively low proportion of the in-situ heavy mineral sands deposits, but has a relatively higher value compared to other heavy mineral products. Refractories containing zircon are expensive and are only used in demanding, high-wear and corrosive applications in the glass, steel and cement industries. Foundry applications use zircon when casting articles of high quality and value where accurate sizing is crucial, such as aerospace, automotive, medical, and other high-end applications. In 2018, we generated \$293 million in revenue from sales of zircon.

**High Purity Pig Iron:** During the process of smelting ilmenite at our smelters to produce TiO<sub>2</sub> slag, high purity pig iron is produced as a co-product. High purity pig iron is used as a raw material in foundries for the production of high quality ductile iron castings. Ductile iron is used extensively throughout the world for the production of safety critical automotive parts, such as brake calipers and steering knuckles in cars and trucks. In 2018, we generated \$87 million in revenue from sales of pig iron.

**Feedstock and Other Products:** Most TiO<sub>2</sub> products are derived from three minerals: ilmenite, leucoxene and rutile. Ilmenite, rutile, leucoxene, as well as two materials processed from ilmenite, namely, titanium slag and synthetic rutile, are all primarily used as feedstock for the production of TiO<sub>2</sub> pigment. There is substantial overlap amongst each of the aforementioned with the primary differentiating factor being the level of titanium dioxide content. For instance, rutile has the highest titanium dioxide concentration of approximately 94% to 96%, while ilmenite has the lowest of approximately 45% to 65%. In 2018, we generated \$137 million in revenue from the sale of feedstock and other products.

As mentioned previously, on September 1, 2018, we sold our Henderson Electrolytic Operations to EMD Acquisition LLC. Prior to the sale, we generated approximately \$37 million in revenues from the operations in 2018.

In addition, the demand for certain of our products during a given year is subject to seasonal fluctuations. See Risk Factors – Risks Relating to our Business – The markets for many of our products have seasonally affected sales

patterns.

### **Mining and Beneficiation of Mineral Sands Deposits**

Our mining and beneficiation of mineral sands deposits are comprised of the following:

- KwaZulu-Natal ( KZN ) Sands operations located on the eastern coast of South Africa consisting of the Fairbreeze mine, a concentration plant, a mineral separation plant and two smelting furnaces that produce titanium slag;



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- Our Namakwa Sands operations located on the western coast of South Africa consisting of the Namakwa mine, two concentration plants, a mineral separation plant, as well as two smelting furnaces that produce titanium slag; and
- Our Northern Operations complex in Western Australia consisting of the Cooljarloo dredge mine and floating heavy mineral concentration plant and the Chandala metallurgical site which includes a mineral separation plant and a synthetic rutile plant that produces synthetic rutile.

Zircon is often, but not always, found in mineral sands deposits containing ilmenite. It is extracted, alongside ilmenite and rutile, as part of the initial mineral sands beneficiation process.

The mining of mineral sands deposits is conducted either wet, by dredging or hydraulic water jets, or dry, using earth-moving equipment to excavate and transport the sands. The type of mining operation we deploy is dependent upon the characteristics of the ore body. Dredge mining is generally the favored method of mining mineral sands, provided that the ground conditions are suitable, water is readily available and the deposit is low in slime content. Dry mining techniques are generally preferred in situations involving hard ground, discontinuous ore bodies, small tonnage, high slimes contents and/or very high grades.

Regardless of the type of mining technique, the first step in the beneficiation process is to utilize wet concentrator plants to produce a high grade of heavy mineral concentrate (typically approximately 90% to 98% heavy mineral content). Screened ore is first de-slimes, a process by which slimes are separated from larger particles of minerals, and then processed through a series of spiral separators that use gravity to separate the heavy mineral sands from lighter materials, such as quartz. Residue from the concentration process is pumped back into either the open pits or slimes dams for rehabilitation and water recovery.

After producing heavy mineral concentrate in our wet concentrator plants, we separate the non-magnetic (zircon and rutile) and magnetic (ilmenite) fractions utilizing a variety of techniques. Through the separation process, we produce zircon which is sold directly to customers and high purity rutile which can immediately be used as feedstock material to make TiO<sub>2</sub> pigment or sold to the titanium metal, welding and other industries.

Ilmenite is generally further refined for use in our chloride-based TiO<sub>2</sub> pigment manufacturing processes. Depending on the characteristics of the ilmenite we use two fundamental processes to refine ilmenite. Both processes involve the removal of iron and other non-titanium material.

- Titanium slag is made by smelting ilmenite in an electric arc furnace to separate titanium-oxide from the iron and other impurities. The result is two products: slag which contains 86% to 89% titanium dioxide and is considered a high grade TiO<sub>2</sub> feedstock material, as well as high purity pig iron which is ready for sale to end-use customers.
- Synthetic rutile is made by reducing ilmenite in a rotary kiln, followed by leaching under various conditions to remove the iron from the reduced ilmenite grains. Our synthetic rutile has a titanium dioxide content of approximately 89% to 92% and is also considered a high grade TiO<sub>2</sub> feedstock material.

Our mining and beneficiation operations have a combined annual production capacity of approximately 721,000 metric tons ( MT ) of titanium feedstock, which is comprised of 91,000 MT of rutile and leucosene, 220,000 MT of synthetic rutile and 410,000 MT of titanium slag. We have the capability to produce approximately 220,000 MT of zircon and 221,000 MT of pig iron.

### **Competitive Conditions-Mining**

Globally, there are a large number of mining companies that mine mineral sand deposits containing ilmenite, as well as zircon. However, there is a smaller number of mining companies that are also involved in upgrading the underlying ilmenite to produce the high grade feedstock typically utilized by TiO<sub>2</sub> chloride producers. We believe that our degree

of vertical integration is unique and that we are the only company that has significant mining, upgrading and  $\text{TiO}_2$  pigment manufacturing capabilities.

### **Production of $\text{TiO}_2$ Pigment**

$\text{TiO}_2$  pigment is produced using a combination of processes involving the manufacture of base pigment particles through either the chloride or sulfate process followed by surface treatment, drying and milling

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(collectively known as finishing). Currently, all of our TiO<sub>2</sub> pigment is produced using the chloride process. We believe that we are one of the largest global producers and marketers of TiO<sub>2</sub> pigment manufactured via chloride technology.

In the chloride process, high quality feedstock (slag, synthetic rutile, natural rutile or, in limited cases, high titanium content ilmenite ores) are reacted with chlorine (the chlorination step) and carbon to form titanium tetrachloride ( TiCl<sub>4</sub> ) in a continuous fluid bed reactor. Purification of TiCl<sub>4</sub> to remove other chlorinated products is accomplished using selective condensation and distillation process. The purified TiCl<sub>4</sub> is then oxidized in a vapor phase form to produce raw pigment particles and chlorine gas. The latter is recycled back to the chlorination step for reuse. Raw pigment is then typically slurried with water and dispersants prior to entering the finishing step. The chloride process currently accounts for substantially all of the industry-wide TiO<sub>2</sub> production capacity in North America, and approximately 46% of industry-wide capacity globally.

Commercial production of TiO<sub>2</sub> pigment results in one of two different crystal forms: rutile, which is manufactured using either the chloride process or the sulfate process, or anatase, which is only produced using the sulfate process. Rutile TiO<sub>2</sub> is preferred over anatase TiO<sub>2</sub> for many of the largest end-use applications, such as coatings and plastics, because its higher refractive index imparts better hiding power at lower quantities than the anatase crystal form and it is more suitable for outdoor use because it is more durable. Rutile TiO<sub>2</sub> can be produced using either the chloride process or the sulfate process.

The primary raw materials used in the production of TiO<sub>2</sub> pigment include titanium feedstock, chlorine and coke. As discussed above, we believe we are unique in the degree to which we produce our own high grade titanium feedstock. Other chemicals used in the production of TiO<sub>2</sub> are purchased from various companies under short and long-term supply contracts. In the past, we have been, and we expect that we will continue to be, successful in obtaining 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 enter into the near term, to meet our requirements over the next several years.

### ***Marketing***

We supply and market TiO<sub>2</sub> under the brand name TRONOX® to approximately 700 customers in approximately 100 countries, including market leaders in each of the key end-use markets for TiO<sub>2</sub>, and we have supplied each of our top ten customers with TiO<sub>2</sub> for more than 10 years.

The following sets forth the percentage of our sales volume by end-use market for the year ended December 31, 2018.

In addition to price and product quality, we compete on the basis of technical support and customer service. Our direct sales and technical service organizations execute our sales and marketing strategy, and work together to provide quality customer service. Our direct sales staff is trained in all of our products and applications. Due to the technical requirements of TiO<sub>2</sub> applications, our technical service organization and direct sales offices are supported by a regional customer service staff located in each of our major geographic markets.

Our sales and marketing strategy focuses on effective customer management through the development of strong relationships. We develop customer relationships and manage customer contact through our sales team, technical service organization, research and development team, customer service team, plant operations personnel, supply chain specialists, and senior management visits. We believe that multiple points of customer contact facilitate efficient problem solving, supply chain support, formula optimization and co-development of products.



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### ***Competitive Conditions- TiO<sub>2</sub>***

The global market in which our TiO<sub>2</sub> pigment business operates is highly competitive. Competition is based on a number of factors such as price, product quality and service. We face competition not only from chloride process pigment producers, but from sulfate process pigment producers as well. Moreover, because transportation costs are minor relative to the cost of our product, there is also competition between products produced in one region versus products produced in another region.

We face competition from global competitors with headquarters in Europe, the United States and China, including Chemours, Cristal Global, Venator, Kronos Worldwide Inc. and Lomon Billions. In addition, we compete with numerous regional producers particularly in Eastern Europe and China.

### **Research and Development**

We have research and development facilities that aim to develop new products, service our products, and focus on applied research and development of both new and existing processes. We utilize a third party for research and development support with respect to our mineral sands business located in South Africa, while the majority of scientists supporting our TiO<sub>2</sub> pigment business are located in Oklahoma City, Oklahoma, USA.

New process developments are focused on increased throughput, efficiency gains and general processing equipment-related improvements. Ongoing development of process technology contributes to cost reduction, enhanced production flexibility, increased capacity, and improved consistency of product quality. In 2018, our product development and commercialization efforts were focused on several TiO<sub>2</sub> pigment products that deliver added value to customers across all end use segments by way of enhanced properties of the pigment.

### **Patents, Trademarks, Trade Secrets and Other Intellectual Property Rights**

Protection of our proprietary intellectual property is important to our business. At December 31, 2018, we held 33 patents and 4 patent applications in the U.S., and approximately 209 in foreign counterparts, including both issued patents and pending patent applications. Our U.S. patents have expiration dates ranging through 2036. Additionally, we have 2 trademark registrations in the U.S., as well as 51 trademark counterpart registrations and applications in foreign jurisdictions.

We also rely upon our unpatented proprietary technology, know-how and other trade secrets. The substantial majority of our patents and trade secrets relate to our chloride products, surface treatments, chlorination expertise, and oxidation process technology, and this proprietary chloride production technology is an important part of our overall technology position. However, much of the fundamental intellectual property associated with both chloride and sulfate pigment production is no longer subject to patent protection. At Namakwa Sands, we rely on intellectual property for our smelting technology, which was granted to us in perpetuity by Anglo American South Africa Limited for use on a worldwide basis, pursuant to a non-exclusive license.

While certain of our patents relating to our products and production processes are important to our long-term success, more important is the operational knowledge we possess. We also use and rely upon unpatented proprietary knowledge, continuing technological innovation and other trade secrets to develop and maintain our competitive position. We conduct research activities and protect the confidentiality of our trade secrets through reasonable measures, including confidentiality agreements and security procedures. We protect the trademarks that we use in connection with the products we manufacture and sell, and have developed value in connection with our long-term use of our trademarks. See Risk Factors – Third parties may develop new intellectual property rights for processes and/or products that we would want to use, but would be unable to do so; or, third parties may claim that the products we

make or the processes that we use infringe their intellectual property rights, which may cause us to pay unexpected litigation costs or damages or prevent us from making, using or selling products we make or require alteration of the processes we use.

### **Employees**

As of December 31, 2018, we had approximately 3,330 employees worldwide, of which 610 are located in the U.S., 600 in Australia, 1,840 in South Africa, and 280 in the Netherlands and other international locations. Our employees in the U.S. are not represented by a union or collective bargaining agreement. In South Africa, approximately 74% of our workforce belongs to a union. In Australia, most employees are not currently

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represented by a union, but approximately 46% are represented by a collective bargaining agreement. In the Netherlands, approximately 49% of our employees are represented by a collective bargaining agreement and 27% are members of a union. We consider relations with our employees and labor organizations to be good.

### **Environmental, Health and Safety Authorizations**

#### ***Mining***

Our facilities and operations are subject to extensive general and industry-specific environmental, health and safety regulations in South Africa and Australia. These regulations include those relating to mine rehabilitation, liability provision, water management, the handling and disposal of hazardous and non-hazardous materials, and occupational health and safety. The various legislation and regulations are subject to a number of internal and external audits. We believe our mineral sands operations are in compliance, in all material respects, with existing health, safety and environmental legislation and regulations.

#### ***Regulation of the Mining Industry in South Africa***

The South African mining regulatory regime is comprehensive and requires regular reporting to applicable government departments. A failure to, among other things, comply with any such reporting requirements or the conditions of any mining license could result in extended mandatory shutdown periods, license and/or mining right suspensions or revocations all of which could impact our business.

In South Africa, the primary legislative enactments with which our mines are required to comply are the Mineral and Petroleum Resources Development Act ( MPRDA ) which governs the acquisition and retention of prospecting and mining rights. In addition, the Mine Health and Safety Act governs the manner in which mining must be conducted from a health and safety perspective, while the National Environmental Management Act (and its subsidiary legislation) provides the underlying framework with respect to environmental rules and regulation for which our operations must comply. For additional details regarding other South African legislative enactments that govern our mining licenses please see the section entitled Risk Factors set forth elsewhere in this Form 10-K.

#### ***Regulation of the Mining Industry in Australia***

Mining operations in Western Australia are subject to a variety of environmental protection regulations including but not limited to: the Environmental Protection Act (the EPA ), the primary source of environmental regulation in Western Australia, and, the Environment Protection and Biodiversity Conservation Act 1999 (Cth), which established the federal environment protection regime and prohibits the carrying out of a controlled action that may have a significant impact on a matter of national environmental significance.

Prescriptive legislation regulates health and safety at mining workplaces in Western Australia. The principal general occupational health and safety legislation and regulations are the Occupational Safety and Health Act 1984 (WA), the Occupational Health and Safety Regulations 1996 (WA) and the related guidelines. The Mines Safety and Inspection Act 1994 (WA) and Mines Safety and Inspection Regulations 1995 (WA) and related guidelines provide the relevant legislation for mining operations in Western Australia. The Dangerous Goods Act 2004 (WA) applies to the safe storage, handling and transport of dangerous goods.

Each Australian state and territory has its own legislation regulating the exploration for and mining of minerals. Our exploration and mining operations are regulated by the Western Australian Mining Act 1978 (WA) and the Mining Regulations 1981 (WA).

In Western Australia, State Agreements are contracts between the State and the proponents of major resources projects within Western Australia, and are intended to foster resource development and related infrastructure investments. These agreements are approved and ratified by the Parliament of Western Australia. The State Agreement relevant to our Australian operations and our production of mineral sands is the agreement authorized by the Mineral Sands (Cooljarloo) Mining and Processing Agreement Act 1988 (WA). State Agreements supplement the legislation and regulations referred to above, and can often have the effect of varying the way in which such legislation or regulations apply to (and generally, are for the benefit of) a specific project. State Agreements may only be amended by mutual consent, which can (among other things) serve to reduce sovereign risk and enhance security of tenure, however Parliament may enact legislation that overrules or amends the particular State Agreement (although this would not typically occur without prior engagement with the project proponent).



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### **Regulation of Finished Product Manufacturing**

Our business is subject to extensive regulation by federal, state, local and foreign governments. Governmental authorities regulate the generation and treatment of waste and air emissions at our operations and facilities. At many of our operations, we also comply with worldwide, voluntary standards developed by the International Organization for Standardization ( ISO ), a nongovernmental organization that promotes the development of standards and serves as a bridging organization for quality and environmental standards, such as ISO 9002 for quality management and ISO 14001 for environmental management.

#### *Chemical Registration*

As a chemical manufacturer with global operations, we are subject to a wide array of regulations regarding the import, export, labelling, use, storage and disposal of our products. We are obliged to comply with the regulation of chemical substances and inventories under the Toxic Substances Control Act in the United States and the Registration, Evaluation and Authorization of Chemicals ( REACH ) regulation in Europe, as well as a growing list of analogous regimes in other parts of the world, including China, South Korea and Taiwan. Manufacturers and importers of chemical substances must register information regarding the properties of their existing chemical substances with the European Chemicals Agency ( ECHA ). REACH regulations also require chemical substances, which are newly imported or manufactured in the EU to be registered before being placed on the market. In addition, REACH requires registrants to update registrations within specified timelines, as well as when there may be new information relevant to human health or environmental risks of the substance. In addition, REACH includes a mechanism to evaluate substances to determine if it poses risk to human health and/or the environment. In May 2016, France's competent authority under REACH submitted a proposal to ECHA that would classify TiO<sub>2</sub> pigment as carcinogenic in humans by inhalation. On October 12, 2017, ECHA's Committee for Risk Assessment ( RAC ) released a written opinion dated September 14, 2017 stating that based on the scientific evidence it reviewed, there is sufficient grounds to classify TiO<sub>2</sub> under the EU's Classification, Labelling and Packaging Regulation ( CLP ) as a Category 2 Carcinogen, but only with a hazard statement describing the risk by inhalation. After reviewing the RAC's formal recommendation on February 14, 2019, the EC was unable to reach a decision and will re-consider the proposal at its next meeting on March 7, 2019. For additional information on this topic, see the section entitled Risk Factors – Risks Relating to our Business – The classification of TiO<sub>2</sub> as a Category 2 Carcinogen in the European Union could result in more stringent regulatory control with respect to TiO<sub>2</sub>.

#### *Greenhouse Gas Regulation*

Globally, our operations are subject to regulations that seek to reduce emissions of greenhouse gases ( GHGs ). We currently report and manage GHG emissions as required by law for sites located in areas requiring such managing and reporting (EU/Australia). While the U.S. has not adopted any federal climate change legislation, the U.S. Environmental Protection Agency ( EPA ) has introduced some GHG programs. For example, under the EPA's GHG Tailoring Rule, expansions or new construction could be subject to the Clean Air Act's Prevention of Significant Deterioration requirements. Some of our facilities are currently subject to GHG emissions monitoring and reporting. Changes or additional requirements due to GHG regulations could impact our capital and operating costs; however, it is not possible at the present time to estimate any financial impact any such changes or additional requirements may have to our operating sites.

### **Available Information**

Our public internet site is <http://www.tronox.com>. The content of our internet site is available for information purposes only and is included as an inactive textual reference. It should not be relied upon for investment purposes, nor is it incorporated by reference into this annual report unless expressly noted. We make available, free of charge,

## Edgar Filing: Tronox Ltd - Form 10-K

on or through the investor relations section of our internet site, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements and Forms 3, 4 and 5 filed on behalf of directors and executive officers, as well as any amendments to those reports filed or furnished pursuant to the U.S. Securities and Exchange Act of 1934, as amended (the Exchange Act ) as soon as reasonably practicable after we electronically file such material with, or furnish it to, the U.S. Securities and Exchange Commission (the SEC ).

We file current, annual and quarterly reports, proxy statements and other information required by the Exchange Act with the SEC. Our SEC filings are also available to the public from the SEC 's internet site at <http://www.sec.gov>.

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### **Item 1A. Risk Factors**

*You should carefully consider the risk factors set forth below, as well as the other information contained in this Form 10-K, including our consolidated financial statements and related notes. This Form 10-K contains forward-looking statements that involve risks and uncertainties. Any of the following risks could materially and adversely affect our business, financial condition or results of operations. Additional risks and uncertainties not currently known to us or those we currently view to be immaterial may also materially and adversely affect our business, financial condition or results of operations. The following risk factors are not necessarily presented in order of relative importance and should not be considered to represent a complete set of all potential risks that could affect our business, financial condition or results of operations.*

### ***RISKS RELATING TO THE CRISTAL TRANSACTION***

***Our pending acquisition of the Cristal TiO<sub>2</sub> business may not be consummated, the failure to complete the Cristal TiO<sub>2</sub> business acquisition could impact our stock price and financial results and the ongoing uncertainty as to whether the transaction will be consummated could all adversely affect our business.***

On February 21, 2017, we entered into a transaction agreement to acquire the titanium dioxide business of The National Titanium Dioxide Co. Limited (Cristal) (the Cristal Transaction). On March 1, 2018, Tronox, Cristal and Cristal Inorganic Chemicals Netherlands Cooperatief W.A. (“Cristal Inorganic”), a wholly-owned subsidiary of Cristal, entered into an Amendment to the Transaction Agreement (the Amendment) that extended the termination date under the Transaction Agreement to March 31, 2019, if necessary based on the status of outstanding regulatory approvals. On February 27, 2019, we agreed with Cristal to extend the date on which our acquisition agreement expires from March 31, 2019 to May 19, 2019. Completion of the Cristal Transaction is subject to certain closing conditions, including certain regulatory approvals, as more fully described below.

On December 5, 2017, the U.S. Federal Trade Commission (FTC) announced that it would not approve the Cristal Transaction as proposed and filed an administrative action to prevent the parties from consummating the transaction alleging that the Cristal Transaction would violate Section 7 of the Clayton Antitrust Act and Section 5 of the FTC Act. The administrative complaint sought, among other things, a permanent injunction to prevent the transaction from being completed. On December 9, 2018, the administrative law judge issued an initial decision enjoining Tronox from consummating the proposed Cristal Transaction.

Additionally, on July 10, 2018, we received notice that the FTC had filed a complaint against us in the U.S. District Court in the District of Columbia (the U.S. District Court). The complaint alleged that Tronox’s pending acquisition of the TiO<sub>2</sub> business of Cristal would violate antitrust laws by significantly reducing competition in the North American market for chloride-process TiO<sub>2</sub>. On September 5, 2018, the U.S. District Court granted the FTC a preliminary injunction blocking the Cristal Transaction.

As a result of the outstanding U.S. regulatory approval, there can be no assurance that all closing conditions for the Cristal Transaction will be satisfied and, if they are satisfied, that they will be satisfied in time for the closing to occur by May 19, 2019, at which time either party to the transaction agreement may mutually agree to extend the closing date or terminate the transaction agreement. If the Cristal Transaction has not closed by May 19, 2019 and the parties have not mutually agreed to extend such date then pursuant to the Amendment, we may be obligated to pay Cristal a \$60 million break-fee.

The Cristal Transaction is conditioned on the Company obtaining financing sufficient to fund the cash consideration, and the transaction agreement provides that the Company must pay to Cristal a termination fee of \$100 million if all conditions to closing, other than the financing condition, have been satisfied and the transaction agreement is terminated because closing of the Cristal Transaction has not occurred by May 19, 2019, and the parties have not

mutually agreed to extend such closing date.

If the Cristal Transaction is not completed, our ongoing business and financial results may be adversely affected and we will be subject to a number of risks, including the following:

- depending on the reasons for the failure to complete the Cristal Transaction we could be liable to Cristal for a break fee or termination fee or other damages in connection with the termination or breach of the transaction agreement;

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- we have dedicated and we expect we will continue to commit significant time and resources, financial and otherwise, in planning for the acquisition and the associated integration; and
- while the transaction agreement is in effect prior to closing the Cristal Transaction, we are subject to certain restrictions on the conduct of our business, which may adversely affect our ability to execute certain of our business strategies.

In addition, if the Cristal Transaction is not completed or is completed subject to significant conditions or remedies, we may experience negative reactions from the financial markets and from our customers and employees. If the acquisition is not completed, these risks may materialize and may adversely affect our business, results of operations, cash flows, as well as the price of our ordinary shares.

Finally, uncertainty about the effect of the Cristal Transaction on employees, customers and suppliers may have an adverse effect on our business and financial results. These uncertainties may impair our ability to attract, retain and motivate key personnel until the Cristal Transaction is consummated and for a period of time thereafter, and could cause our customers, suppliers and other business partners to delay or defer certain business decisions or to seek to change existing business relationships with us. The occurrence of any of these events could have a material adverse effect on our operating results, particularly during the period immediately following the closing of the Cristal transaction.

***Concentrated ownership of our ordinary shares by Cristal and Exxaro may prevent minority shareholders from influencing significant corporate decisions and may result in conflicts of interest.***

If the Cristal Transaction is consummated, Cristal Inorganic will own approximately 23.5% of the outstanding ordinary shares of the Company. Following the closing of the Cristal Transaction, Exxaro will own approximately 18% of the Company's outstanding ordinary shares, based upon its share ownership as of the date of this annual report.

Cristal Inorganic and Exxaro may be able to influence fundamental corporate matters and transactions. This concentration of ownership, may delay, deter or prevent acts that would be favored by our other shareholders. The interests of Cristal Inorganic and Exxaro may not always coincide with our interests or the interests of our other shareholders. Also, Cristal Inorganic and Exxaro may seek to cause us to take courses of action that, in its judgment, could enhance its investment in us, but which might involve risks to our other shareholders or adversely affect us or our other shareholders.

In addition, under the shareholders agreement, to be entered into upon the assumed closing of the Cristal Transaction (the Cristal Shareholders Agreement), among the Company, on the one hand, and Cristal, Cristal Inorganic and the three shareholders of Cristal, on the other hand (collectively, the Cristal Shareholders), as long as the Cristal Shareholders, collectively, beneficially own at least 24,900,000 or more of Class A Shares, they will have the right to designate for nomination two Class A Directors of the Board (defined below) and, as long as they beneficially own at least 12,450,000 Class A Shares but less than 24,900,000 Class A Shares, they will have the right to designate for nomination one Class A director of the Board. The Cristal Shareholders Agreement also will provide that as long as the Cristal Shareholders own at least 12,450,000 Class A Shares, they will be granted certain preemptive rights. Also under the Cristal Shareholders Agreement, the Company has agreed to file promptly after the closing of the acquisition a registration statement covering approximately four percent of the then-outstanding ordinary shares of the Company, which may be sold as soon as such registration statement is effective. Other than with respect to those shares, the Cristal Shareholders Agreement will include restrictions on Cristal Inorganic's ability to transfer any of its Class A Shares for a period of three years after the closing of the acquisition other than to certain permitted transferees after the later of eighteen months and the resolution of all indemnification claims under the transaction agreement. The Cristal Shareholders Agreement will also contain certain demand and piggyback registration rights, which commence after the three-year transfer restriction period expires. In addition, if the Cristal Transaction closes subsequent to the Re-Domicile Transaction, then New Tronox shall enter into a shareholders agreement with Cristal,

Cristal Inorganic and the three shareholders of Cristal on similar terms and conditions as the Cristal Shareholders Agreement.

As a result of these or other factors, including as a result of such offering of shares by Cristal or the perception that such sales may occur, the market price of our ordinary shares could decline. In addition, this concentration of share ownership may adversely affect the trading price of our ordinary shares because investors may perceive disadvantages in owning shares in a company with significant shareholders or with significant outstanding shares with registration rights.

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***If the Cristal Transaction is consummated, we may not be able to realize anticipated benefits of the Cristal Transaction, including expected synergies, earnings per share accretion or earnings before interest, taxes, depreciation and amortization ( EBITDA ) and free cash flow growth.***

The success of the pending Cristal Transaction will depend, in part, on our ability to realize anticipated cost synergies, earnings per share accretion or EBITDA and free cash flow growth. Our success in realizing these benefits, and the timing of this realization, depends on the successful integration of our business and operations with the acquired business and operations. Even if we are able to integrate the acquired businesses and operations successfully, this integration may not result in the realization of the full benefits of the pending Cristal Transaction that we currently expect within the anticipated time frame or at all. In addition, any remedial transaction entered into for the purpose of obtaining approval by the FTC may negatively impact our ability to realize any expected synergies, as well as could result in lower than anticipated cost synergies, earnings per share accretion or EBITDA and/or free cash flow growth.

There is also the possibility that:

- we may fail to realize expected performance optimization, including increased volume production;
- the acquisition may result in our assuming unexpected liabilities;
- we may experience difficulties integrating operations and systems, as well as company policies, cultures and best practices;
- we may fail to retain and assimilate employees of the acquired business;
- problems may arise in entering new markets in which we have little or no experience; and
- our post-acquisition revenue projections may be less than anticipated due to loss of customers, price volatility or reduced demand for the combined company's products.

***If the Cristal Transaction is consummated, the combined company's future results could suffer if it does not effectively manage its expanded business, operations and employee base.***

The size of the combined company's business, operations and employee base following the Cristal Transaction will be greater than the current standalone size of our business, operations and employee base. The combined company's future success depends, in part, upon our ability to manage this expanded business, operations and employee base, which will pose substantial challenges for management, including challenges related to the management and monitoring of new operations and associated increased costs and complexity. We may not be able to successfully manage the combined company's expanded business, operations and employee base if the Cristal Transaction is consummated.

When we announced the divestiture of the 8120 Grade to Venator Materials PLC ( Venator ) on July 16, 2018 we also announced that we had entered into a binding Memorandum of Understanding ( MOU ) with Venator providing for the negotiation in good faith of a definitive agreement to sell the entirety of Cristal's North American operations to Venator if a divestiture of all or a substantial part of Ashtabula was required to secure final FTC regulatory approval for the Cristal Transaction. The MOU granted Venator exclusivity for a period of 75 days to negotiate a definitive agreement for the sale of the entirety of the Ashtabula complex. The MOU also provided for a \$75 million break fee (the Break Fee ) if, among other things, the parties, despite negotiating in good-faith and in conformity with the terms in the MOU, failed to reach a definitive agreement for the sale of Cristal's North American operations and Tronox was able to consummate both the Cristal Transaction and the paper-laminate grade divestiture to Venator. On October 1, 2018, we announced that the 75-day exclusivity period under the MOU with Venator had expired without the two companies agreeing to terms. There can be no assurance that if the Cristal Transaction is consummated we will not be required to pay Venator the Break Fee.

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***If the Cristal Transaction is consummated, the combined company will be exposed to the risks of operating a global business in new countries.***

Cristal's TiQbusiness operates in certain countries, such as Brazil, China and the Kingdom of Saudi Arabia, in which we have not historically had operations or business. The combined company's global operations will be subject to a number of risks, including:

- adapting to unfamiliar regional and geopolitical conditions and demands, including political instability, civil unrest, expropriation, nationalization of properties by a government, imposition of sanctions, changes to import or export regulations and fees, renegotiation or nullification of existing agreements, mining leases and permits;
- increased difficulties with regard to political and social attitudes, laws, rules, regulations and policies within countries that favor domestic companies over non-domestic companies, including customer- or government-supported efforts to promote the development and growth of local competitors;
- economic and commercial instability risks, including those caused by sovereign and private debt default, corruption, and new and unfamiliar laws and regulations at national, regional and local levels, including taxation regimes, tariffs and trade barriers, exchange controls, repatriation of earnings, and labor and environmental and health and safety laws and regulations;
- implementation of additional technological and cybersecurity measures and cost reduction efforts, including restructuring activities, which may adversely affect the combined company's ability to capitalize on opportunities;
- cybersecurity attacks, including industrial espionage or ransomware attacks;
- major public health issues which could cause disruptions in our operations or workforce;
- war or terrorist activities;
- difficulties enforcing intellectual property and contractual rights in certain jurisdictions; and
- unexpected events, including fires or explosions at facilities, and natural disasters.

***Cristal is currently not a publicly reporting company and the obligations associated with integrating into a public company will require significant resources and management attention.***

Cristal is, and prior to the proposed consummation of the Cristal Transaction remains, a private company that is not subject to U.S. financial reporting requirements. If the Cristal Transaction is consummated, the Cristal business will become subject to the rules and regulations established from time to time by the SEC and the NYSE. In addition, as a public company, we are required to document and test our internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act of 2002 so that our management can certify as to the effectiveness of our internal controls over financial reporting, which, by the time our second annual report is filed with the SEC following the consummation of the Cristal Transaction, would include the acquired Cristal business. Bringing Cristal into compliance with these rules and regulations and integrating Cristal into our current compliance and accounting system may require us to make and document significant changes to Cristal's internal controls over financial reporting, increase our legal and financial compliance costs, make some activities more difficult, time-consuming or costly and increase demand on our systems and resources. Furthermore, the need to establish the necessary corporate infrastructure to integrate Cristal may divert management's attention from implementing our growth strategy, which could prevent us from improving our business, financial condition and results of operations. However, the measures we take may not be sufficient to satisfy our obligations as a public company. If we do not continue to develop and implement the right processes and tools to manage our changing enterprise upon the Cristal Transaction and maintain our culture, our ability to compete successfully and achieve our business objectives could be impaired, which could negatively impact our business, financial condition and results of operations. In addition, we cannot predict or estimate the amount of additional costs we may incur to bring Cristal into compliance with these requirements. In addition, bringing Cristal into compliance with these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. These additional obligations could



have a material adverse effect on our business, financial condition, results of operations and cash flow.

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***Cristal may have liabilities that are not known to us and the indemnities we have negotiated in the Cristal Transaction Agreement may not adequately protect us.***

If the Cristal Transaction is consummated, we will assume certain liabilities of Cristal, including significant environmental remediation and monitoring liabilities at Cristal's current and formerly-owned properties and closure and post-closure costs at certain of Cristal's mining and landfill facilities. There may be liabilities that we failed or were unable to discover in the course of performing due diligence investigations into Cristal. Any such liabilities, individually or in the aggregate, could have a material adverse effect on our business, financial condition and results of operations. As we integrate Cristal, we may learn additional information about Cristal that may adversely impact us, such as unknown or contingent liabilities, adequacy of financial reserves and issues relating to non-compliance with applicable laws.

## ***RISKS RELATING TO THE RE-DOMICILE TRANSACTION***

***Assuming consummation of the Re-Domicile Transaction, English law and provisions in the new articles of association of New Tronox may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our shareholders, and may prevent attempts by our shareholders to replace or remove our current management.***

Assuming consummation of the Re-Domicile Transaction, certain provisions of the U.K. Companies Act 2006 (the "Companies Act") and the articles of association of New Tronox may have the effect of delaying or preventing a change in control of us or changes in our management. For example, New Tronox's articles of association will include provisions that:

- maintain an advance notice procedure for proposed nominations of persons for election to our board of directors;
- provide certain mandatory offer provisions, including, among other provisions, that a shareholder, together with persons acting in concert, that acquires 30 percent or more of our issued shares without making an offer to all of our other shareholders that is in cash or accompanied by a cash alternative would be at risk of certain sanctions from our board of directors unless they acted with the prior consent of our board of directors or the prior approval of the shareholders; and
- provide that vacancies on our board of directors may be filled by a vote of the directors or by an ordinary resolution of the shareholders.

In addition, public limited companies are prohibited under the Companies Act from taking shareholder action by written resolution. These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management.

***Assuming consummation of the Re-Domicile Transaction, although we do not anticipate New Tronox being subject to the U.K. City Code on Takeovers and Mergers, such Takeover Code may still have anti-takeover effects in the event the Takeover Panel determines that such Code is applicable to us.***

Assuming consummation of the Re-Domicile Transaction, the U.K. City Code on Takeovers and Mergers ( "Takeover Code" ) applies, among other things, to an offer for a public company whose registered office is in the U.K. (or the Channel Islands or the Isle of Man) and whose securities are not admitted to trading on a regulated market in the U.K. (or on any stock exchange in the Channel Islands or the Isle of Man) if the company is considered by the Panel on Takeovers and Mergers ( "Takeover Panel" ) to have its place of central management and control in the U.K. (or the Channel Islands or the Isle of Man). This is known as the residency test. The test for central management and control under the Takeover Code is different from that used by the U.K. tax authorities. Under the Takeover Code, the Takeover Panel will determine whether we have our place of central management and control in the U.K. by looking

at various factors, including the structure of our board of directors, the functions of the directors and where they are resident.

Given that a majority of the members of our Board of Directors are expected to reside outside the United Kingdom, we do not anticipate that New Tronox will be subject to the Takeover Code. However, if at the time of a takeover offer subsequent to the Re-Domicile Transaction the Takeover Panel determines that we have our place of central management and control in the U.K., we would be subject to a number of rules and restrictions, including but not limited to the following: (1) our ability to enter into deal protection arrangements with a bidder would be extremely limited; (2) we might not, without the approval of our shareholders, be able to

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perform certain actions that could have the effect of frustrating an offer, such as issuing shares or carrying out acquisitions or disposals; and (3) we would be obliged to provide equality of information to all bona fide competing bidders.

***Assuming consummation of the Re-Domicile Transaction, as a public limited company incorporated in England and Wales, certain capital structure decisions will require approval of New Tronox's shareholders, which may limit our flexibility to manage our capital structure.***

The Companies Act generally provides that a board of directors of a public limited company may only allot shares (or grant rights to subscribe for or convertible into shares) with the prior authorization of shareholders, such authorization stating the maximum amount of shares that may be allotted under such authorization and specify the date on which such authorization will expire, being not more than five years, each as specified in the articles of association or relevant shareholder resolution. We have obtained previous shareholder authority for New Tronox to allot additional shares for a period of five years from February 25, 2019, which authorization will need to be renewed at least upon expiration (five years from February 25, 2019) but may be sought more frequently for additional five-year terms (or any shorter period).

The Companies Act generally provides that existing shareholders of a company have statutory pre-emption rights when new shares in such company are allotted and issued for cash. However, it is possible for such statutory pre-emption right to be disapplied by either shareholders passing a special resolution at a general meeting, being a resolution passed by at least 75% of the votes cast, or by inclusion of relevant provisions in the articles of association of the company. Such a disapplication of statutory pre-emption rights may not be for more than five years. We have obtained previous shareholder authority for New Tronox to disapply statutory pre-emption rights for a period of five years from February 25, 2019, which disapplication will need to be renewed upon expiration (i.e., at least every five years) to remain effective, but may be sought more frequently for additional five-year terms (or any shorter period).

The Companies Act generally prohibits a public limited company from repurchasing its own shares without the prior approval of its shareholders by ordinary resolution, being a resolution passed by a simple majority of votes cast, and subject to compliance with other statutory formalities. Such authorization may not be for more than five years from the date on which such ordinary resolution is passed. We have obtained previous shareholder authority for New Tronox to repurchase shares for a period of five years from February 25, 2019, which authorization will need to be renewed at least upon expiration (i.e., five years from February 25, 2019) but may be sought more frequently for additional five-year terms (or any shorter period).

***Assuming consummation of the Re-Domicile Transaction, economic conditions and regulatory changes following the U.K.'s likely exit from the E.U. could adversely impact our operations, operating results and financial condition.***

The U.K. held a referendum in June 2016 to determine whether the U.K. should leave the E.U. or remain as a member state, the outcome of which was in favor of leaving the E.U. The U.K. government initiated the formal process to leave the E.U. (often referred to as Brexit) on March 29, 2017, which will result in the U.K. leaving the E.U. on March 29, 2019 unless the U.K. revokes the notification of its intention to leave or the remaining E.U. member states and the U.K. unanimously decide to extend this period. The referendum triggered financial volatility, including a decline in the value of the British pound sterling in comparison to both the U.S. dollar and euro. It is expected that Brexit will continue to impact economic conditions in the U.K. and the E.U. The future effects of Brexit will depend on any agreements the U.K. makes to retain access to the E.U. or other markets either during a transitional period or more permanently. Given the lack of comparable precedent, assuming consummation of the Re-Domicile Transaction, it is unclear what financial, trade and legal implications the withdrawal of the U.K. from the E.U. will have and how such withdrawal will affect us.

The consequences of Brexit, together with the significant uncertainty regarding the terms on which the U.K. will leave the E.U., could introduce significant uncertainties into global financial markets and adversely impact the markets in which we and our customers operate. Brexit could also create uncertainty with respect to the legal and regulatory requirements to which we are subject and lead to divergent national laws and regulations as the U.K. government determines which E.U. laws to replace or replicate.

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Due to Brexit, adverse consequences such as deterioration in economic conditions, volatility in currency exchange rates or adverse changes in regulation could have a negative impact on our future operations, operating results and financial condition. All of these potential consequences could be further magnified if additional countries were to seek to exit the E.U.

### ***Assuming consummation of the Re-Domicile Transaction, exposure to U.K. political developments could affect us.***

Assuming consummation of the Re-Domicile Transaction, political change in the U.K. has the potential to directly affect New Tronox through the introduction of new laws (including tax laws) or regulations. The current government in the U.K. is a minority government and any future change in government in the U.K. could affect us due to changes in government policy, legislation or regulatory interpretation.

### ***Subsequent to the Re-Domicile Transaction, transfers of shares in New Tronox outside The Depository Trust may be subject to stamp duty or stamp duty reserve tax in the U.K., which would increase the cost of dealing in shares in New Tronox.***

Assuming consummation of the Re-Domicile Transaction, except for any new ordinary shares which are to be received by a holder deemed to be an affiliate of New Tronox for purposes of U.S. securities laws, it is anticipated that the ordinary shares of New Tronox will be issued to a nominee for The Depository Trust Company ( DTC ) and corresponding book-entry interests credited in the facilities of DTC. On the basis of current law and HM Revenue and Customs ( HMRC ) practice, no charges to U.K. stamp duty or stamp duty reserve tax ( SDRT ) are expected to arise on the issue of the ordinary shares into DTC s facilities or on transfers of book-entry interests in ordinary shares within DTC s facilities.

Shareholders are strongly encouraged to hold their ordinary shares in book entry form through DTC. Transfers of shares held in book entry form through DTC currently do not attract a charge to stamp duty or SDRT in the U.K. A transfer of title in the shares from within the DTC system out of DTC and any subsequent transfers that occur entirely outside the DTC system will attract a charge to stamp duty at a rate of 0.5% of any consideration, which is payable by the transferee of the shares. Any such duty must be paid (and the relevant transfer document, if any, stamped by HMRC) before the transfer can be registered in the books of New Tronox. However, if those shares are redeposited into DTC, the redeposit will attract stamp duty or SDRT at the rate of 1.5% to be paid by the transferor.

In connection with the consummation of the Re-Domicile Transaction, we expect to put in place arrangements to require that New Tronox s directly held ordinary shares cannot be transferred into the DTC system until the transferor of the ordinary shares has first delivered the ordinary shares to a depository specified by us so that SDRT may be collected in connection with the initial delivery to the depository. Any such ordinary shares will be evidenced by a receipt issued by the depository. Before the transfer can be registered in our books, the transferor will also be required to put the depository in funds to settle the resultant liability to SDRT, which will be charged at a rate of 1.5% of the value of the shares.

### ***Assuming consummation of the Re-Domicile Transaction, New Tronox s articles of association will provide that the courts of England and Wales will have exclusive jurisdiction to determine any dispute brought by a shareholder in that shareholder s capacity as such and certain other matters.***

Assuming consummation of the Re-Domicile Transaction, New Tronox s articles of association will provide that the courts of England and Wales will have exclusive jurisdiction to determine any dispute brought by a shareholder in that shareholder s capacity as such, or related to or connected with any derivative claim in respect of a cause of action vested in New Tronox or seeking relief on behalf of New Tronox, against New Tronox and/or the board and/or any of the directors, former directors, officers, employees or shareholders individually, arising out of or in connection with

our new articles of association or (to the maximum extent permitted by applicable law) otherwise. This choice of forum provision may limit a shareholder's ability to bring a claim in a judicial forum that the shareholder believes is favorable for disputes with New Tronox or its directors, former directors, officers, employees or shareholders which may discourage lawsuits against New Tronox and its directors, former directors, officers, employees or shareholders.

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### **RISKS RELATING TO OUR BUSINESS**

***Market conditions, as well as global and regional economic downturns that adversely affect the demand for our end-use products could adversely affect the results of our operations and the prices at which we can sell our products, negatively impacting our financial results.***

Our revenue and results of operations are significantly dependent on direct sales of our TiO<sub>2</sub> products, zircon, pig iron and feedstock/other products to customers. Demand for our products historically has been linked to global, regional and local GDP and discretionary spending, which can be negatively impacted by regional and world events or economic and market conditions. Such events can cause a decrease in demand for our products and market prices to fall, which may have an adverse effect on our results of operations and financial condition. A substantial portion of our products and raw materials are commodities that reprice as market supply and demand fundamentals change. Accordingly, product margins and the results of operations tend to vary with changes in the business cycle.

A significant portion of the demand for our products comes from manufacturers of paint and plastics, and other industrial customers, as well as from customers in the ceramics industry. Companies that operate in the industries that these industries serve, including automotive and construction, may experience significant fluctuations in demand for their own end products because of economic conditions, changes in consumer demand, or increases in raw material and energy costs. In addition, many large end users of our products depend upon the availability of credit on favorable terms to make purchases of raw materials such as TiO<sub>2</sub>. As interest rates increase or if our customers' creditworthiness deteriorates, this credit may be expensive or difficult to obtain. If these customers cannot obtain credit on favorable terms, they may be forced to reduce their purchases. These and other factors may lead some customers to seek renegotiation or cancellation of their arrangements with our businesses, which could have a material adverse effect on our results of operations.

***The price of our products, in particular, TiO<sub>2</sub> pigment, zircon, pig iron and feedstock/other products, have been, and in the future may be, volatile. Price declines for our products will negatively affect our financial position and results of operations.***

Historically, the global market for TiO<sub>2</sub> pigment, zircon, pig iron and feedstock/other products have been volatile, and those markets are likely to remain volatile in the future. Prices for TiO<sub>2</sub> pigment, zircon, pig iron and feedstock/other products may fluctuate in response to relatively minor changes in the supply of, and demand for, these products, market uncertainty and other factors beyond our control.

Factors that affect the price of our products include, among other things:

- overall economic conditions;
- the level of customer demand, including in the paint and plastics industries;
- the level of production and exports of our products globally;
- the level of production and cost of materials used to produce our products;
- the cost of energy consumed in the production of TiO<sub>2</sub>, feedstock and related co-products, including the price of natural gas, electricity and coal;
- the impact of competitors increasing their capacity and exports;
- domestic and foreign governmental relations, tariffs or other trade disputes, regulations and taxes; and
- political conditions or hostilities and unrest in regions where we export our TiO<sub>2</sub>, feedstock and related co-products.

Pricing pressure with respect to our TiO<sub>2</sub> pigment products, zircon, pig iron and feedstock/other products can make it difficult to predict the cash we may have on hand at any given time, and a prolonged period of price declines may materially and adversely affect our financial position, liquidity, ability to finance planned capital expenditures and



results of operations.

***Our industry and the end-use markets in which we compete are highly competitive. This competition may adversely affect our results of operations and operating cash flows.***

Each of our markets is highly competitive. Competition in the TiO<sub>2</sub> industry is based on a number of factors such as price, product quality, and service. We face significant competition from major international and smaller

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regional competitors. We also compete with Chinese producers that have significantly expanded their production capacity in recent years and have also commenced the commercial production of TiO<sub>2</sub> via chloride technology. The risk of substitution of these Chinese producers by our customers could increase as these Chinese producers expand their use of chloride technology and continue to improve the quality of their sulfate products.

Moreover, we compete with a large number of mining companies with respect to zircon. Zircon producers generally compete on the basis of price, quality, logistics, delivery, and payment terms and consistency of supply.

Within the end-use markets in which we compete, competition between products is intense. We face substantial risk that certain events, such as new product development by competitors, changing customer needs, increased commercial production of TiO<sub>2</sub> via chloride technology, greater acceptance of TiO<sub>2</sub> via sulfate technology in end-market applications hereto for characterized by TiO<sub>2</sub> via chloride technology, production advances for competing products, or price changes in raw materials, could cause our customers to switch to our competitors' products. Our inability to develop and produce or market our products to compete effectively against our competitors following such events could have a material adverse effect on our business, financial condition, results of operations and cash flow.

***An increase in the price of energy or other raw materials, or an interruption in our energy or other raw material supply, could have a material adverse effect on our business, financial condition or results of operations.***

Our mining, beneficiation, smelting and production processes consume significant amounts of energy and raw materials, the costs of which can be subject to worldwide, as well as, local supply and demand, as well as other factors beyond our control. In 2018, ore, process chemicals and energy used in the production of TiO<sub>2</sub> constituted approximately 41%, 17% and 11%, respectively, of our operating expenses. Fuel and energy linked to commodities, such as diesel, heavy fuel oil and coal, and other consumables, such as chlorine, illuminating paraffin, electrodes, and anthracite, consumed in our TiO<sub>2</sub> manufacturing and mining operations form an important part of our TiO<sub>2</sub> operating costs. We have no control over the costs of these consumables, many of which are linked to some degree to the price of oil and coal, and the costs of many of these raw materials may fluctuate widely for a variety of reasons, including changes in availability, major capacity additions or reductions, or significant facility operating problems. These fluctuations could negatively affect our operating margins, our results of operations or planned capital expenditures. As these costs rise, our operating expenses will increase and could adversely affect our business, especially if we are unable to pass price increases in raw materials through to our customers.

***The markets for many of our products have seasonally affected sales patterns.***

The demand for our products is subject to seasonal fluctuations. Because TiO<sub>2</sub> is widely used in paint and other coatings, titanium feedstocks are in higher demand prior to the painting season in the Northern Hemisphere (spring and summer), and pig iron is in lower demand during the European summer holidays, when many steel plants and foundries undergo maintenance. Additionally, although zircon is generally a non-seasonal product, it is negatively impacted by the winter and Chinese New Year celebrations due to reduced zircon demand from China. We may be adversely affected by existing or future cyclical changes, and such conditions may be sustained or further aggravated by anticipated or unanticipated changes in regional weather conditions. For example, poor weather conditions in a region can lead to an abbreviated painting season, which can depress consumer sales of paint products that use TiO<sub>2</sub>.

***Exxaro continues to hold a large portion of our total outstanding voting securities, as well as retains distinct governance and other rights as a result of our 2012 acquisition of Exxaro's mineral sands businesses.***

At December 31, 2018, Exxaro held approximately 23% of our voting securities, and had two representatives serving as Directors on our nine-member board. On March 8, 2017, Exxaro announced its intention to begin pursuing a path to sell its ownership stake in us over time. In part to facilitate the sale by Exxaro of its Tronox shares in an orderly,

predictable manner, we entered into the Completion Agreement with Exxaro which sets forth the terms under which Exxaro may further monetize its remaining stake during the course of 2019, with any such monetization being subject to market conditions. Future sales by Exxaro of our shares will result in additional Class B Shares converting to Class A Shares and an increase in the number of Class A Shares outstanding which could cause the market price of our shares to decline.

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Due to Exxaro's current ownership interest, it is entitled to certain governance rights under our Constitution and Shareholder's Deed. For example, the Constitution provides that, for as long as the Class B voting interest is at least 10% of our total voting interest, there must be nine directors on our board; of which the holders of Class A Shares will be entitled to vote separately to elect a certain number of directors to our board (which we refer to as Class A Directors), and the holders of Class B Shares will be entitled to vote separately to elect a certain number of directors to our board (which we refer to as Class B Directors). If the Class B voting interest is greater than or equal to 20% but less than 30%, our board of directors will consist of seven Class A Directors and two Class B Directors. If the Class B voting interest is greater than or equal to 10% but less than 20%, our board will consist of eight Class A Directors and one Class B Director.

The Constitution also provides that, subject to certain limitations, for as long as the Class B voting interest is at least 20%, a separate vote by holders of Class A Shares and Class B Shares is required to approve certain types of merger or similar transactions that will result in a change in control or a sale of all or substantially all of our assets or any reorganization or transaction that does not treat Class A and Class B Shares equally.

As a result of Exxaro's current ownership interest and its governance rights, Exxaro may be able to exert substantial influence over our management, operations and potential significant corporate transactions, including a change in control or the sale of all or substantially all of our assets. Exxaro's influence may have an adverse effect on the trading price of our ordinary shares.

***Our South African mining rights are subject to onerous regulatory requirements imposed by legislation and the Department of Mineral Resources (the "DMR"), the compliance of which could have a material adverse effect on our business, financial condition and results of operations.***

Black economic empowerment ( "BEE" ) legislation was introduced into South Africa as a means to seek to redress the inequalities of the previous Apartheid system by requiring the inclusion of historically disadvantaged South Africans in the mainstream economy. Under BEE legislation, South African businesses are generally required to become empowered and in the mining sector comply with a distinct sector charter. As of March 1, 2019, South African mining companies, such as ourselves, will be required to comply with Mining Charter III which was first promulgated by the DMR in September, 2018. While Mining Charter II previously required a 26% ownership by a BEE empowered entity, new Mining Charter III requires a 30% BEE shareholding that must be structured through a special purpose vehicle comprised of black entrepreneurs, the local community surrounding the relevant mining area and eligible employees. In addition, Mining Charter III sets forth new requirements with regard to the procurement of goods and services from BEE compliant entities; race, age and gender based ownership criteria and employment quotas; and workers' housing and living conditions. While we believe we are currently in compliance with the provisions of Mining Charter III, the implementation guidelines promulgated in December 2018 are complex and remain untested. As a result, the manner in which Mining Charter III is enforced by the DMR may result in material adverse effects on our business, financial condition or results of operations.

Prior to December 2017, Exxaro, by virtue of the fact that it was greater than 50% owned by historically disadvantaged South Africans and that it held a 26% ownership interest in our two South African operating entities, had historically been our BEE empowered entity allowing us to comply with the requirements of the MPRDA and Mining Charter II, the predecessor sector charter to Mining Charter III, for purposes of our existing mining rights. We believe that under Mining Charter III for the duration of our current mining rights the fact that we no longer have a BEE empowered entity holding 26% ownership interest in our two South African operating entities will not impact those rights negatively and that the once empowered always empowered principle applies to our existing mining rights. However, Mining Charter III will require that any new mining rights that we may desire to acquire in the future will require 30% historically disadvantaged South African ownership in the ratios set out in Mining Charter III.

The once empowered always empowered principle asserts that a South African company that has had the requisite shareholding base consisting of historically disadvantaged South Africans as at December 31, 2014 will always qualify as an empowered entity. The question of whether the once empowered always empowered principle applies in the mining industry in South Africa has been subject to litigation between the Minerals Council of South Africa (the “Minerals Council”) (formerly the Chamber of Mines, an industry body that represents approximately 90% of the South African Mining Industry) and the DMR. The South African High Court decided in the affirmative for the Minerals Council. It is our opinion that the once empowered always empowered is applicable to our existing mining rights, but not in respect of applications for renewals of

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existing mining rights or applications for new mining rights made under the Mining Charter III. In the event that the DMR were to challenge our compliance with Mining Charter III or the once empowered always empowered principle is otherwise not fully recognized, such decision could adversely affect our business, financial condition or results of operation.

***We may elect to exercise certain flip in rights to buy-out Exxaro's 26% ownership rights in our South African subsidiaries which might negatively impact the ownership of our heavy mineral sands mining rights.***

In connection with the Exxaro transaction, Exxaro was granted a flip in right such that following the occurrence of certain events, Exxaro would be entitled to exchange its 26% shareholding in our South African operating subsidiaries which hold our mining licenses for an additional 7.2 million Class B Shares. The Completion Agreement amends the flip-in rights granted to Exxaro so that Tronox may, subject to certain conditions, accelerate the occurrence of the flip in. If Tronox elects to accelerate the flip in there can be no assurance that the DMR will not challenge our right to continue to operate our mineral sands mining operations based upon the failure of our South African subsidiaries to be empowered (i.e. maintain 26% ownership by a BEE empowered entity). If DMR's challenge is successful, our existing mining rights could be suspended or revoked which would have a material adverse effect on our business, financial conditions or results of operations.

***South Africa, where we have large mining assets and derive a significant portion of our revenue and profit, poses distinct operational risks which could affect our business, financial condition and results of operations.***

In South Africa, we currently operate two significant mining assets, as well as accompanying separation plants and smelting operations, and derive a portion of our profit from the sale of zircon.

Our mining and smelting operations depend on electrical power generated by Eskom, the sole, state-owned energy supplier. The South African government has announced a critical shortage of coal required for energy generation and, as such, load-shedding (planned and unplanned rolling power outages) is expected for the foreseeable future. In addition, South African electricity prices have risen during the past few years, and future prices increases are expected to occur. In addition, our KZN Sands operations currently use approximately 356,000 gigajoules of Sasol gas, which is available only from Sasol Limited. As such, restrictions or additional conditions imposed by Eskom such as load shedding, electricity restrictions and/or electricity price increases, as well as an interruption in the supply of Sasol gas could have a material adverse effect on our business, financial conditions or results of operations; however, a project is underway to replace approximately 30% to 44% of our current Sasol gas usage with furnace off-gas produced by KZN Sands.

Moreover, we use significant amounts of water in our South African operations which could result in significant costs. Under South African law, our South African mining operations are subject to water-use licenses that govern each operation. These licenses require, among other conditions, that mining operations achieve and maintain certain water quality limits for all water discharges, where applicable. However, changes to water-use licenses could affect our operational results and financial condition. Additionally, certain regions of South Africa have experienced in the past, and are prone to drought conditions resulting in water restrictions being imposed in such areas. A prolonged drought in a region of South Africa where our operations are located may lead to water use restrictions which could have a material adverse effect on our business, financial condition or results of operations.

Our operations in South Africa are also reliant on services provided by the State owned, and sole provider of rail transport, Transnet, for limited rail transport services at Namakwa Sands. Furthermore, Transnet provides extensive dockside services at both the ports of Richards Bay and Saldanha Bay via Transnet Port Authority. Delays or interruptions at either the rail service or the ports in which we receive and/or export material could have a negative impact on our business, financial condition and results of operations.

The aforementioned operational risks, as well as any other foreseen or unforeseen operational risks primarily related to doing business in South Africa, could have a material adverse effect on our business, financial condition or results of operations.

*As an emerging market, South Africa poses a challenging array of long-term political and economic risks.*

South Africa continues to undergo political and economic challenges. Changes to, or instability in, the economic or political environment in South Africa, especially if such changes create political instability, actual or potential shortages of production materials or labor unrest, could result in production delays and production shortfalls, and materially impact our production and results of operations.

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The South African government has recently embarked on a process of identifying and securing land for persons who were previously dispossessed of such land as a result of Apartheid policies. In December 2018, the South African government released a draft land expropriation bill for public comment. The land expropriation bill contemplates that, where it is in the public interest, land may be expropriated by the South African government, without compensation being payable to the current owners. While the South African government has indicated that such measures will be applied initially to state-owned land, it is possible that such measures may extend to agricultural and mining areas. We own the majority of the land on which the Namakwa Sands and KZN Sands operations are situated and have invested considerable funds in developing these areas. In the event that these areas become the subject of a land claim under any such proposed or future land expropriation bill, it may have a material adverse effects on our business, financial condition or results of operations.

In addition, South Africa's exchange control regulations require resident companies to obtain the prior approval of the South African Reserve Bank to raise capital in any currency other than the Rand, and restrict the export of capital from South Africa. While the South African government has relaxed exchange controls in recent years, it is difficult to predict whether or how it will further change or abolish exchange control measures in the future. These exchange control restrictions could hinder our financial and strategic flexibility, particularly our ability to use South African capital to fund acquisitions, capital expenditures, and new projects outside of South Africa.

Moreover, our operations have been affected by inflation in South Africa in recent years. Working costs and wages in South Africa have increased in recent years, resulting in significant cost pressures for the mining industry. Prolonged or heightened inflation and associated cost pressures could have a material adverse effect on our business, financial condition or results of operations.

### ***Our ability to use our tax attributes to offset future income may be limited.***

Our ability to use any net operating losses (NOLs) and Section 163(j) interest expense carryforwards (which are now subject to limitations under Section 382 of the Code per the U.S. tax reform bill enacted on December 22, 2017 (the "Tax Reform Act")) generated by us could be substantially limited if we were to experience an ownership change as defined under Section 382 of the Code. In general, an ownership change would occur if our 5-percent shareholders, as defined under Section 382 of the Code, including certain groups of persons treated as 5-percent shareholders, collectively increased their ownership in us by more than 50 percentage points over a rolling three-year period. Pursuant to the Completion Agreement, Exxaro has agreed to sell down its remaining ownership interest in us in a manner that we believe will not cause us to lose, under limitations set forth in Section 382 of the Code, the benefit of approximately \$4.1 billion of NOLs and/or the approximately \$1.1 billion of Section 163(j) interest expense carryforwards. Additionally, assuming the consummation of the Re-Domicile Transaction, our board of directors will have the ability to establish a shareholder rights plan to prevent an ownership change for the purpose of Section 382 of the Code. Although we believe the Completion Agreement and Re-Domicile Transaction should provide sufficient protection of the approximately \$4.1 billion of NOLs and/or the approximately \$1.1 billion of Section 163(j) interest expense carryforwards, there can be no assurance that an ownership change for U.S. federal and applicable state income tax purposes will not occur in the future. A corporation that experiences an ownership change will generally be subject to an annual limitation on the use of its pre-ownership change NOLs (and certain other losses and/or credits) equal to the equity value of the corporation immediately before the ownership change, multiplied by the long-term tax-exempt rate for the month in which the ownership change occurs. Although our NOLs continue to have full valuation allowances, such a limitation could, for any given year, have the effect of increasing the amount of our U.S. federal income tax liability, which would negatively impact our financial condition and the amount of after-tax cash available for distribution to holders of our ordinary shares if declared by our board of directors.

***We are a holding company that is dependent on cash flows from our operating subsidiaries to fund our debt obligations, capital expenditures and ongoing operations.***



All of our operations are conducted and all of our assets are owned by our operating companies, which are our subsidiaries. We intend to continue to conduct our operations at the operating companies and any future subsidiaries. Consequently, our cash flow and our ability to meet our obligations or make cash distributions depends upon the cash flow of our operating companies and any future subsidiaries, and the payment of funds by our operating companies and any future subsidiaries in the form of dividends or otherwise. The ability of our

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operating companies and any future subsidiaries to make any payments to us depends on their earnings, the terms of their indebtedness, including the terms of any credit facilities, or indentures, and legal restrictions regarding the transfer of funds.

Our ability to service our debt and fund our planned capital expenditures and ongoing operations will depend on our ability to generate and increase cash flow, and our access to additional liquidity sources. Our ability to generate and increase cash flow is dependent on many factors, including:

- the transfer of funds from subsidiaries in the U.S. to certain foreign subsidiaries;
- our ability to obtain raw materials at reasonable prices or to raise prices to offset, in whole or in part, the effects of higher raw material costs;
- the selling price of our products;
- our ability to adequately deliver customer service and competitive product quality;
- the impact of competition from other chemical and materials manufacturers and diversified companies;
- general world business conditions, economic uncertainty or downturn and the significant downturn in housing construction and overall economies;
- the effects of governmental regulation on our business;
- tariff, trade duties and other trade barriers; and
- political and social instability.

Many of these factors are beyond our control. A general economic downturn can result in reduced spending by customers, which will impact our revenues and cash flows from operating activities. At reduced performance, if we are unable to generate sufficient cash flow or access additional liquidity sources, we may not be able to service and repay our existing debt, operate our business, respond to competitive challenges, or fund our other liquidity and capital needs.

***The agreements and instruments governing our debt contain restrictions and limitations that could affect our ability to operate our business, as well as impact our liquidity.***

As of December 31, 2018, our total principal amount of debt was approximately \$3.2 billion. Our credit facilities contain covenants that could adversely affect our ability to operate our business, our liquidity, and our results of operations. These covenants restrict, among other things, our and our subsidiaries' ability to:

- incur or guarantee additional indebtedness;
- complete asset sales, acquisitions or mergers;
- make investments and capital expenditures;
- prepay other indebtedness;
- enter into transactions with affiliates; and
- fund additional dividends or repurchase shares.

Certain of our indebtedness facilities and senior notes include requirements relating to the ratio of adjusted EBITDA to indebtedness or certain fixed charges. The breach of any covenants or obligations in our credit facilities, not otherwise waived or amended, could result in a default under the applicable debt obligations (and cross-defaults to certain other debt obligations) and could trigger acceleration of those obligations, which in turn could trigger other cross defaults under other existing or future agreements governing our long-term indebtedness. In addition, the secured lenders under the credit facilities could foreclose on their collateral, which includes equity interests in our subsidiaries, and exercise other rights of secured creditors. Any default under those credit facilities could adversely affect our growth, our financial condition, our results of operations and our ability to make payments on our credit facilities, and could force us to seek the protection of bankruptcy laws.

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***We may need additional capital in the future and may not be able to obtain it on favorable terms, and such capital expenditure projects may not realize expected investment returns.***

Our business is capital intensive, and our success depends to a significant degree on our ability to maintain our manufacturing operations and invest in those operations to expand capacity and remain competitive from a cost perspective. We may require additional capital in the future to finance capital investments, including any potential expansion or optimization of existing facilities, fund ongoing research and development activities and meet general working capital needs. Additionally, we entered into the Option Agreement with AMIC pursuant to which AMIC granted us an option to acquire 90% of a SPV, to which AMIC's ownership in the Slagger in The Jazan City for Primary and Downstream Industries in the KSA will be contributed together with \$322 million of indebtedness currently held by AMIC. Upon exercise of the call or put option, there can be no assurance that we may assume this indebtedness and may need to obtain funding to repay it. Additional financing may not be available when needed on terms favorable to us, or at all. If we are unable to obtain adequate funds on acceptable terms, we may be unable to maintain, expand or lower the operating costs of our facilities or take advantage of future opportunities or respond to competitive pressures, which could harm our results of operations, financial condition and business prospects. Additionally, if we undertake these projects, they may not be completed on schedule, at the budgeted cost, or at all. Moreover, our revenue may not increase immediately upon the expenditure of funds on a particular project. As a result, we may not be able to realize our expected investment return, which could adversely affect our results of operations and financial condition.

***Our results of operations may be adversely affected by fluctuations in currency exchange rates.***

The financial condition and results of operations of our operating entities outside the U.S. are reported in various foreign currencies, primarily the South African Rand, Australian Dollars and Euros, and then converted into U.S. dollars at the applicable exchange rate for inclusion in the financial statements. As a result, any volatility of the U.S. dollar against these foreign currencies creates uncertainty for, and may have a negative impact on, reported sales and operating margin. We have made a U.S. dollar functional currency election for both Australian financial reporting and federal income tax purposes. On this basis, our Australian entities report their results of operations on a U.S. dollar basis. In addition, our operating entities often need to convert currencies they receive for their products into currencies in which they purchase raw materials or pay for services, which could result in a gain or loss depending on fluctuations in exchange rates. In order to manage this risk, we have, from time to time, entered into forward contracts to buy and sell foreign currencies.

***Our flexibility in managing our labor force may be adversely affected by labor and employment laws in the jurisdictions in which we operate, many of which are more onerous than those of the U.S.; and some of our labor force has substantial workers' council or trade union participation, which creates a risk of disruption from labor disputes and new laws affecting employment policies.***

Labor costs constituted approximately 28% of our production costs (excluding ore cost) in 2018. The majority of our employees are located outside the U.S. In most of those countries, labor and employment laws are more onerous than in the U.S. and, in many cases, grant significant job protection to employees, including rights on termination of employment.

In South Africa, over 74% of our workforce belongs to a union. In Australia, most employees are not currently represented by a union, but approximately 46% are represented by a collective bargaining agreement. In the Netherlands, approximately 49% of our employees are represented by a collective bargaining agreement and 27% are members of a union.

Our South African operations have entered into various agreements regulating wages and working conditions at our mines. There have been periods when various stakeholders have been unable to agree on dispute resolution processes, leading to threats of disruptive labor disputes, although only two strikes have ever occurred in the history of these operations. Due to the high level of employee union membership, our South African operations are at risk of production stoppages for indefinite periods due to strikes and other labor disputes. Although we believe that we have good labor relations with our South African employees, we may experience labor disputes in the future.

South African employment law, which is based on the minimum standard set by the International Labor Organization, sets out minimum terms and conditions of employment for employees. Although these may be improved by agreements between an employer and the trade unions, prescribed minimum terms and conditions

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form the benchmark for all employment contracts. Our South African operations are required to submit a report to the South African Department of Labor under South African employment law detailing the progress made towards achieving employment equity in the workplace. Failing to submit this report in a timely manner could result in substantial penalties. In addition, future legislative developments that affect South African employment policies may increase production costs or negatively impact relationships with employees and trade unions, which may have an adverse effect on our business, operating results and financial condition.

We are required to consult with, and seek the consent or advice of, various employee groups or works councils that represent our employees for any changes to our activities or employee benefits. This requirement could have a significant impact on our flexibility in managing costs and responding to market changes.

***Given the nature of our chemical, mining and smelting operations, we face a material risk of liability, production delays and additional expenditures from environmental and industrial accidents.***

Our business is exposed to, among other things, environmental hazards and industrial accidents the occurrence of which could delay production, suspend operations, increase repair, maintenance or medical costs and, due to the integration of our facilities, could have an adverse effect on the productivity and results of operations of a particular manufacturing facility or on our business as a whole. Furthermore, during operational breakdowns resulting from any such environmental hazard or industrial facility, the relevant facility may not become fully operational within the anticipated timeframe, which could result in further business losses. Over our operating history, we have incurred incidents of this nature. If any of the equipment on which we depend were severely damaged or were destroyed by fire, flooding, or otherwise, we may be unable to replace or repair it in a timely manner or at a reasonable cost, which would impact our ability to produce and ship our products, which would have a material adverse effect on our business, financial condition or results of operations.

***Equipment upgrades, equipment failures and deterioration of assets may lead to production curtailments, shutdowns or additional expenditures.***

Our operations depend upon critical equipment that require scheduled upgrades and maintenance and may suffer unanticipated breakdowns or failures. As a result, our mining operations and processing plants may be interrupted or curtailed by equipment failures, which could have a material adverse effect on our results of operations. In addition, assets critical to our mining and chemical processing operations may deteriorate due to wear and tear or otherwise sooner than we currently estimate. Such deterioration may result in additional maintenance spending and additional capital expenditures. If these assets do not generate the amount of future cash flows that we expect, and we are not able to refurbish them or procure replacement assets in an economically feasible manner, our future results of operations may be materially and adversely affected.

***Our results of operations and financial condition could be seriously impacted by security breaches, including cybersecurity incidents.***

We rely on information technology systems across our operations, including internal and external communications, and the management of our accounting, finance, and supply chain functions. Our information technology is provided by a combination of internal and external services and service providers. Further, our business involves the use, processing, storage and transmission of information about customers, suppliers and employees using such information technology systems. Our ability to effectively operate our business depends on the security, reliability and capacity of these systems.

Like most major corporations, we may become the target of cyberattacks, including industrial espionage or ransomware attacks, from time to time. Failure to effectively prevent, detect and recover from security breaches,

including attacks on information technology and infrastructure by hackers; viruses; breaches due to employee error or actions; or other disruptions could seriously harm our operations as well as the operations of our customers and suppliers. Such serious harm can involve, among other things, misuse of our assets, business disruptions, loss of data, unauthorized access to trade secrets and confidential business information, unauthorized access to personal information, legal claims or proceedings, reporting errors, processing inefficiencies, negative media attention, reputational harm, loss of sales, remediation and increased insurance costs, and interference with regulatory compliance. We have experienced, and expect to continue to experience, these types of cybersecurity threats and incidents, which may be material.

We have put in place security measures designed to protect against cyberattacks, security breaches and misappropriation or corruption of our systems, intentional or unintentional disclosure of confidential information,

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or disruption of our operations. As these threats continue to evolve, particularly around cybersecurity, we may be required to expend significant resources to enhance our control environment, processes, practices and other protective measures. Despite these efforts, we may not be able to prevent cyberattacks and other security breaches and such events could materially adversely affect our business, financial condition or results of operations.

***Our failure to comply with the anti-corruption laws of the U.S. and various international jurisdictions could negatively impact our reputation and results of operations.***

Doing business on a global basis requires us to comply with the laws and regulations of the U.S. government and those of various international jurisdictions, and our failure to successfully comply with these rules and regulations may expose us to liabilities. In particular, our operations are subject to U.S. and foreign anti-corruption laws and regulations, such as the U.S. Foreign Corrupt Practices Act (FCPA), the U.K. Bribery Act 2010 (U.K. Bribery Act), as well as anti-corruption laws of the various jurisdictions in which we operate. Our global operations may expose us to the risk of violating, or being accused of violating, the foregoing or other anti-corruption laws. Such violations could be punishable by criminal fines, imprisonment, civil penalties, disgorgement of profits, injunctions, and exclusion from government contracts, as well as other remedial measures. Investigations of alleged violations can be very expensive, disruptive, and damaging to our reputation. Although we have implemented anti-corruption policies and procedures, there can be no guarantee that these policies, procedures, and training will effectively prevent violations by our employees or representatives in the future. Additionally, we face a risk that our distributors and other business partners may violate the FCPA, the U.K. Bribery Act, or similar laws or regulations. Such violations could expose us to FCPA and U.K. Bribery Act liability and/or our reputation may potentially be harmed by their violations and resulting sanctions and fines.

***We are subject to many environmental, health and safety regulations that may result in unanticipated costs or liabilities, which could reduce our profitability.***

Our operations and production facilities are subject to extensive environmental and health and safety laws and regulations at national, international and local levels in numerous jurisdictions relating to use of natural resources, pollution, protection of the environment, mine site remediation, transporting and storing raw materials and finished products, and storing and disposing of hazardous wastes among other materials.

Moreover, certain environmental laws impose joint and several and/or strict liability for costs to clean up and restore sites where pollutants have been disposed or otherwise spilled or released. We are currently addressing certain areas of known contamination on our own properties, none of which we presently anticipate will result in any material costs or adverse impacts on our business or operations. However, we cannot be certain that we will not incur significant costs and liabilities for remediation or damage to property, natural resources or persons as a result of spills or releases from our operations or those of a third party.

The costs of compliance with the extensive environmental, health and safety laws and regulations or the inability to obtain, update or renew permits required for operation or expansion of our business could reduce our results of operations or otherwise adversely affect our business. If we fail to comply with the conditions of our permits governing the production and management of regulated materials, mineral sands mining licenses or leases or the provisions of the applicable U.S., South African or Australian law, these permits, mining licenses or leases and mining rights could be canceled or suspended, and we could be prevented from obtaining new mining and prospecting rights, which could materially and adversely affect our business, operating results and financial condition. Additionally, we could incur substantial costs, including fines, damages, criminal or civil sanctions and remediation costs, or experience interruptions in our operations, for violations arising under these laws and regulations. In the event of a catastrophic incident involving any of the raw materials we use, or chemicals or mineral products we produce, we could incur material costs as a result of addressing the consequences of such event.

Changes to existing laws governing operations, especially changes in laws relating to transportation of mineral resources, the treatment of land and infrastructure, contaminated land, the remediation of mines, tax royalties, exchange control restrictions, environmental remediation, mineral rights, ownership of mining



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assets, or the rights to prospect and mine may have a material adverse effect on our future business operations and financial performance. There is risk that onerous conditions may be attached to authorizations in the form of mining rights, water-use licenses, miscellaneous licenses and environmental approvals, or that the grant of these approvals may be delayed or not granted.

### ***The classification of TiO<sub>2</sub> as a Category 2 Carcinogen in the European Union could result in more stringent regulatory control with respect to TiO<sub>2</sub>.***

In May 2016, France's competent authority under the EU's Registration, Evaluation, Authorization and Restrictions of Chemicals ( REACH ) submitted a proposal to the European Chemicals Agency ( ECHA ) that would classify TiO<sub>2</sub> as carcinogenic in humans by inhalation. On October 12, 2017, ECHA's Committee for Risk Assessment ( RAC ) released a written opinion dated September 14, 2017 stating that based on the scientific evidence it reviewed, there is sufficient grounds to classify TiO<sub>2</sub> under the EU's Classification, Labelling and Packaging Regulation ( CLP ) as a Category 2 Carcinogen, but only with a hazard statement describing the risk by inhalation. After reviewing the RAC's formal recommendation on February 14, 2019, the European Commission was unable to reach a decision and will re-consider the proposal at its next meeting on March 7, 2019. If the European Commission ultimately decides to adopt this classification, it could require that products manufactured with TiO<sub>2</sub> be classified as containing carcinogenic materials, which could impact our business by inhibiting the marketing of products containing TiO<sub>2</sub> to consumers, and subject our manufacturing operations to new regulations that could increase costs. Any classification, use restriction or authorized requirement for use imposed by the ECHA could have additional effects under other EU laws (e.g., those affecting medical and pharmaceutical applications, cosmetics, food packaging and food additives) and/or trigger heightened regulatory scrutiny in countries and local jurisdictions outside the EU based on health and safety grounds. It is also possible that heightened regulatory scrutiny would lead to claims by consumers or those involved in the production of such products alleging adverse health impacts.

### ***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 competitors, customers, equipment vendors, environmental groups and other non-governmental organizations, and providers of shipping services. 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 any litigation and coverage decisions, we cannot predict the outcome of these matters or whether insurance claims may mitigate any damages to us. Litigation is very costly, and the costs associated with prosecuting and defending litigation matters could have a material adverse effect on our results of operations and financial condition.

### ***We compete with other mining and chemical businesses for key human resources in the countries in which we operate, and our business will suffer if we are unable to hire highly skilled employees or if our key officers or employees discontinue employment with us.***

We compete with other chemical and mining companies, and other companies generally, in the countries in which we operate to attract and retain key human resources at all levels with the appropriate technical skills and operating and managerial experience necessary to continue operating and expanding our businesses. These operations use modern techniques and equipment and accordingly require various types of skilled workers. The success of our business will be materially dependent upon the skills, experience and efforts of our key officers and skilled employees. Competition for skilled employees is particularly severe in Western Australia and at Namakwa Sands, which may cost us in terms of higher labor costs or reduced productivity. As a result, we may not be able to attract and retain skilled and experienced employees. Should we lose any of our key personnel or fail to attract and retain key qualified personnel or other skilled employees, our business may be harmed and our operational results and financial condition could be

affected.

*If we are unable to innovate and successfully introduce new products, or new technologies or processes reduce the demand for our products or the price at which we can sell products, our results of operations could be adversely affected.*

Our industries and the end-use markets into which we sell our products experience periodic technological change and product improvement. Our future growth will depend on our ability to gauge the direction of commercial and technological progress in key end-use markets and on our ability to fund and successfully

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develop, manufacture and market products in such changing end-use markets. We must continue to identify, develop and market innovative products or enhance existing products on a timely basis to maintain our profit margins and our competitive position. If we fail to keep pace with any evolving technological innovations in our end-use markets on a competitive basis, our financial condition and results of operations could be adversely affected.

In addition, new technologies or processes have the potential to replace or provide lower-cost alternatives to our products, such as new processes that reduce the amount of TiO<sub>2</sub> or zircon content in consumer products which in turn could depress the demand and pricing for TiO<sub>2</sub> or zircon, respectively. We cannot predict whether technological innovations will, in the future, result in a lower demand for our products or affect the competitiveness of our business. We may be required to invest significant resources to adapt to changing technologies, markets and competitive environments.

***Third parties may develop new intellectual property rights for processes and/or products that we would want to use, but would be unable to do so; or, third parties may claim that the products we make or the processes that we use infringe their intellectual property rights, which may cause us to pay unexpected litigation costs or damages and/or prevent us from making, using or selling products we make or require alteration of the processes we use.***

Results of our operations may be negatively impacted if a competitor develops or has the right to use intellectual property rights for new processes or products and we cannot obtain similar rights on favorable terms or are unable to independently develop non-infringing competitive alternatives. Similarly, results of operations may also be negatively impacted if third parties assert that the products we make or made or the processes that we use or used infringe or infringed their intellectual property rights.

Although there are currently no pending or threatened proceedings or claims known to us that are material relating to alleged infringement, misappropriation or violation of the intellectual property rights of others, we may be subject to legal proceedings and claims in the future in which third parties allege that their patents or other intellectual property rights are infringed, misappropriated or otherwise violated by us or our products or processes. In the event that any such infringement, misappropriation or violation of the intellectual property rights of others is found, we may need to obtain licenses from those parties or substantially re-engineer our products or processes to avoid such infringement, misappropriation or violation. We might not be able to obtain the necessary licenses on acceptable terms or be able to re-engineer our products or processes successfully. Moreover, if we are found by a court of law to infringe, misappropriate or otherwise violate the intellectual property rights of others, we could be required to pay substantial damages or be enjoined from making, using or selling the infringing products or technology. We also could be enjoined from making, using or selling the allegedly infringing products or technology pending the final outcome of the suit. Any of the foregoing could adversely affect our financial condition and results of operations.

***If our intellectual property were compromised or copied by competitors, or if competitors were to develop similar intellectual property independently, our results of operations could be negatively affected.***

Our success depends to a significant degree upon our ability to protect and preserve our intellectual property rights. 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 found unenforceable or otherwise compromised. A failure to protect, defend or enforce our intellectual property rights could have an adverse effect on our financial condition and results of operations. The protection afforded to our intellectual property varies based upon country, scope of individual patent or trademark, as well as the availability of legal remedies in each country.

We also rely upon unpatented proprietary technology, operational knowledge and other trade secrets to maintain our competitive position. While we maintain policies to enter into confidentiality agreements with our employees and

third parties to protect our proprietary expertise and other trade secrets, these agreements may not be enforceable or, even if legally enforceable, we may not have adequate remedies for breaches of such agreements. We also may not be able to readily detect breaches of such agreements. In addition, there can be no assurance that others will not obtain knowledge of these trade secrets through independent development or other access by legal means. The failure of our patents or confidentiality agreements to protect our proprietary technology, operational knowledge or trade secrets could result in significantly lower revenues, reduced profit margins or loss of market share.

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In addition, we may be unable to determine when third parties are using our intellectual property rights without our authorization. The undetected or unremedied unauthorized use of our intellectual property rights or the legitimate development or acquisition of intellectual property related to our industry by third parties could reduce or eliminate any competitive advantage we have as a result of our intellectual property rights, adversely affecting our financial condition and results of operations. 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 our resources and our 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.

***Our ore resources and reserve estimates are based on a number of assumptions, including mining and recovery factors, future cash costs of production and ore demand and pricing. As a result, ore resources and reserve quantities actually produced may differ from current estimates.***

The mineral resource and reserve estimates are estimates of the quantity and ore grades in our mines based on the interpretation of geological data obtained from drill holes and other sampling techniques, as well as from feasibility studies. The accuracy of these estimates is dependent on the assumptions and judgments made in interpreting the geological data. The assessment of geographical characteristics, such as location, quantity, quality, continuity of geology and grade, is made with varying degrees of confidence in accordance with established guidelines and standards. We use various exploration techniques, including geophysical surveys and sampling through drilling and trenching, to investigate resources and implement applicable quality assurance and quality control criteria to ensure that data is representative. Our mineral reserves represent the amount of ore that we believe can be economically mined and processed, and are estimated based on a number of factors, which have been stated in accordance with SEC Industry Guide 7 ( Industry Guide 7 ), the South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves 2007 version, as amended SAMREC and the Australian code for Reporting of Exploration Results, Mineral Resources the Joint Ore Reserves Committee Code (2012) (JORC).

There is significant uncertainty in any mineral reserve or mineral resource estimate. Factors that are beyond our control, such as the ability to secure mineral rights, the sufficiency of mineralization to support mining and beneficiation practices and the suitability of the market may significantly impact mineral resource and reserve estimates. The actual deposits encountered and the economic viability of mining a deposit may differ materially from our estimates. Since these mineral resources and reserves are estimates based on assumptions related to factors discussed above, we may revise these estimates in the future as we become aware of new developments. To maintain TiO<sub>2</sub> feedstock and zircon production beyond the expected lives of our existing mines or to increase production materially above projected levels, we will need to access additional reserves through exploration or discovery.

***If our intangible assets or other long-lived assets become impaired, we may be required to record a significant noncash charge to earnings.***

We have a significant amount of intangible assets and other long-lived assets on our consolidated balance sheets. Under generally accepted accounting principles in the United States ( U.S. GAAP ), we review our intangible assets and other long-lived assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Factors that may be considered a change in circumstances, indicating that the carrying value of our intangible assets and other long-lived assets may not be recoverable, include, but are not limited to, a significant decline in share price and market capitalization, changes in the industries in which we operate, particularly the impact of a downturn in the global economy, as well as competition or other factors leading to reduction in expected long-term sales or results of operations. We may be required to record a significant noncash charge in our financial statements during the period in which any impairment of our intangible assets and other long-lived assets is determined, negatively impacting our results of operations.

***We could be subject to changes in tax rates, adoption of new tax laws or additional tax liabilities.***

We are subject to taxation in the United States, Australia and various other foreign jurisdictions. Our future effective tax rate could be affected by changes in statutory rates and other legislative changes, or changes in determinations regarding the jurisdictions in which we are subject to tax. From time to time, the U.S. federal, state and local and foreign governments make substantive changes to tax rules and their application, which could

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result in higher corporate taxes than would be incurred under existing tax law and could have an adverse effect on our results of operations or financial condition. From time to time, we are also subject to tax audits by various taxing authorities. Although we believe our tax positions are appropriate, the final determination of any future tax audits could be materially different from our income tax provisions, accruals and reserves and any such unfavorable outcome from a future tax audit could have a material adverse effect on our results of operations or financial condition.

### ***There may be difficulty in effecting service of legal process and enforcing judgments against us and our directors and management.***

We are registered under the laws of Western Australia, Australia, and substantial portions of our assets are located outside of the U.S. In addition, certain members of our board of directors reside outside the U.S. As a result, it may be difficult for investors to effect service of process within the U.S. upon Tronox Limited or such other persons residing outside the U.S., or to enforce judgments outside the U.S. obtained against such persons in U.S. courts in any action, including actions predicated upon the civil liability provisions of the U.S. federal securities laws. In addition, it may be difficult for investors to enforce rights predicated upon the U.S. federal securities laws in original actions brought in courts in jurisdictions located outside the United States. This will continue to be the case in the event of the consummation of the Re-Domicile Transaction.

In addition, assuming consummation of the Re-Domicile Transaction, we will be incorporated under the laws of England and Wales. The U.S. and the U.K. do not currently have a treaty providing for the recognition and enforcement of judgments, other than arbitration awards, in civil and commercial matters. The enforceability of any judgment of a U.S. federal or state court in the U.K. will depend on the laws and any treaties in effect at the time, including conflicts of laws principles (such as those bearing on the question of whether a U.K. court would recognize the basis on which a U.S. court had purported to exercise jurisdiction over a defendant). In this context, there is doubt as to the enforceability in the U.K. of civil liabilities based solely on the federal securities laws of the U.S. In addition, awards for punitive damages in actions brought in the U.S. or elsewhere may be unenforceable in the U.K. An award for monetary damages under U.S. securities laws would likely be considered punitive if it did not seek to compensate the claimant for loss or damage suffered and was intended to punish the defendant.

### **Item 1B. Unresolved Staff Comments**

Not applicable.

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Below are our primary offices and facilities at December 31, 2018. We believe our properties are in good operating condition, and are well maintained. Pursuant to separate financing agreements, substantially all of our material U.S., European and Australian properties are pledged or encumbered to support or otherwise provide security for our indebtedness.

Our primary office locations consisted of the following:

<b>Location</b>	<b>Owned/Leased</b>	<b>Offices</b>
Stamford, Connecticut	Leased	263 Tresser Boulevard, Suite 1100
Kwinana Beach, Western Australia	Owned	Lot 22 Mason Road
London, United Kingdom	Leased	25 Bury Street, 3 <sup>rd</sup> Floor
New York, New York	Leased	410 Park Avenue
Oklahoma City, Oklahoma	Leased	3301 NW 150 Street

*TiO<sub>2</sub> Pigment Operations*

Our TiO<sub>2</sub> pigment facilities consist of the physical assets necessary and appropriate to produce, distribute and supply our TiO<sub>2</sub> pigment and consist mainly of manufacturing and distribution facilities. The following table summarizes our TiO<sub>2</sub> production facilities and production facilities and capacity (in gross MT per year), by location:

<b>Facility</b>	<b>Production</b>	<b>TiO<sub>2</sub> Capacity</b>	<b>Process</b>	<b>Property Owned/Leased</b>	<b>Facility Owned/Leased</b>
Hamilton, Mississippi	TiO <sub>2</sub>	225,000	Chloride	Owned	Owned
Kwinana, Western Australia	TiO <sub>2</sub>	150,000	Chloride	Owned	Owned
Botlek, the Netherlands	TiO <sub>2</sub>	90,000	Chloride	Leased	Owned

For a property description relating to our mining operations, see Item 1 Business – Mining and Beneficiation of Mineral Sands Deposits.

*TiO<sub>2</sub> Mining Operations*

We own and operate three integrated mining-mineral processing operations: two mine-heavy mineral separation-smelter operations on the east and west coasts of South Africa; and a mine-heavy mineral separation-synthetic rutile operation that is further integrated with a TiO<sub>2</sub> pigment manufacturing plant on the west coast of Australia.

Our KZN Sands operations consist of the Fairbreeze mine, a concentration plant, a mineral separation plant and a smelter complex with two furnaces.

Our Namakwa Sands operations include two mines each feeding primary concentrators, one secondary concentration plant, mineral separation ( dry ) plant, and a smelter complex, with two furnaces.

Our Western Australia operations consist of the Cooljarloo dredge mine and floating heavy mineral concentration plant and the Chandala metallurgical complex, which includes a mineral separation plant and a synthetic rutile plant.

*Mineral Properties*



As of December 31, 2018, we owned mining rights to ore reserves described herein at our three mineral sands operations in South Africa and Western Australia, where we mine heavy mineral sands to supply titanium mineral feedstock to our TiO<sub>2</sub> manufacturing business and co-products for external sale.

### **Reporting of Ore Reserve and Mineral Resources**

U.S. registrants are required to report ore reserves under Industry Guide 7, Description of Property by Issuers Engaged or To Be Engaged in Significant Mining Operations . Industry Guide 7 requires that sufficient technical and economic studies have been completed to reasonably assure economic extraction of the declared reserves, based on the parameters and assumptions current to the end of the reporting period.

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Our mineral reserve estimates are based on techno-economic models developed by teams of Tronox professionals with complementary skills and a deep knowledge of their respective operations, utilizing Life-of-Mine Plans (LOMP) that are maintained at each mining operation. A LOMP takes into account the mineral reserves and resources, realistic assumptions of geological, mining, metallurgical, economic, marketing, legal, environmental, social, governmental, engineering, operational and all other modifying factors in sufficient detail to demonstrate at the time of reporting that extraction is reasonably justified. The LOMP serves as a strategic business plan for short and long-term mine planning and decision-making. Our mineral reserve estimates are routinely analyzed internally and externally to ensure compliance with SEC Industry Guide 7.

Reserve estimates for our South Africa operations are guided by the SAMREC code. Reserve estimates for our Western Australia operation are guided by the JORC code. SAMREC and JORC are both recognized by the Committee for Mineral Reserves International Reporting Standards (CRIRSCO), a family of guidelines for disclosures of mineral resources and reserves designed to ensure transparency, data validity and standardized methodologies for estimating the size and grades of mineral deposits.

Classifications and definitions of *Proven* and *Probable Reserves* under Industry Guide 7 are equivalent in all material respects to corresponding *Proved* and *Probable Reserves* under SAMREC and JORC. *Proven Reserves* have a higher level of confidence than *Probable Reserves*. Both are tabulated in this document, unmodified from reserve estimates prepared annually by experienced Tronox resource professionals who satisfy Competent Person requirements under SAMREC and JORC at each of our three heavy mineral sand operating units.

On October 31, 2018, the SEC announced its decision to modernize the property disclosure requirements for U.S. registrants with material mining operations. The new rules will replace current mineral property disclosure requirements under Industry Guide 7 and will be more closely aligned with the CRIRSCO-family of international standards, including SAMREC and JORC. Compliance with the new mineral disclosure rules is required for the first fiscal year beginning on or after January 1, 2021.

### ***Mining and Mineral Tenure***

Industry Guide 7 requires us to describe our rights to access and mine the minerals we report as ore reserves and to disclose any change in mineral tenure of material significance. Our heavy mineral exploration and mining activities in South Africa and Australia are regulated by the DMR and the Western Australia Department of Mines, Industry Regulation and Safety (“DMIRS”), respectively. All of our exploration and mining operations are subject to multiple levels of environmental regulatory review, that include approvals of environmental programs and public comment periods as pre-conditions to granting of mineral tenure.

### **Mineral Tenure - South Africa**

The DMR is the regulatory administrator of mineral rights in South Africa, subject to the provisions of the MPRDA of 2004, amended 2009. The MPRDA vests all mineral rights in South Africa in the national government and establishes conditions for the acquisition and maintenance of prospecting and mining rights. Prospecting rights are initially granted for a maximum period of five years and can be renewed once for an extension of up to three years. Mining rights are granted by the DMR, subject to approvals by the Department of Environmental Affairs ( DEA ) of an Environmental Management Program ( EMP ) and an Integrated Water and Land Use License.

Mining rights are valid for up to 30 years and may be extended by 30-year renewals. They may be revoked if the conditions of the EMP are breached or for other contraventions of the MPRDA. Environmental permitting and compliance are co-administered by the DEA and Development Planning (Namakwa Sands) and the KZN DEA (KZN Sands). All rights, licenses and permits for Namakwa Sands and KZN Sands are in good standing.

Namakwa Sands holds mining and prospecting rights at the active mining site near Brand-se-Baai, through Tronox Mineral Sands (Pty) Ltd. Tronox also controls mining and prospecting rights in KwaZulu-Natal Province, on South Africa's Indian Ocean coast, through KZN Sands. Much of the surface access rights at the Fairbreeze mine are secured through an agreement with Mondi Ltd.

#### **Mineral Tenure - Australia**

Mining tenements in Western Australia include Exploration Licenses, Retention Licenses, Mining Leases, and other instruments set forth by the Western Australia Mining Act of 1978. Mining activities are governed by

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various laws and regulations administered by State and National agencies, particularly the DMIRS and the Western Australia Department of Water and Environmental Regulation.

In Western Australia, Tronox controls mining leases, exploration and other licenses and rights. Mining and Public Environmental Review plans are approved for the Cooljarloo mine and the planned Dongara mine. Environmental Protection Agency approval of Cooljarloo West is anticipated during 2019.

Mining of the main Cooljarloo deposits are authorized by the Mineral Sands (Cooljarloo) Mining and Processing Agreement Act 1988 (WA), under Mineral Sands Agreement 268 (MSA 268), covering 9,745 hectares (24,080 acres). The remainder of our heavy mineral ore reserves are held by mining leases granted by the DMIRS. We hold 15 mining and attendant environmental approvals at the Dongara project. Three older mining leases are held at our Jurien property, the site of a former heavy mineral open pit mine operated by another party in the 1970 s.

***Mineral Sands - South Africa and Western Australia***

Heavy Mineral ( HM ) sands are naturally concentrated granular minerals of high densities (conventionally above about 2.9 gm/cm<sup>3</sup>), formed by erosion, transport and concentration. Not all of the HM has commercial value, and a distinction is made between the Total Heavy Minerals ( THM ) and the portion of the THM composed of Valuable Heavy Minerals ( VHM ). VHM can be recovered at relatively low cost by gravity, magnetic and electrostatic separation techniques. In our disclosures, we express grade in terms of percentage of THM by weight in the ore, and express individual VHM as percentages of the total heavy minerals unless otherwise stated.

All of our HM mining operations extract ilmenite, a titanium-iron oxide mineral, rutile, a premium TiO<sub>2</sub> mineral feedstock and zircon, a zirconium silicate (ZrSiO<sub>4</sub>) mineral valuable for its application in a diverse range of industrial and construction end-uses. Leucoxene is a naturally upgraded form of ilmenite. Other heavy minerals present in our heavy mineral assemblages may have commercial value, subject to their recovery from heavy mineral concentrate ( HMC ) feed to our mineral separation plants. We recover and market staurolite, an aluminum silicate mineral used in sandblasting and other applications, at our Chandala mineral separation plant from the HMC feed from our Cooljarloo mine. Other mineral constituents of potential value include garnet and monazite. Our reserve estimates are based solely upon the value of extractable and recoverable zircon, rutile, ilmenite and leucoxene.

In 2018, we mined VHM, including ilmenite, rutile, leucoxene, and zircon at three integrated operations: Namakwa Sands, Western Cape, South Africa, KZN Sands; KwaZulu-Natal, South Africa; and Tronox Northern Operations in, Western Australia. Our three TiO<sub>2</sub> feedstock operating centers integrate ilmenite with metallurgical beneficiation. Ilmenite is converted to synthetic rutile (SR) in our Northern Operations in Western Australia, to provide SR feedstock to our Kwinana TiO<sub>2</sub> pigment manufacturing. Ilmenite is converted to titanium slag and pig iron in our integrated Namakwa and KZN smelter facilities in South Africa.

**TRONOX MINERAL SAND PRODUCT CAPACITIES**

<b>Capacity (metric tons per year)</b>	<b>Namakwa Sands</b>	<b>KZN Sands</b>	<b>Western Australia</b>	<b>Total</b>
Rutile <sup>(1)</sup>	31,000	25,000	35,000	91,000
Synthetic rutile	—	—	220,000	220,000
Titanium slag	190,000	220,000	—	410,000
Zircon <sup>(2)</sup>	125,000	55,000	40,000	220,000
Pig iron	100,000	121,000	—	221,000

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Reserve life	25+ Years	17 Years	19 Years
Exploration rights & undeveloped reserves	Yes	Yes	Yes

(1) Rutile includes natural rutile and leucoxene.

(2) Includes all commercial grades of zircon

***Namakwa Sands, Western Cape and KZN Sands, KwaZulu-Natal, South Africa***

Our HM sand operations in South Africa include similar material flows from integrated mine-mineral separation-smelter value chains on the west and east coasts of South Africa. Both Namakwa and KZN Sands produce smelter products of titanium slag and pig iron, plus commercial grades of zircon and high-grade titanium mineral concentrates.

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In the Western Cape Province, we mine the large Namakwa HM deposit at Brand-se-Baai from two open-cut dry mines, using a combination of excavators, haul trucks and conveyors to deliver ore to two primary wet concentration plants. Primary heavy mineral concentrate is separated into magnetic and non-magnetic fractions at a secondary concentration plant at the mine. The two HMC fractions are further processed at a mineral separation plant ( dry mill ) 52 km south at Koekenaap. Ilmenite, rutile and zircon are transported by rail to Saldanha Bay, where ilmenite is smelted in a two-furnace complex into titanium slag and pig iron. Chloride-grade slag, slag fines, pig iron, rutile and zircon are exported from our proprietary facilities at the Saldanha Bay deep-water port, about 150 km north of Cape Town.

Namakwa reserve estimates as of December 31, 2018, in accordance with SAMREC and Industry Guide 7 reporting standards are: 40.8 million tonnes in-place HM, containing about 18.3 million metric tonnes ilmenite, 4.2 million tonnes zircon, and 3.8 million tonnes rutile and leucoxene from 657 million tonnes of ore. These reserves are sufficient to sustain the current rate of mining for at least 25 years without any new reserve additions.

The Namakwa HM deposit occupies an ellipsoidal area of 15 kilometers northeasterly by 4 km wide and is interpreted to be an ancient dune complex shaped by prevailing winds at the time of its formation. Multiple cycles of erosion from crystalline source rock, fluvial transport and prolonged reworking by water and wind formed the deposit.

The Namakwa heavy mineral assemblage is heterogeneous, creating challenges to efficient recovery of valuable heavy minerals. Significant amounts of low-value heavy minerals in the Namakwa HM assemblage include: garnet, pyroxene, hematite, magnetite, and kyanite. Most of the ore reserves are hosted by a complex dune sand sequence over 40 meters thick, known as the Orange Feldspathic Sand (“OFS”). The OFS is significantly affected by the formation of hard duricrust layers and lenses, interpreted to be a chemical precipitate of variable amounts of silicon (Si), calcium (Ca), magnesium (Mg), iron (Fe), aluminum (Al) and other constituents from alkaline groundwater. The duricrust is superposed upon HM-bearing strata and adversely affects VHM recoveries. Additional reserves are hosted at the surface by a sheet-like layer of iron oxide-stained, wind-blown sand known as the red aeolian sand (RAS). No overburden is present.

Adjustments to our geotechnical-economic modelling and a comprehensive metallurgical program have enabled division of the West and East deposits into blocks of discrete geological domains with distinctive mineralogical and processing characteristics. Our improved understanding of Namakwa ore has led to improvements in liberation and recoveries of VHM.

The KZN Sands integrated mining-processing operation consists of the Fairbreeze mine, south of the coastal town of Mtunzini, 45 kilometers SSW of Richards Bay, a Central Processing Complex ( CPC ) at Empangeni, where ilmenite is fed to a dual electric arc furnace smelter for conversion into slag and pig iron, and storage and export facilities at the port of Richards Bay. Smelter products, rutile and zircon are exported from Richards Bay. The Fairbreeze deposit is hosted by deeply weathered Berea-type sands which are mined using a hydraulic mining technique that was pioneered at the now-depleted Hillendale mine from 2001-2013. High-pressure water jets disaggregate the fine-grained ore sand into a slurry that is pumped to a semi-mobile primary wet plant for the production of heavy mineral concentrate. HMC is hauled by truck 40 km to the Empangeni CPC, 18 km west of Richards Bay, for separation into rutile, zircon and ilmenite. Ilmenite is fed to an adjoining two-furnace smelter for production of titanium slag and pig iron. All products are exported from Richards Bay.

The Fairbreeze deposit is hosted by a complex of strandline/paleo-dune couplets, about two kilometers inland from the modern coastline, forming an elongate ridge extending about 12 km south-southwesterly from the town of Mtunzini with a maximum width of about two kilometers. No overburden is present. Modern erosion has dissected the deposit into five discrete ore bodies. The Fairbreeze dune complex is part of a regional, coast-parallel corridor of terraces and dunes collectively known as the Berea Red Sands that formed along the southeastern coast of Africa from Durban to

Mombasa, in response to static sea levels of the Pliocene-Pleistocene. As with all heavy mineral sand deposits, iron-titanium oxides, rutile, zircon and other minerals in the HM assemblage at Fairbreeze are inherited from their source rock provenance and modified by selective sorting during deposition. Probable source rocks for the HM are the Natal Metamorphic Province and younger rift-related basalts.

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Reserve estimates for KZN Sands as of December 31, 2018, in accordance with SAMREC and Industry Guide 7 reporting standards, are: 242 million tonnes ore averaging 5.8% total heavy minerals. Development drilling and re-classified Reserves net of mine depletion during 2018 added about 65 million tonnes ore to the Fairbreeze Reserve base.

### ***Tronox Western Australia***

Our Cooljarloo mine and Chandala metallurgical complex are the key components of our Northern Operations in Western Australia. Since the commencement of mining in December 1989, cumulative production during 29 years of continuous mining is approximately 17.5 million tonnes HMC from the Cooljarloo mine, approximately 170 km north of Perth. Two dredges in a single pond feed an ore slurry to a floating concentrator to produce HMC, which is hauled by trucks 110 km south to our Chandala metallurgical complex near Muchea, 60 km north of Perth, for the recovery of ilmenite, rutile, leucoxene and zircon. Ilmenite is upgraded at Chandala to synthetic rutile (SR), a high-TiO<sub>2</sub> feedstock for our integrated TiO<sub>2</sub> pigment plant at Kwinana, south of Perth. The Kwinana pigment plant and other components of our Southern Operations in Western Australia are described in Part 1, Item 1. See “Business – Mining and Beneficiation of Mineral Sands Deposits.”

Our Western Australia ore reserves total 11.2 million tonnes of in-place total heavy minerals, including 5.4 million tonnes from Cooljarloo, 2.6 million tonnes from Cooljarloo West, and 3.2 million tonnes from Dongara. The cumulative totals are sufficient to sustain our current value chain of HMC, multiple commercial grades of rutile, leucoxene and zircon, and SR feed to the Kwinana pigment plant for at least 19 years, without further additions of heavy mineral reserves.

Ore reserves from three-ore bodies at Cooljarloo West will be dredge-mined as an extension to the life of our Cooljarloo mining operations. Since our 2006 acquisition of the Dongara project, 370 kilometers north of Perth, we have completed several feasibility studies and obtained all long lead-time approvals for mining of the Dongara deposits, including environmental licenses and permits.

The disadvantage of mining low-grade ore at Cooljarloo is offset by economies of scale, low-cost dredging, a high-quality VHM suite that constitutes nearly 80% of THM, and good processing characteristics of the ilmenite in its conversion to SR. Over our nearly three decades of operations, our professional staff in Western Australia has exploited opportunities to extract value from the integrated mine-to-pigment chain, allowing us to create one of the most efficient operations in the global mineral sands industry.

HM at Cooljarloo and Cooljarloo West occur in multiple, NNW-trending strands and elongate tabular bodies parallel to the modern coastline. A swarm of HM bodies in the Cooljarloo district span an area 40 km NNW by a width of over 5 km, bounded on the east by the Gingin scarp. Shoreline and shallow off-shore HM placers accumulated on the Swan Coastal Plain during static sea levels of the Pleistocene, or Ice Age. Heavy minerals were derived from the granitic and gneissic basement of the Yilgarn craton east of the scarp and recycled from underlying Mesozoic sediments of the northern Perth Basin. Most of the economically extractable HM deposits in the Cooljarloo district are overlain by younger overburden. Shoreline HM placers of slightly younger ages than Cooljarloo are also overlain by variable overburden at Jurien and Dongara.

Our total HM reserves at December 31, 2018 in Western Australia, including Cooljarloo, Cooljarloo West and Dongara are 482 million tonnes of ore containing 11.2 million tonnes of in-place heavy minerals, representing a 0.5% increase in THM from our year-end 2017 estimate. Mining depletion of 24 million tonnes ore at Cooljarloo was offset by reserve additions from re-modelling of the LOMP for Cooljarloo-Cooljarloo West, and new drilling at Cooljarloo West. Included in the in-ground heavy mineral reserves are approximately 6.4 million tonnes of ilmenite, 1.2 million tonnes of zircon, and over 900 thousand combined tonnes of rutile and leucoxene.





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Our 2018 combined production from the three HM mining-processing centers are shown in the table below.

**Tronox 2018 Production of TiO<sub>2</sub>, Feedstock and Co-Products**

Tronox Operation	Rutile <sup>(1)</sup>	Zircon <sup>(2)</sup>	Synthetic	Titanium Slag	Pig Iron
			Rutile		
(Thousands of metric tonnes)					
Namakwa Sands	32	119	—	181	95
KZN Sands	22	53	—	194	112
Tronox Western Australia	24	34	211	—	—
2018 Total	78	206	211	375	207

(1) Natural rutile and leucoxene

(2) Includes all commercial grades of zircon

Our South African and Australian mineral sands resource development strategy is guided by an in-house resource development group comprised of key personnel with complementary expertise and experience. Our primary goal is to assure a long-term supply of titanium feedstocks to our vertically-integrated TiO<sub>2</sub> value chain.

We believe our combined integrated titanium mining-to-titanium dioxide operations constitute the largest fully-integrated TiO<sub>2</sub> value chain in the world, and the TiO<sub>2</sub> business of Tronox is the world's only mining-mineral processing chain with production of both titanium slag and synthetic rutile. Our captive slag from South Africa, synthetic rutile from Western Australia, and natural rutile from our three operations satisfy over 100% of our TiO<sub>2</sub> feedstock requirements. Excess TiO<sub>2</sub> feedstock can be marketed externally or stockpiled for future internal consumption.

Natural rutile, synthetic rutile, and titanium slag are to a certain extent fungible as titanium feedstocks for chloride pigment production. However, each titanium mineral and beneficiated mineral product has a discreet commercial market, and the commercial value of titanium feedstock is a function not only of TiO<sub>2</sub> content and supply and demand balances, but also particle size, trace element geochemistry, logistics and other factors. The global TiO<sub>2</sub> industry is a valued-added supply chain, with final product prices for TiO<sub>2</sub> pigment, typically more than 10 times higher than that of ilmenite, the backbone of the global titanium mineral supply. The revenue assumptions for titanium feedstocks applied in the determination of heavy mineral ore reserve estimates are based on our sales contracts, pricing assumptions in our integrated TiO<sub>2</sub> value chain, and market intelligence.

Our LOMP and reserve estimates are derived from detailed techno-economic models created from extensive geological, mining and analytical databases, and optimized with respect to anticipated revenues, and costs. Cost assumptions are developed from our extensive experience and include mining parameters, processing recoveries, foreign exchange, and rehabilitation. Each of our operations reconcile predicted mining and processing metrics with actual production and recovery data on a monthly basis. Our models are updated as necessary and used to determine the ultimate ore boundaries. To satisfy the disclosure rules in Industry Guide 7, our nominal cut-off grades are: 0.2% zircon at Namakwa Sands; 1.5% ilmenite at KZN Sands; and 1.3% THM (approximately 1% VHM) at Tronox Northern Operations, Western Australia.

***Heavy Mineral Reserves***

Ore reserves are those portions of mineral deposits that are economically and legally exploitable at December 31, 2018. All of our heavy mineral reserves are reported on the basis of in-place, economically extractable ore, determined from comprehensive geological, mining, processing and economic models. Reserve classifications of *Proven* or

*Probable* are based on the level of confidence in the reserve estimates and cost/revenue assumptions.

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The following table summarizes our heavy mineral ore reserves and their contained *in situ* THM and heavy mineral assemblages as of December 31, 2018. Increases or decreases in our reserves estimates from December 31, 2017 to December 31, 2018 are indicated as a percent of in-place THM reserves.

MINE / DEPOSIT	Reserve Category	Ore (million MT)	Average Grade (% THM)	In-Place THM (million MT)	VHM Assemblage (% of THM)			Change from 2017 + (-) %
					Ilmenite	Rutile and Leucoxene	Zircon	
Namakwa Sands Open Pit Dry Mine – Western Cape RSA								
	Proven	172	8.3	14.3	35.9	7.9	9.4	
	Probable	485	5.5	26.5	50.6	9.9	11.0	
	Total Reserves	657	6.2	40.8	44.7	9.2	10.3	(6.6 )%
KZN Sands Open Pit Hydraulic Mine – KZN RSA								
	Proven	231	5.9	13.7	62.2	6.7	7.7	
	Probable	11	3.7	0.4	51.7	4.9	7.0	
	Total Reserves	242	5.8	14.1	61.9	6.6	7.7	29.8 %
South Africa	Total Reserves	899		54.9				0.6 %
Cooljarloo – Dredge Mine Western Australia								
	Proven	270	1.8	5.0	61.0	7.6	10.2	
	Probable	20	2.1	0.4	61.8	7.8	9.4	
	Total Reserves	290	1.9	5.4	61.1	7.6	10.1	(7.5 )%
Cooljarloo West Planned Dredge Mine – Western Australia								
	Proven	—	—	—	—	—	—	
	Probable	130	2.0	2.6	60.5	8.3	12.2	
	Total Reserves	130	2.0	2.6	60.5	8.3	12.2	22.8 %
Dongara Planned Dry Mine – Western Australia								
	Proven	62	5.2	3.2	48.7	8.9	10.9	
	Probable	—	—	—	—	—	—	

	Total Reserves	62	5.2	3.2	48.7	8.9	10.9	0.0	%
<b>Western Australia</b>	<b>Total Reserves</b>	<b>482</b>		<b>11.2</b>				<b>0.5</b>	<b>%</b>
<b>Global</b>	<b>Total Reserves</b>	<b>1,381</b>		<b>66.1</b>				<b>0.6</b>	<b>%</b>

**Abbreviations and definitions:**

**MT** — metric tonnes (1 metric ton = 1.10231 short tons)

**Ore Reserves** —the portions of our inventories of mineralized material inclusive of dilution, determined to be economically and legally exploitable as of December 31, 2018, classified as either *Probable Reserves* or *Proven Reserves*, based on level of confidence.

**THM** — total heavy minerals, with densities >2.9 g/cm<sup>3</sup> regardless of commercial value

**VHM** — valuable heavy minerals, including Ilmenite, Rutile, Leucoxene and Zircon, reported as percentage of THM.

**Change from 2017** — Increase (decrease) in percent change of in-place THM from 2017

**Key Assumptions** — economic viability is determined by techno-economic modeling constructed from geological, analytical and geotechnical databases, mining parameters, metallurgical recovery assumptions, pit

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optimizations, and economic assumptions based on current operating costs, foreign exchange rates, and projected product sales prices at time of production. Historical sales prices by themselves are unreliable predictors of future prices, and our revenue forecasts are based on multiple factors, including market research, existing private contracts, and external consultant opinions. Nominal cut-off grades are 0.2% zircon at Namakwa Sands, 1.5% ilmenite at KZN Sands, and 1.3% THM (1% VHM) at Cooljarloo and Cooljarloo West.

Our forecast production of commercial-quality titanium mineral and zircon concentrates from reserves is based on mining rates, the heavy mineral assemblage and grade distributions, our experience in valuable mineral recoveries, and other inputs to our techno-economic models. Mining recoveries are typically 99-100%. Metallurgical recoveries vary widely as a function of mineral characteristics. Processing efficiencies are affected by many factors, including mineralogical diversity, grain size, morphology and surface coatings of the heavy minerals. To a practical extent, mineral separation technology is customized for each mining operation. Cumulative recovery factors for VHM in our mine concentrates, inclusive of HM concentration at the mine and production of mineral concentrates at the separation plant, are generally in the range of 70% to 95%. Reconciliation of actual versus predicted recoveries are applied to our techno-economic models. Unrecovered VHM in certain dry mill tailings streams are stockpiled, but their hypothetical value is not considered in our revenue assumptions.

Mineral reserve estimates, life-of mine projections, and revenue assumptions are inherently forward-looking and subject to market conditions, uncertainties and unanticipated events beyond our control. Our revenue assumptions are anchored by in-house and external forecasts of the prevailing sales prices for our mineral concentrates and beneficiated mineral products at the time of their anticipated sale, or consumption in our vertically-integrated TiO<sub>2</sub> supply chain. In our experience, historical prices for commercial mineral concentrates and titanium feedstocks are not by themselves a reliable guide to future prices.

The following table compares the heavy mineral reserves reported for the three years ending December 31, 2018, 2017 and 2016:

**3-Year Reserves (Mt In-Place THM)**

	Reserve Life- of-Mine	December 31, 2018      2017      2016 (In millions of MT)		
Namakwa Sands	>25 years	40.8	43.8	46.4
KZN Sands	17 years	14.1	10.9	11.7
<b>Total South Africa</b>		<b>54.9</b>	<b>54.7</b>	<b>58.1</b>
Cooljarloo and Cooljarloo West		8.0	7.9	8.4
Dongara		3.2	3.2	3.2
<b>Total Western Australia</b>	19 years	<b>11.2</b>	<b>11.1</b>	<b>11.6</b>
<b>Total Tronox</b>		<b>66.1</b>	<b>65.8</b>	<b>69.7</b>

The above three-year total heavy mineral reserves for the Tronox mineral sands operations are expressed as millions of metric tonnes of in-place THM for the years ended 2016 through 2018. LOMPs for each operation may include minor non-reserve mineralized material not currently classified as reserves under SAMREC and JORC guidelines and Industry Guide 7 to satisfy mine scheduling.

**Item 3. Legal Proceedings**

Information required by this item is incorporated herein by reference to the section captioned Notes to Consolidated

Financial Statements, Note 17- Commitments and Contingencies of this Form 10-K.

**Item 4. Mine Safety Disclosures**

None.

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Our Class A Shares began trading on the New York Stock Exchange on June 18, 2012 under the symbol TROX. There is no public trading market for our Class B Shares, which are held by Exxaro.

***Holders of Record***

As of January 31, 2019, there were approximately 390 holders of record of Class A Shares and one holder of record of Class B Shares. This does not include the shareholders that held shares of our Class A Shares in a nominee or street-name accounts through banks or broker-dealers. See Item 12, Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters.

**Item 6. Selected Financial Data**

The following table sets forth selected historical financial data for the periods indicated. This information should be read in conjunction with our Consolidated Financial Statements (including the notes thereto) and our Management's Discussion and Analysis of Financial Condition and Results of Operations.

	<b>Year Ended December 31,</b>				
	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>
<b>Statement of Operations Data:</b>					
Net sales	\$ 1,819	\$ 1,698	\$ 1,309	\$ 1,510	\$ 1,737
Income (loss) from operations	200	141	(53 )	(199 )	—
Income (loss) from continuing operations before income taxes	43	(87 )	(264 )	(349 )	(149 )
Net income (loss) from continuing operations	30	(93 )	(139 )	(372 )	(417 )
Net income (loss) from discontinued operations	—	(179 )	79	55	—
Net income (loss)	30	(272 )	(60 )	(317 )	(417 )
Income attributable to noncontrolling interest	37	13	1	12	10
Net (loss) attributable to Tronox Limited	(7 )	(285 )	(61 )	(329 )	(427 )
Diluted loss per share from continuing operations	\$ (0.06 )	\$ (0.89 )	\$ (1.20 )	\$ (3.31 )	\$ (3.74 )
Diluted (loss) income per share from discontinued operations <sup>(1)</sup>	\$ —	\$ (1.50 )	\$ 0.68	\$ 0.47	\$ —
<b>Balance Sheet Data:</b>					
Working capital <sup>(2)</sup>	\$ 2,244	\$ 2,286	\$ 614	\$ 654	\$ 2,019
Total assets	4,642	4,864	3,293	3,337	5,024
Total debt, net	3,161	3,147	3,054	3,076	2,353



Total equity	862	1,015	1,153	1,103	1,790
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**Supplemental Information:**

Depreciation, depletion and amortization

expense	\$ 195	\$ 182	\$ 177	\$ 253	\$ 302
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Cash provided by operating activities	170	165	84	69	141
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Capital expenditures	117	91	86	165	187
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Dividends per share	0.18	0.18	0.385	1.00	1.00
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(1) Reflects the sale of the Alkali business. See Note 4 of notes to consolidated financial statements for additional information.

(2) Working capital is defined as the excess of current assets over current liabilities of continuing operations.

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A number of items, shown below, impact the comparability of our income (loss) from operations and our Income (loss) from continuing operations before income taxes. The table below summarizes these items:

	<b>Year Ended December 31,</b>				
	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>
Transaction costs <sup>(1)</sup>	\$ (66 )	\$ (48 )	\$ —	\$ (36 )	\$ —
Impairment loss <sup>(2)</sup>	(31 )	—	—	—	—
Restructuring <sup>(3)</sup>	—	1	(1 )	(21 )	(15 )
Taxes other than income taxes <sup>(4)</sup>	11	—	(5 )	(6 )	—
Share-based compensation modification <sup>(5)</sup>	6	—	—	—	—
(Loss) gain on extinguishment of debt <sup>(6)</sup>	(30 )	(28 )	4	—	—
Pension and postretirement benefit curtailment and settlement gains <sup>(7)</sup>	3	—	—	—	9
Net loss on liquidation of non-operating subsidiaries <sup>(8)</sup>	—	—	—	—	(35 )

During 2018 and 2017, our operating income was impacted by transaction costs incurred primarily associated (1) with the Cristal Transaction. In 2015, our operating income was impacted by the transaction costs associated with the acquisition of the Alkali business.

(2) During 2018, our operating income was impacted by the impairment loss on sale of the assets of our Tronox Electrolytic Operation.

(3) During 2016, 2015 and 2014 our operating income was impacted by severance costs associated with the shutdown of our sodium chlorate plant and other global TiO<sub>2</sub> restructuring efforts. In 2017, our operating income benefited from the reversal of restructuring expense pursuant to the settlement of claims previously filed relating to a prior restructure.

(4) During 2018, our operating income benefited from the reversal of accruals for non-income related taxes as a result of a settlement. These accruals negatively impacted our operating results in 2016 and 2015.

(5) During 2018, our operating income benefited from the reversal of previously recorded expense related to the modification of the Integration Incentive Award.

(6) During 2018, our Income (loss) from continuing operations before income taxes was impacted by the loss in connection with the redemption of senior notes, including a call premium of \$22 million. In 2017, our operating income was negatively impacted by the loss associated with the redemption of the outstanding balance of senior notes, repayment of a Revolver, and debt issuance costs from the refinancing activities associated with the term loans. During 2016, our operating income benefited from the gain associated with the repurchase of \$20 million face value of senior notes.

(7) During 2018, our Income (loss) from continuing operations before income taxes was impacted by a settlement gain related to the former U.S. postretirement medical plan. In 2014, our operating income was impacted by a curtailment gains related to the former Netherlands pension plan and the former U.S. postretirement medical plan.

(8) During 2014, our Income (loss) from continuing operations before income taxes was impacted by the loss related to the liquidation of a non-operating subsidiary

In addition to the items impacting Income (loss) from operations and Income (loss) from continuing identified above, net income (loss) from continuing operations was impacted by the following:

- In 2018, we recorded (i) a \$48 million tax benefit for the reversal of a tax valuation allowance attributable to our operating subsidiary in the Netherlands, (ii) a \$11 million tax expense for the settlement of prior year tax returns with a foreign tax authority, and (iii) a \$6 million tax expense for the impact on deferred tax assets from a change in tax rates in the Netherlands.

- In 2016, we recorded a tax benefit of \$107 million related to a corporate restructuring plan to simplify our corporate structure.
- In 2014 we recorded a tax charge of \$311 million for the recognition of a full valuation allowance for our Netherlands operating subsidiary's deferred tax assets.

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### **Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations**

*The following discussion should be read in conjunction with Tronox Limited's consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K. This discussion and other sections in this Annual Report on Form 10-K contain forward-looking statements, within the meaning of the Private Securities Litigation Reform Act of 1995, that involve risks and uncertainties, and actual results could differ materially from those discussed in the forward-looking statements as a result of numerous factors. Forward-looking statements provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to any historical or current fact. Forward-looking statements also can be identified by words such as future, anticipates, believes, estimates, expects, intends, plans, predicts, will, would, could, can, may, and similar terms. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from the results, level of activity, performance or achievements expressed or implied by the forward-looking statements. In particular, you should consider the numerous risks and uncertainties outlined in Item 1A. Risk Factors.*

*This Management's Discussion and Analysis of Financial Condition and Results of Operations contains certain financial measures, in particular the presentation of earnings before interest, taxes, depreciation and amortization ( EBITDA ) and Adjusted EBITDA, which are not presented in accordance with accounting principles generally accepted in the United States ( U.S. GAAP ). We are presenting these non-U.S. GAAP financial measures because we believe they provide us and readers of this Form 10-K with additional insight into our operational performance relative to earlier periods and relative to our competitors. We do not intend for these non-U.S. GAAP financial measures to be a substitute for any U.S. GAAP financial information. Readers of these statements should use these non-U.S. GAAP financial measures only in conjunction with the comparable U.S. GAAP financial measures. A reconciliation of net income (loss) to EBITDA and Adjusted EBITDA is also provided herein.*

### **Executive Overview**

We are a global leader in the production and marketing of titanium bearing mineral sands and titanium dioxide ( TiO<sub>2</sub> ) pigment. We operate three titanium bearing mineral sands mining operations and three TiO<sub>2</sub> pigment facilities. Our mining and processing operations are located in Western Australia and South Africa and our TiO<sub>2</sub> pigment facilities are located in the United States, The Netherlands and Western Australia.

The mining and processing operations are dedicated to the exploration, mining and beneficiation of mineral sands deposits, the principal goal of which is the production of a variety of types of titanium feedstock including chloride slag, slag fines, rutile, synthetic rutile and leucosene. Our mining and processing operations also produce two co-products, zircon and pig iron, of which zircon is particularly valuable. Our production capacity is approximately 721,000 metric tons for titanium feedstock, approximately 220,000 metric tons for zircon and approximately 221,000 metric tons for pig iron.

The TiO<sub>2</sub> operations produce, market and sell TiO<sub>2</sub> pigment and our TiO<sub>2</sub> pigment facilities consume the vast majority of the titanium feedstock which is produced by our mining and processing operations. We believe that our vertical integration is a significant strategic advantage and distinguishes us from other TiO<sub>2</sub> producers with which we compete. TiO<sub>2</sub> pigment is used extensively in the manufacture of paint and other coatings, plastics and paper, and in a wide range of other applications. Moreover, it is a critical component of everyday consumer applications due to its superior ability to cover or mask other materials effectively and efficiently relative to alternative white pigments and extenders. TiO<sub>2</sub> is considered a quality of life product. Our annual production capacity is approximately 465,000 metric tons for TiO<sub>2</sub> pigment.

### **Recent Developments**

***Pending Cristal Acquisition***

Throughout 2018 and into 2019 we continued to work diligently on obtaining regulatory approval for our proposed acquisition of the TiO<sub>2</sub> business of The National Titanium Dioxide Company Ltd., a limited company organized under the laws of the Kingdom of Saudi Arabia ( Cristal ). The transaction was originally announced approximately two years ago when on February 21, 2017 we entered into a definitive agreement with Cristal and one of its affiliates to acquire the TiO<sub>2</sub> business of Cristal for \$1.673 billion of cash plus 37,580,000 Class A Shares. With regard to the European Commission ( EC ) approval, on July 16, 2018, we announced the

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submittal to the EC of an executed definitive agreement with Venator Materials PLC ( Venator ) to divest our 8120 paper-laminate product grade (the 8120 Grade ) currently supplied to customers from our Botlek facility in the Netherlands. Our agreement with Venator is terminable by either party under certain circumstances if the closing does not occur on or prior to April 12, 2019. Please refer to *Pending Cristal Acquisition* within Note 1 to the Notes to Consolidated Financial Statements for a further discussion of the status. See “Business – Pending Cristal Acquisition” and “Risk Factors – Risks Relating to the Cristal Transaction” for additional information.

### ***Jazan Slagger and Option Agreement***

On May 9, 2018, we entered into an Option Agreement (the Option Agreement ) with AMIC pursuant to which AMIC granted us an option (the Option ) to acquire 90% of a special purpose vehicle (the SPV ), to which AMIC’s ownership in a titanium slag smelter facility (the Slagger ) in The Jazan City for Primary and Downstream Industries in KSA will be contributed together with \$322 million of indebtedness currently held by AMIC (the AMIC Debt ). Pursuant to the Option Agreement, the Option and the Put may not be exercised if the Cristal Transaction is not consummated. Please refer to *Jazan Slagger and Option Agreement* within Note 1 to the Notes to Consolidated Financial Statements for a further discussion of the status. See “Business – Jazan Slagger and Option Agreement” and “Risk Factors – Risks Relating to our Business” for additional information.

### ***Re-Domiciling from Australia to the United Kingdom***

In November 2018, we announced our intention to re-domicile from Western Australia to the United Kingdom (the Re-Domicile Transaction ). The Re-Domicile Transaction will be effected via a scheme of arrangement overseen by an Australian court. Pursuant to such scheme of arrangement, holders of our Class A Shares and Class B Shares will be required to exchange their shares in Tronox Limited on a 1:1 basis for ordinary shares in New Tronox, which shares shall be listed on the NYSE. Please refer to *Re-Domiciling from Australia to the United Kingdom* within Note 1 to the Notes to Consolidated Financial Statements for a further discussion of the status. See “Business – Re-Domiciliation from Australia to the United Kingdom” and “Risk Factors – Risks Relating to the Re-Domicile Transaction” for additional information.

### ***Exxaro Mineral Sands Transaction Completion Agreement***

On November 26, 2018, we and certain of our subsidiaries (collectively, the Tronox Parties ) and Exxaro Resources Limited ( Exxaro ) entered into the Exxaro Mineral Sands Transaction Completion Agreement (the Completion Agreement ). The Completion Agreement provides for the orderly sale of Exxaro’s remaining approximately 23% ownership interest in us during 2019, helps to facilitate the Re-Domicile Transaction, as well as addresses several legacy issues related to our 2012 acquisition of Exxaro’s mineral sands business (the 2012 Exxaro transaction ). Please refer to *Exxaro Mineral Sands Transaction Completion Agreement* within Note 1 to the Notes to Consolidated Financial Statements for a further discussion of the status. See “Business – Exxaro Mineral Sands Transaction Completion Agreement” and “Risk Factors – Exxaro continues to hold a large portion of our total outstanding voting securities, as well as retains distinct governance and other rights as a result of our 2012 acquisition of Exxaro’s mineral sands businesses” for additional information.

### ***Sale of our Electrolytic Business***

On September 1, 2018, Tronox LLC, our indirect wholly owned subsidiary sold to EMD Acquisition LLC certain of the assets and liabilities of our Henderson Electrolytic Operations based in Henderson, Nevada (the Henderson Electrolytic Operations ), a component of our TiQsegment, for \$1.3 million in cash and a secured promissory note of \$4.7 million which was paid in full on December 27, 2018. The total pre-tax loss on the sale of \$31 million has been recorded in Impairment loss in the Consolidated Statements of Operations.

***Senior Note Offering***

On April 6, 2018, we completed our offering of \$615 million aggregate principal amount of 6.5% Senior Notes due 2026 ( Senior Notes due 2026 ). The Senior Notes due 2026 are fully and unconditionally guaranteed on a senior, unsecured basis by us and certain of our subsidiaries. The proceeds of the offering were used to fund the redemption of our approximately \$584 million aggregate principal, 7.50% senior notes due 2022 (the Senior Notes due 2022 ). The impact of the offering of the Senior Notes due 2026 and the redemption of our Senior Notes due 2022 was recorded in the second quarter of 2018, resulting in the recognition of \$30 million in debt extinguishment costs, which included a call premium of approximately \$22 million during the second quarter of 2018.

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The following discussion includes trends and factors that may affect future operating results:

Pigment selling prices in local currency experienced successive gains from the first quarter of 2016 through the second quarter of 2018. Pigment selling prices declined moderately in the third and fourth quarters of 2018, principally in Europe. During the fourth quarter, we experienced reduced demand compared to the fourth quarter of 2017 in Europe and Asia as customers' pigment needs were impacted by continued destocking. In Zircon, we continued to experience favorable market conditions as a result of a tight global supply-demand balance. The market for high-grade feedstock also remains tight as a result of industry supply disruptions in the first half of 2018 and declining production at other industry producers' existing operations. Demand for our pig iron products remains stable, especially for foundry grade material.

Production costs in the fourth quarter of 2018 were slightly lower than those in the prior quarter while Foreign exchange rates, principally driven by the South African Rand, negatively impacted production costs as our operations accumulate costs in local currency while products made are primarily sold globally in U.S. Dollars. During the fourth quarter of 2018, the Euro had a slight unfavorable impact on revenue as sales from our operations in Europe are made in Euros then translated to U.S. Dollars for reporting purposes.

**Consolidated Results of Operations from Continuing Operations***Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017*

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>Variance</b>
	<b>(Millions of U.S. Dollars)</b>		
<b>Net sales</b>	\$ 1,819	\$ 1,698	\$ 121
Cost of goods sold	1,321	1,309	12
<b>Gross profit</b>	498	389	109
<b>Gross Margin</b>	27 %	23 %	4pts
Corporate related and SG&A expenses	123	122	1
TiO <sub>2</sub> related SG&A expenses	144	127	17
Restructuring	—	(1 )	1
Impairment loss	31	—	31
<b>Income from operations</b>	200	141	59
Interest expense	(193 )	(188 )	(5 )
Interest income	33	10	23
Loss on extinguishment of debt	(30 )	(28 )	(2 )
Other income (expense), net	33	(22 )	55
<b>Income (loss) from continuing operations before income taxes</b>	43	(87 )	130
Income tax provision	(13 )	(6 )	(7 )
<b>Net income (loss) from continuing operations</b>	\$ 30	\$ (93 )	\$ 123



<i>Effective tax rate</i>	30 %	(7 )%	37pts
<b>EBITDA<sup>(1)</sup></b>	\$ 398	\$ 273	\$ 125
<b>Adjusted EBITDA<sup>(1)</sup></b>	\$ 513	\$ 420	\$ 93
<b>TiO<sub>2</sub> Adjusted EBITDA<sup>(1)</sup></b>	\$ 609	\$ 500	\$ 109
<i>Adjusted EBITDA as% of Net Sales</i>	28 %	25 %	3pts
<i>TiO<sub>2</sub> Adjusted EBITDA as% of Net Sales</i>	33 %	29 %	4pts

EBITDA, Adjusted EBITDA and TiO<sub>2</sub> Adjusted EBITDA are Non-U.S. GAAP financials measures. Please refer to the Non-U.S. GAAP Financial Measures section of this Management's Discussion and Analysis of Financial Condition and Results of Operations for a discussion of these measures and a reconciliation of these measures to Net income (loss) from continuing operations.

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Net sales of \$1,819 million for the year ended December 31, 2018 increased by 7% compared to \$1,698 million for the same period in 2017. Higher Zircon and Pigment prices were primary drivers of the revenue growth. Net sales by type of product for the years ended December 31, 2018 and 2017 were as follows:

(Millions of dollars, except percentages)	Year Ended December 31,		Variance	Percentage
	2018	2017		
Pigment	\$ 1,265	\$ 1,210	\$ 55	5 %
Zircon	293	209	84	40 %
Pig iron	87	63	24	38 %
Feedstock and other products	137	162	(25 )	(15 )%
Electrolytic	37	54	(17 )	(31 )%
Total net sales	\$ 1,819	\$ 1,698	\$ 121	7 %

Pigment revenue increased for the year ended December 31, 2018 compared to the prior year primarily due to a 12%, or \$119 million, increase in average selling prices, partially offset by a 6%, or \$80 million, reduction in sales volume. Foreign currency translation also benefited the pigment revenue growth by approximately 1% or \$16 million, due to the strengthening Euro. Pigment experienced price growth in all regions in 2018 while the lower sales volumes were due to transient inventory builds and the continued impact of destocking by customers in certain sales channels in Europe and the Asia Pacific region and market conditions in Latin America, slightly offset by favorable volumes in North America. The increase in zircon revenue compared to the prior year was primarily due to a 42%, or \$88 million, increase in selling prices, offset slightly by a 1%, or \$4 million, decrease in sales volumes. Pig iron revenues increased in the current year compared to the prior year primarily due to an 11%, or \$8 million, increase in average selling prices and a 26%, or \$16 million, increase in sales volumes. The volume gain was primarily attributable to an increase in production resulting from the start-up of one of our furnaces after a period of planned maintenance. The revenue growth across pigment and Co-products was partially offset by lower revenues from feedstock and other products. Although selling prices for feedstock and other products increased in the current year compared to the prior year, declines in sales volumes, driven primarily by ilmenite and rutile prime, resulted in the revenue decline. There were \$5 million of ilmenite sales in the year ended December 31, 2018 compared to \$27 million of ilmenite sales in the prior year period primarily due to our decision to curtail ilmenite sales in anticipation of our own internal need for ilmenite when the Cristal acquisition closes.

Our gross margin of \$498 million for the year ended December 31, 2018 was 27% of net sales compared to 23% of net sales for the same period in 2017. The gross margin growth is due to higher selling prices, which contributed \$234 million (11 points on gross margin), primarily driven by increases in pigment and Co-products average selling prices. There was also a favorable impact from foreign exchange translation of \$17 million (1 point on gross margin) primarily due to the impact of the stronger Euro on pigment revenue, and a favorable impact of the weaker Australian dollar on cost of goods sold. These increases to gross margin were partially offset by \$99 million (5 points on gross margin) of higher costs of direct materials primarily coke, electrodes and anthracite. This 5 point unfavorable impact on gross margin due to higher costs of direct materials includes a benefit of \$10 million in cost of goods sold due to receipt of a refund from the South African Ministry of Finance of mineral extraction royalties paid by the Company in prior years. Additionally, lower volumes and product mix had a \$43 million (2 points on gross margin) unfavorable impact on gross margin.

Selling, general and administrative expenses increased by \$18 million or 7% for the year ended December 31, 2018 compared to the prior year. While the increase in SG&A expense is mainly due to \$18 million of professional fees related to the Cristal Transaction, there were a number of other items that offset each other. The SG&A expense comparison benefited due to the modification to a performance-based restricted stock award of \$6 million, as well as

due to the reversal of an accrual as a result of a tax settlement of \$11 million. These benefits were primarily offset by \$9 million of higher employee-related costs principally due to higher salaries and wages and incentive compensation, \$6 million of higher expenses related to projects to improve our IT infrastructure and \$3 million of higher research and development costs.

Impairment losses of \$31 million for the year ended December 31, 2018 reflect the impairment losses caused by the sale of the assets of our Henderson Electrolytic Operations on September 1, 2018. See Note 5 of notes to consolidated financial statements.

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Income from operations for the year ended December 31, 2018 of \$200 million, increased by \$59 million compared to the same period in 2017 reflecting \$323 million of income from our TiO<sub>2</sub> activities offset by \$123 million of unallocated corporate expenses. Corporate general and administrative expenses for the year ended December 31, 2018 were relatively flat. Income from operations for the year ended December 31, 2017 was \$141 million, \$262 million from our TiO<sub>2</sub> activities offset by \$121 million of unallocated corporate expenses. Income from operations from our TiO<sub>2</sub> activities for the year ended December 31, 2018 increased by \$61 million compared to the same period in 2017 primarily due to an increase in gross profit of \$109 million, offset by the \$31 million impairment loss due to the sale of Henderson Electrolytic Operations and a \$17 million increase in selling, general and administrative expenses primarily due to a higher allocation of corporate expenses driven by the increase in employee-related, IT and research and development costs discussed above under selling, general and administrative expenses.

Adjusted EBITDA as a percentage of net sales was 28% for the year ended December 31, 2018, an increase of 3 points from 25% in the prior year, and Adjusted TiO<sub>2</sub> EBITDA as a percentage of net sales was 33%, an increase of 4 points from 29% in the prior year. Higher pigment and zircon prices were the primary drivers of the increase, partially offset by higher costs of direct materials and lower sales volumes related to pigments and feedstock and other products.

Interest expense for the year ended December 31, 2018, increased by \$5 million compared to the same period in 2017 primarily due to higher debt levels partially offset by lower interest rates.

Interest income for the year ended December 31, 2018, increased by \$23 million compared to the same period in 2017 due to higher cash and cash equivalents and restricted cash balances as a result of the Alkali Sale and debt offering during the third quarter of 2017, which generated additional liquidity in anticipation of the pending Cristal Transaction.

Loss on extinguishment of debt of \$30 million for the year ended December 31, 2018 resulted from the redemption of our Senior Notes due 2022. See Note 14, of notes to consolidated financial statements. Loss on extinguishment of debt of \$28 million for the year ended December 31, 2017 resulted from the refinancing of our term loan and notes in the third quarter of 2017.

Other income (expense), net for the year ended December 31, 2018 primarily consisted of \$29 million net realized and unrealized foreign currency gains in the current year period primarily driven by the weakening of the South African rand used in the remeasurement of our U.S. dollar denominated working capital balances. Other income (expense), net for the year ended December 31, 2018 also includes a \$3 million adjustment associated with a settlement gain related to our former U.S. postretirement medical plan. This amount had been deferred to Accumulated other comprehensive income. See Note 20 of notes to consolidated financial statements. Other income (expense), net for the year ended December 31, 2017 primarily consisted of a net realized and unrealized foreign currency loss of \$20 million driven by the strengthening of the South African rand.

The effective tax rate of 30% and (7)% for the years ended December 31, 2018 and 2017, respectively, differs from the U.K. statutory rate of 19% primarily due to changes to valuation allowances, disallowable expenditures, changes in prior year taxes, U.S. tax reform, and our jurisdictional mix of income at tax rates different than the U.K. statutory rate. The current year rate was impacted by tax settlements for prior years and changes in tax rates in a foreign jurisdiction impacting our deferred tax assets, partially offset by a benefit of \$48 million due to the release of a valuation allowance for deferred tax assets associated with our operating subsidiary in the Netherlands.

During 2018 the Company reached a settlement agreement with the Australian Tax Office (ATO) for prior tax years which were under examination. The settlement with the ATO resulted in the accrual of an \$11 million current tax provision which was paid to the ATO in December 2018. In addition, in 2018 we recorded a charge of \$6 million to

the tax provision for the impact on deferred tax assets from a change in tax rates in the Netherlands.

***Discontinued Operations***

There were no amounts recorded in discontinued operations for the year ended December 31, 2018. Loss from discontinued operations, net of tax was \$179 million for the year ended December 31, 2017, including a loss of \$233 million from the sale of our wholly owned subsidiary, Alkali, in the third quarter of 2017. See note 4 of notes to consolidated financial statements for further discussion.

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	<b>Year Ended December 31,</b>		
	<b>2017</b>	<b>2016</b>	<b>Variance</b>
	<b>(Millions of U.S. Dollars)</b>		
<b>Net sales</b>	\$ 1,698	\$ 1,309	\$ 389
Cost of goods sold	1,309	1,176	133
<b>Gross profit</b>	389	133	256
<b>Gross Margin</b>	23 %	10 %	13pts
Corporate related and SG&A expenses	122	58	64
TiO <sub>2</sub> related SG&A expenses	127	127	—
Restructuring	(1 )	1	(2 )
<b>Income (loss) from operations</b>	141	(53 )	194
Interest expense	(188 )	(185 )	(3 )
Interest income	10	3	7
(Loss) gain on extinguishment of debt	(28 )	4	(32 )
Other income (expense), net	(22 )	(33 )	11
<b>Income (loss) from continuing operations before income taxes</b>	(87 )	(264 )	177
Income tax (provision) benefit	(6 )	125	(131 )
<b>Net loss from continuing operations</b>	\$ (93 )	\$ (139 )	\$ 46
<b>Effective tax rate</b>	(7 )%	47 %	(54)pts
<b>EBITDA<sup>(1)</sup></b>	\$ 273	\$ 95	\$ 178
<b>Adjusted EBITDA<sup>(1)</sup></b>	\$ 420	\$ 166	\$ 254
<b>TiO<sub>2</sub> Adjusted EBITDA<sup>(1)</sup></b>	\$ 500	\$ 236	\$ 264
<b>Adjusted EBITDA as% of Net Sales</b>	25 %	13 %	12pts
<b>TiO<sub>2</sub> Adjusted EBITDA as% of Net Sales</b>	29 %	18 %	11pts

EBITDA, Adjusted EBITDA and TiO<sub>2</sub> Adjusted EBITDA are Non-U.S. GAAP financial measures. Please refer to the Non-U.S. GAAP Financial Measures section of this Management's Discussion and Analysis of Financial Condition and Results of Operations for a discussion of these measures and a reconciliation of these measures to Net income (loss) from continuing operations.

Net sales of \$1,698 million for the year ended December 31, 2017 increased by 30% compared to \$1,309 million for the same period in 2016. Higher Pigment and Zircon prices and volumes and higher Feedstock and other products volumes were the primary drivers of the revenue growth. Net sales by type of product for the years ended December 31, 2017 and 2016 were as follows:

	<b>Year Ended December 31,</b>			
	<b>2017</b>	<b>2016</b>	<b>Variance</b>	<b>Percentage</b>
<b>(Millions of dollars, except percentages)</b>				

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Pigment	\$ 1,210	\$ 966	\$ 244	25 %
Zircon	209	162	47	29 %
Pig iron	63	34	29	85 %
Feedstock and other products	162	90	72	80 %
Electrolytic	54	57	(3 )	(5 )%
Total net sales	\$ 1,698	\$ 1,309	\$ 389	30 %

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Pigment revenue increased for the year ended December 31, 2017 compared to the same period in 2016 primarily due to a 20%, or \$200 million increase in average selling prices and a 4%, or \$38 million increase in sales volume. Foreign currency translation also benefited the pigment revenue growth by approximately 1%, or \$7 million, due to the strengthening Euro. Pigment experienced price and volume growth in all regions in 2017. The increase in zircon revenue compared to the prior year was primarily due to a 14%, or \$28 million increase in selling price and a 13%, or \$19 million increase in sales volume. Pig iron revenues increased compared to the prior year primarily due to a 34%, or \$16 million increase in average selling prices and a 37%, or \$13 million increase in sales volumes. Feedstock and other products sales increased from the prior year primarily driven by increases in CP titanium slag sales, ilmenite and synthetic rutile. There were \$108 million of CP titanium slag, ilmenite and synthetic rutile sales in 2017 compared to \$57 million in 2016.

Our gross profit margin for the year ended December 31, 2017 was 23% of net sales compared to 10% in the prior year. The gross margin growth is primarily due to higher selling prices of pigment and Co-products, which contributed \$254 million (14 points on gross margin), higher volume and product mix of \$28 million (1 point on gross margin) and lower production costs of \$16 million (1 point on gross margin) due primarily to a higher facility utilization. These increases to gross margin were partially offset by \$44 million (3 points on gross margin) of unfavorable impact of foreign currency translation on cost of goods sold, primarily from the South African Rand and the Australian dollar.

Selling, general and administrative expenses increased by \$64 million or 35% for the year ended December 31, 2017 compared to the same period in 2016. The increase in SG&A expense is mainly due to \$51 million of higher professional fees, including \$46 million related to the Cristal Transaction. In addition, SG&A expenses increased due to higher employee related costs of \$14 million due to higher salaries and wages, incentive compensation and other employee benefit costs, as well as \$7 million of higher employee stock-based compensation. These increases were partially offset by lower taxes other than income taxes primarily due to accruals recorded in 2016 for non-income related taxes.

Income from operations for the year ended December 31, 2017 of \$141 million, increased by \$194 million compared to same period in 2016, reflecting \$262 million from our TiO<sub>2</sub> activities offset by \$121 million of unallocated corporate expenses. Loss from operations for 2016 was \$53 million, \$5 million income from operations from our TiO<sub>2</sub> activities and \$58 million of unallocated corporate expenses. Income from operations for our TiO<sub>2</sub> activities increased by \$257 million compared to 2016 due to an increase in gross profit of \$256 million and a \$1 million decrease in restructuring costs.

Adjusted EBITDA as a percentage of net sales was 25% for the year ended December 31, 2017, an increase of 12 points from 13% in the prior year, and Adjusted TiO<sub>2</sub> EBITDA as percentage of net sales was 29%, an increase of 11 points from 18% in the prior year. Higher Pigment and Zircon prices and volumes were the primary drivers of the increase.

Interest expense for the year ended December 31, 2017, increased by \$3 million compared to 2016 primarily due to higher debt levels as a result of the debt offering during the third quarter of 2017, partially offset by lower interest rates.

Interest income for the year ended December 31, 2017, increased by \$7 million compared to the same period in 2016 due to higher cash and cash equivalents and restricted cash balances as a result of the Alkali Sale and debt offering during the third quarter of 2017.

Loss on extinguishment of debt in 2017 was \$28 million resulting from the refinancing of our term loan and notes in the third quarter of 2017. Gain on extinguishment of debt was \$4 million in 2016 primarily resulting from the repurchase of the face value of certain notes at prices below 100% of par value.



Other income (expense), net for the year ended December 31, 2017 and December 31, 2016, primarily consisted of a net realized and unrealized foreign currency loss of \$20 million and \$31 million, respectively, primarily driven by the strengthening of the South African rand used in the remeasurement of our U.S. dollar denominated open trade and notes receivable positions.

The effective tax rates in 2017 and 2016 differ from the United Kingdom statutory rate of 19% and the Australian statutory rate of 30% primarily due to valuation allowances and income in foreign jurisdictions taxed at rates different than the statutory rates. Additionally, the net income impact of the Corporate Reorganization

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was a benefit of \$137 million in the fourth quarter of 2016, reflecting the reversal of \$139 million of withholding tax accruals, offset by a foreign currency loss of \$2 million. For the year ended December 31, 2016, the net income impact was \$107 million, reflecting a net reduction in withholding tax accruals of \$110 million, offset by a foreign currency loss of \$3 million.

***Discontinued Operations***

Loss from discontinued operations, net of tax was \$179 million for the year ended December 31, 2017 compared to income of \$79 million for the year ended December 31, 2016. The results for the year ended December 31, 2017, included a loss of \$233 million from the sale of our wholly owned subsidiary, Alkali, in the third quarter of 2017. See note 4 of notes to consolidated financial statements for further discussion.

**Other Comprehensive (Loss) Income**

Other comprehensive loss was \$181 million for the year ended December 31, 2018 compared to other comprehensive income of \$123 million for the year ended December 31, 2017. The loss in 2018 compared to income in 2017 was primarily driven by the unfavorable year-over year foreign currency translation adjustments of \$302 million due to the movement in the South Africa rand.

Other comprehensive income was \$123 million for the year ended December 31, 2017 compared to \$132 million for the year ended December 31, 2016. The year-over-year comparison was unfavorably impacted by a settlement gain of \$31 million recorded in 2016 related to our Netherlands pension plan, partially offset by lower net actuarial losses of \$12 million in 2017 due to the settlement of the plan. Additionally, 2017 benefitted from favorable year-over year foreign currency adjustments of \$6 million due to the movement in the South African rand and a \$5 million favorable impact from the reversal of actuarial losses due to the Alkali sale.

**Liquidity and Capital Resources**

During 2018, our liquidity decreased by \$126 million to \$1.3 billion.

The table below presents our liquidity as of the following dates:

	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Cash and cash equivalents	\$ 1,034	\$ 1,116
Available under the Wells Fargo Revolver	197	232
Available under the ABSA Revolver	52	61
Total	\$ 1,283	\$ 1,409

Historically, we have funded our operations and met our commitments through cash generated by operations, private placement of notes, bank financings, borrowings under lines of credit and public offerings of notes. In the next twelve months, we expect that our operations and available borrowings under our debt refinancing and revolving credit agreements (see Note 14 of notes to consolidated financial statements) will provide sufficient cash to fund the Cristal Transaction, the purchase of Exxaro's 26% membership interest in Tronox Sands LLP, our operating expenses, capital expenditures, interest payments and debt repayments. Working capital (calculated as current assets from continuing operations less current liabilities from continuing operations) was \$2.2 billion at December 31, 2018, relatively flat compared to \$2.3 billion at December 31, 2017. Working capital at both December 31, 2018 and December 31, 2017 includes \$650 million funded by the Block Term Loan and related interest which upon consummation of the Cristal Transaction, will become available to us for the purpose of the acquisition. In the event of an asset sale, some or all of

the net proceeds from the sale may be required to be used to prepay borrowings under the Term Loan Facility based on the ratio of the total combined debt outstanding under the Term Loan Facility and the Wells Fargo Revolver to the consolidated EBITDA, as defined in the Term Loan Facility, for the previous four quarters. The current proposed remedy being discussed with the FTC is for the sale of the Ashtabula, Ohio plants. We currently anticipate that if the Cristal Transaction is completed with this remedy, it would equate to a senior net leverage ratio well below 2.75, and, as a result, we do not anticipate the sale of the Ashtabula plants triggering a prepayment event.

If the Cristal Transaction is terminated, our Blocked Term Loan, with a principal amount of \$650 million, will be repaid to the lenders of such Blocked Term Loan, and as the termination would represent a Prepayment

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Event as defined in our Term Loan Facility, we will be required to prepay \$800 million of outstanding borrowing under the Term Loan Facility. The liquidity table above for December 31, 2018 does not include restricted cash of \$662 million related to this Blocked Term Loan and related interest, and for December 31, 2017 does not include restricted cash of \$653 million, of which \$651 million relates to the Blocked Term Loan and related interest. The Blocked Term Loan and the \$800 million of borrowings under the Term Loan Facility are included in Long-term debt, net as we expect the Cristal transaction to be completed in some form.

As of and for the year ended December 31, 2018, the non-guarantor subsidiaries of our Senior Notes due 2025 represented approximately 24% of our total consolidated liabilities, approximately 40% of our total consolidated assets, approximately 24% of our total consolidated net sales and approximately 47% of our Consolidated EBITDA (as such term is defined in the 2025 Indenture). In addition, as of December 31, 2018, our non-guarantor subsidiaries had \$908 million of total consolidated liabilities (including trade payables but excluding intercompany liabilities), all of which would have been structurally senior to the 2025 Notes. See Note 14 of notes to consolidated financial statements for additional information.

At December 31, 2018, we had outstanding letters of credit and bank guarantees of \$38 million. See Note 14 of notes to consolidated financial statements.

Principal factors that could affect our ability to obtain cash from external sources include (i) debt covenants that limit our total borrowing capacity; (ii) increasing interest rates applicable to our floating rate debt; (iii) increasing demands from third parties for financial assurance or credit enhancement; (iv) credit rating downgrades, which could limit our access to additional debt; (v) a decrease in the market price of our common stock and debt obligations; and (vi) volatility in public debt and equity markets.

As of December 31, 2018, our credit rating with Moody's and Standard & Poor's was B1 positive outlook and B stable outlook, respectively.

### *Cash and Cash Equivalents*

We consider all investments with original maturities of three months or less to be cash equivalents. As of December 31, 2018, our cash and cash equivalents were primarily invested in money market funds. We maintain cash and cash equivalents in bank deposit and money market accounts that may exceed federally insured limits. The financial institutions where our cash and cash equivalents are held are highly rated and geographically dispersed, and we have a policy to limit the amount of credit exposure with any one institution. We have not experienced any losses in such accounts and believe we are not exposed to significant credit risk.

The use of our cash includes payment of our operating expenses, capital expenditures, servicing our interest and debt repayment obligations, making pension contributions and making quarterly dividend payments.

### *Repatriation of Cash*

At December 31, 2018, we held \$1.7 billion in cash and cash equivalents and restricted cash in these respective jurisdictions: \$1.4 billion in the United States, \$146 million in South Africa, \$72 million in Australia and \$30 million in Europe. Our credit facilities limit transfers of funds from subsidiaries in the United States to certain foreign subsidiaries.

Tronox Limited has foreign subsidiaries with undistributed earnings at December 31, 2018. We have made no provision for deferred taxes related to these undistributed earnings because they are considered indefinitely reinvested in the foreign jurisdictions.

*Debt Obligations*

At December 31, 2018 and 2017, our long-term debt, net of unamortized discount and debt issuance costs was \$3.2 billion and \$3.1 billion, respectively.

At both December 31, 2018 and 2017, our net debt (the excess of our debt over cash and cash equivalents) was \$2.1 billion and \$2.0 billion, respectively, excluding the \$650 million of restricted cash related to the Blocked Term Loan and related interest. On April 6, 2018, we issued our Senior Notes due 2026 and used the proceeds to redeem our Senior Notes due 2022 effectively extending our maturity at a lower interest rate. See Note 14, of notes to consolidated financial statements.

TABLE OF CONTENTS**Cash Flows***Years Ended December 31, 2018 and 2017*

The following table presents cash flow from continuing operations for the periods indicated:

	<b>Year Ended December 31,</b>	
	<b>2018</b>	<b>2017</b>
	<b>(Millions of U.S. dollars)</b>	
Net cash provided by operating activities	\$ 170	\$ 165
Net cash (used in) provided by investing activities	(174 )	1,234
Net cash (used in) provided by financing activities	(46 )	24
Net cash provided by discontinued operations	—	82
Effect of exchange rate changes on cash	(23 )	13
Net (decrease) increase in cash and cash equivalents	\$ (73 )	\$ 1,518

*Cash Flows provided by Operating Activities* — Cash provided by our operating activities is driven by net (loss) income from continuing operations adjusted for non-cash expense and changes in working capital. The following table provides our net cash provided by (used in) operating activities for 2018 and 2017:

	<b>Year Ended December 31,</b>	
	<b>2018</b>	<b>2017</b>
	<b>(Millions of U.S. dollars)</b>	
Net income (loss) from continuing operations	\$ 30	\$ (93 )
Net adjustments to reconcile net income (loss) to net cash provided by operating activities	258	292
Income related cash generation	288	199
Net change in assets and liabilities ( working capital changes )	(118 )	(34 )
Net cash provided by our operating activities	\$ 170	\$ 165

Net cash provided by operating activities increased by \$5 million as compared to the prior year as higher cash generated by income was mostly offset by cash used in working capital. The negative impact on cash from working capital was caused primarily by a \$104 million higher use of cash for inventory primarily attributable to increasing customer demand during 2017 that drove days sales of inventory below industry norms in 2017 and a \$58 million higher use of cash for accounts payable and accrued liabilities due to higher payments related to Cristal transaction costs as well as timing of payments to vendors. The use of cash was partially offset by a \$39 million lower use of cash for accounts receivable primarily due to lower sales in the fourth quarter, as compared to the prior year and a \$24 million lower use of cash for prepaids and other assets primarily related to payments in 2017 to secure future supplies of electrodes.

*Cash Flows provided by (used in) Investing Activities* — Net cash used in investing activities for the year ended December 31, 2018 was \$174 million as compared to net cash provided by investing activities of \$1.234 billion for the same period in 2017. The decrease was primarily driven by the proceeds of \$1.325 billion received from the sale of the Alkali business in 2017. In addition, capital expenditures of \$117 million in the current year increased compared to \$91 million in the prior year primarily related to machinery and equipment upgrades and purchase of land. The current year also includes \$64 million for a loan to AMIC related to a titanium slag smelter facility (see Note 1 of notes to consolidated financial statements) and \$6 million in proceeds received from the sale of the Henderson

Electrolytic Operations (see Note 5 of notes to consolidated financial statements).

*Cash Flows provided by (used in) Financing Activities* — Net cash used in financing activities during the year ended December 31, 2018 was \$46 million as compared to net cash provided by financing activities of \$24 million for the year ended December 31, 2017. The cash used in financing activities during the year ended December 31, 2018 was primarily driven by the higher net cash uses associated with redemption of debt instruments. During 2018, the net proceeds from the issuance of our Senior Notes due 2026 (including payments for call premium and debt issuance costs) was less than the repayments of debt as the net proceeds were used to redeem the Senior Notes due 2022 and we paid scheduled debt repayments of \$22 million on our Term Loan

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Facility. The cash provided by financing activities during the year ended December 31, 2017 was primarily driven by higher net cash sources associated with the issuance of and redemption of debt instruments. During 2017, the net proceeds received from the Term Loan Facility and issuance of our Senior Notes due 2025 was higher than the repayments of short-term and long-term debt including the redemption of our Senior Notes due 2020 (including payments for call premium and debt issuance costs).

*Years Ended December 31, 2017 and 2016*

The following table presents cash flow from continuing operations for the periods indicated:

	<b>Year Ended December 31,</b>	
	<b>2017</b>	<b>2016</b>
	<b>(Millions of U.S. dollars)</b>	
Net cash provided by operating activities	\$ 165	\$ 84
Net cash provided by (used in) investing activities	1,234	(84 )
Net cash provided by (used in) financing activities	24	(78 )
Net cash provided by discontinued operations	82	93
Effect of exchange rate changes on cash	13	2
Net increase in cash and cash equivalents	\$ 1,518	\$ 17

*Cash Flows provided by Operating Activities* — The following table provides our net cash provided by operating activities for 2017 and 2016:

	<b>Year Ended December 31,</b>	
	<b>2017</b>	<b>2016</b>
	<b>(Millions of U.S. dollars)</b>	
Net loss from continuing operations	\$ (93 )	\$ (139 )
Net adjustments to reconcile net loss to net cash provided by operating activities	292	135
Income related cash generation	199	(4 )
Net change in assets and liabilities ( working capital changes )	(34 )	88
Net cash provided by our operating activities	\$ 165	\$ 84

Net cash provided by operating activities during 2017 of \$165 million increased by \$81 million compared to 2016 as higher cash generated by income was partially offset by cash used in working capital. The negative impact on cash from working capital was caused primarily by a (i) \$49 million higher use of cash for inventory in 2017, (ii) a \$25 million higher use of cash for accounts receivable primarily due to higher sales in 2017, (iii) a \$17 million higher use of cash for prepaid and other assets primarily related to payments to secure future supplies of electrodes, and (iv) a \$9 million higher use of cash for accounts payable and accrued liabilities due to higher payments related to Cristal transaction costs as well as timing of payments to vendors.

*Cash Flows used in Investing Activities* — Net cash flows provided by investing activities in 2017 was \$1.234 billion compared to cash used in investing activities of \$84 million in 2016. The increase was primarily due to proceeds of \$1.325 billion from the Alkali Sale. Capital expenditures were \$5 million higher in 2017 compared to 2016.

*Cash Flows provided by (used in) Financing Activities* — Net cash provided by financing activities of \$24 million for 2017 was primarily driven by higher net cash sources associated with the issuance of and redemption of debt instruments. During 2017, the net proceeds received from the Term Loan Facility and issuance of our Senior Notes



due 2025 was higher than the repayments of short-term and long-term debt including the redemption of our Senior Notes due 2020 (including payments for call premium and debt issuance costs). Net cash used in financing activities during 2016 of \$78 million was primarily attributable to dividends paid of \$46 million and principal repayments on long-term debt of \$31 million.

**TABLE OF CONTENTS****Contractual Obligations**

The following table sets forth information relating to our contractual obligations as of December 31, 2018:

		Contractual Obligation Payments Due by Period <sup>(3)(4)</sup>			
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
		(Millions of U.S. dollars)			
Long-term debt and lease financing (including interest) <sup>(1)</sup>	\$ 4,359	\$ 209	\$ 416	\$ 410	\$ 3,324
Purchase obligations <sup>(2)</sup>	336	121	94	52	69
Operating leases	37	15	11	7	4
Asset retirement obligations	74	6	6	3	59
Total	\$ 4,806	\$ 351	\$ 527	\$ 472	\$ 3,456

(1) We calculated the Term Loan interest at a base rate of 2.5% plus a margin of 3.0%. See Note 14 of notes to our consolidated financial statements.

(2) Includes obligations to purchase requirements of process chemicals, supplies, utilities and services. We have various purchase commitments for materials, supplies, and services entered into in the ordinary course of business. Included in the purchase commitments table above are contracts, which require minimum volume purchases that extend beyond one year or are renewable annually and have been renewed for 2018. Certain contracts allow for changes in minimum required purchase volumes in the event of a temporary or permanent shutdown of a facility. We believe that all of our purchase obligations will be utilized in our normal operations.

(3) The table excludes contingent obligations, as well as any possible payments for uncertain tax positions given the inability to estimate the possible amounts and timing of any such payments.

(4) The table excludes commitments pertaining to our pension and other postretirement obligations.

**Non-U.S. GAAP Financial Measures**

EBITDA and Adjusted EBITDA, which are used by management to measure performance, are not presented in accordance with U.S. GAAP. We define EBITDA as net income (loss) excluding the impact of income taxes, interest expense, interest income and depreciation, depletion and amortization. We define Adjusted EBITDA as EBITDA excluding the impact of nonrecurring items such as restructuring charges, gain or loss on debt extinguishments, impairment charges, gains or losses on sale of assets, acquisition-related transaction costs and pension settlements and curtailment gains or losses. Adjusted EBITDA also excludes non-cash items such as share-based compensation costs and pension and postretirement costs. Additionally, we exclude for Adjusted EBITDA, foreign currency remeasurement related to third-party unrealized gains and losses and intercompany realized and unrealized gains and losses. TiO<sub>2</sub> Adjusted EBITDA is determined in a similar manner as Adjusted EBITDA; however, allocated corporate expenses are also added back to Income from operations from our TiO<sub>2</sub> activities to arrive at TiO<sub>2</sub> Adjusted EBITDA.

Management believes that EBITDA is useful to investors, as it is commonly used in the industry as a means of evaluating operating performance. We do not intend for these non-U.S. GAAP financial measures to be a substitute for any U.S. GAAP financial information. Readers of these statements should use these non-U.S. GAAP financial measures only in conjunction with the comparable U.S. GAAP financial measures. Since other companies may calculate EBITDA and Adjusted EBITDA differently than we do, EBITDA and Adjusted EBITDA, as presented herein, may not be comparable to similarly titled measures reported by other companies. Management believes these non-U.S. GAAP financial measures:

•

Reflect our ongoing business in a manner that allows for meaningful period-to-period comparison and analysis of trends in our business, as they exclude income and expense that are not reflective of ongoing operating results;

- Provide useful information in understanding and evaluating our operating results and comparing financial results across periods;
- Provide a normalized view of our operating performance by excluding items that are either noncash or infrequently occurring.

Adjusted EBITDA is one of the primary measures management uses for planning and budgeting processes, and to monitor and evaluate financial and operating results. In addition, Adjusted EBITDA is a factor in evaluating management's performance when determining incentive compensation.

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The following table reconciles net income (loss) to EBITDA and Adjusted EBITDA for the periods presented:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Net income (loss), (U.S. GAAP)	\$ 30	\$ (272 )	\$ (60 )
(Loss) income from discontinued operations, net of tax (see Note 4), (U.S. GAAP)	—	(179 )	79
Net income (loss) from continuing operations, (U.S. GAAP)	30	(93 )	(139 )
Interest and debt expense, net	193	188	185
Interest income	(33 )	(10 )	(3 )
Income tax provision (benefit)	13	6	(125 )
Depreciation, depletion and amortization expense	195	182	177
EBITDA (non-U.S. GAAP)	398	273	95
Transaction costs <sup>(a)</sup>	66	48	—
Share-based compensation <sup>(b)</sup>	21	31	24
Restructuring <sup>(c)</sup>	—	(1 )	1
(Gain) loss on extinguishment of debt <sup>(d)</sup>	30	28	(4 )
Foreign currency remeasurement (gain) loss <sup>(e)</sup>	(29 )	25	32
Impairment loss <sup>(f)</sup>	31	—	—
Settlement and curtailment (gain) loss <sup>(g)</sup>	(3 )	—	1
Reversal of accrual related to tax settlement <sup>(h)</sup>	(11 )	—	—
Other items <sup>(i)</sup>	10	16	17
Adjusted EBITDA (non-U.S. GAAP)	\$ 513	\$ 420	\$ 166

(a) Represents transaction costs associated with the Cristal Transaction which were recorded in Selling, general and administrative expenses in the Consolidated Statements of Operations.

(b) Represents non-cash share-based compensation. See Note 19 of notes to Consolidated Financial Statements for additional information.

(c) Represents adjustments for severance and other costs associated with prior years' global restructuring efforts, which was recorded in Restructuring in the Consolidated Statements of Operations.

(d) 2018 amount represents the \$30 million loss in connection with the redemption of senior notes, including a call premium of \$22 million. 2017 amount represents the \$28 million loss, which includes a \$22 million loss associated with the redemption of the outstanding balance of senior notes, \$1 million of unamortized original debt issuance costs from the repayment of a Revolver, and \$5 million of debt issuance costs from the refinancing activities associated with the term loans. 2016 amount represents the \$4 million gain associated with the repurchase of \$20 million face value of senior notes.

(e) Represents foreign currency remeasurement related to third-party unrealized gains and losses and intercompany realized and unrealized gains and losses, which is included in Other income (expense), net in the Consolidated Statements of Operations.

(f) Represents a charge for the impairment and loss on sale of the assets of our Tronox Electrolytic Operations which was recorded in Impairment loss in the Consolidated Statements of Operations. See Note 5 of notes to Consolidated Financial Statements.

(g) 2018 amount represents settlement gain related to the former U.S. postretirement medical plan; 2016 amount represents the net impact of settlement losses and curtailment gains related to the Netherlands pension plan.

(h) Represents the reversal of an accrual as a result of a tax settlement.

- Includes noncash pension and postretirement costs, accretion expense, severance expense, insurance settlement gain and other items included in Selling general and administrative expenses and Cost of goods sold in the Consolidated Statements of Operations.
- (i)

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The following table reconciles TiO<sub>2</sub> income from operations to Adjusted EBITDA for our TiO<sub>2</sub> segment:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
TiO <sub>2</sub> segment operating income	\$ 323	\$ 262	\$ 4
Depreciation, depletion and amortization expense	188	177	171
Other income (expense), net	44	(36 )	(19 )
TiO <sub>2</sub> EBITDA (non-U.S. GAAP)	555	403	156
Allocated corporate expenses	51	38	38
Share-based compensation	8	11	10
Restructuring	—	—	2
Foreign currency remeasurement (gain) loss	(45 )	39	22
Impairment loss	31	—	—
Other items	9	9	8
Adjusted TiO <sub>2</sub> EBITDA (non-U.S. GAAP)	\$ 609	\$ 500	\$ 236

**Critical Accounting Policies and Estimates**

The preparation of financial statements in conformity with U.S. GAAP requires management to make certain estimates and assumptions regarding matters that are inherently uncertain and that ultimately affect the reported amounts of assets, liabilities, revenues and expenses, and the disclosure of contingent assets and liabilities. The estimates and assumptions are based on management's experience and understanding of current facts and circumstances. These estimates may differ from actual results. Certain of our accounting policies are considered critical, as they are both important to reflect our financial position and results of operations and require significant or complex judgment on the part of management. The following is a summary of certain accounting policies considered critical by management.

***Inventories, net***

Pigment inventories are stated at the lower of actual cost or net realizable value, net of allowances for obsolete and slow-moving inventory. The cost of finished goods pigment inventories is determined using the first-in, first-out method. Carrying values include material costs, labor, and associated indirect manufacturing expenses. Costs for materials and supplies, excluding ore, are determined by average cost to acquire. Raw materials are carried at actual cost. Feedstock and co-products inventories are stated at the lower of the weighted-average cost of production or market. We periodically review the cost of our inventory in comparison to its net realizable value. We also periodically review our inventory for obsolescence (inventory that is no longer marketable for its intended use). In either case, 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. Inventories expected to be sold or consumed within twelve months after the balance sheet date are classified as current assets and all other inventories are classified as non-current assets.

***Long-Lived Assets***

Key estimates related to long-lived assets (property, plant and equipment, mineral leaseholds, and intangible assets) include useful lives, recoverability of carrying values, and the existence of any asset retirement obligations. As a result of future decisions, such estimates could be significantly modified. The estimated useful lives of property, plant and equipment range from three to forty years, and depreciation is recognized on a straight-line basis. Useful lives are

estimated based upon our historical experience, engineering estimates, and industry information. These estimates include an assumption regarding periodic maintenance. Mineral leaseholds are depreciated over their useful lives as determined under the units of production method. Intangible assets with finite useful lives are amortized on the straight-line basis over their estimated useful lives. The amortization methods and remaining useful lives are reviewed quarterly.

We evaluate the recoverability of the carrying value of long-lived assets that are held and used whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Under such circumstances, we assess whether the projected undiscounted cash flows of our long-lived assets are sufficient to

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recover the carrying amount of the asset group being assessed. If the undiscounted projected cash flows are not sufficient, we calculate the impairment amount by discounting the projected cash flows using our weighted-average cost of capital. For assets that satisfy the criteria to be classified as held for sale, an impairment loss, if any, is recognized to the extent the carrying amount exceeds fair value, less cost to sell. The amount of the impairment of long-lived assets is written off against earnings in the period in which the impairment is determined.

### ***Asset Retirement Obligations***

To the extent a legal obligation exists, an asset retirement obligation ( ARO ) is recorded at its estimated fair value and accretion expense is recognized over time as the discounted liability is accreted to its expected settlement value. Fair value is measured using expected future cash outflows, adjusted for expected inflation and discounted at our credit-adjusted risk-free interest rate. No market-risk premium has been included in our calculation of ARO balances since we can make no reliable estimate. Our consolidated financial statements classify accretion expense related to asset retirement obligations as a production cost, which is included in Cost of goods sold in the Consolidated Statements of Operations.

We used the following assumptions in determining asset retirement obligations at December 31, 2018: inflation rates between 2.4% - 5.2% per year; credit adjusted risk-free interest rates between 7.0% -17.6%; the life of mines between 11-24 years and the useful life of assets between 10-32 years.

### ***Income Taxes***

We have operations in several countries around the world and are subject to income and similar taxes in these countries. The estimation of the amounts of income tax involves the interpretation of complex tax laws and regulations and how foreign taxes affect domestic taxes, as well as the analysis of the realizability of deferred tax assets, tax audit findings and uncertain tax positions. Although we believe our tax accruals are adequate, differences may occur in the future, depending on the resolution of pending and new tax matters.

Deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and tax bases of assets and liabilities using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. A valuation allowance is provided against a deferred tax asset when it is more likely than not that all or some portion of the deferred tax asset will not be realized. We periodically assess the likelihood that we will be able to recover our deferred tax assets, and reflect any changes in our estimates in the valuation allowance, with a corresponding adjustment to earnings or other comprehensive income (loss) as appropriate. ASC 740, *Income Taxes*, requires that all available positive and negative evidence be weighted to determine whether a valuation allowance should be recorded.

The amount of income taxes we pay are subject to ongoing audits by federal, state and foreign tax authorities, which may result in proposed assessments. Our estimate for the potential outcome for any uncertain tax issue is highly judgmental. We assess our income tax positions, and record tax benefits for all years subject to examination based upon our evaluation of the facts, circumstances and information available at the reporting date. For those tax positions for which it is more likely than not that a tax benefit will be sustained, we record the amount that has a greater than 50% likelihood of being realized upon settlement with a taxing authority that has full knowledge of all relevant information. Interest and penalties are accrued as part of tax expense, where applicable. If we do not believe that it is more likely than not that a tax benefit will be sustained, no tax benefit is recognized.

### ***Pension and Postretirement Benefits***



We provide pension and postretirement healthcare benefits for qualifying employees in the U.S and South Africa. These plans are accounted for and disclosed in accordance with ASC 715, *Compensation — Retirement Benefits*.

*Expected Return on Plan Assets* — In forming the assumption of the U.S. long-term rate of return on plan assets, we consider the expected earnings on funds already invested, earnings on contributions expected to be made in the current year, and earnings on reinvested returns. The long-term rate of return estimation methodology for U.S. plans is based on a capital asset pricing model using historical data and a forecasted earnings model. An expected return on plan assets analysis is performed which incorporates the current portfolio

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allocation, historical asset-class returns, and an assessment of expected future performance using asset-class risk factors. Our assumption of the long-term rate of return for the Netherlands Plan was developed considering the portfolio mix and country-specific economic data that includes the rates of return on local government and corporate bonds.

*Discount Rate* — The discount rates selected for estimation of the actuarial present value of the benefit obligations of the U.S. Qualified Plan were 4.40% and 3.71% at December 31, 2018 and 2017, respectively. The 2018 and 2017 rates were selected based on the results of a cash flow matching analysis, which projected the expected cash flows of the plans using a yield curves model developed from a universe of Aa-graded U.S. currency corporate bonds (obtained from Bloomberg) with at least \$50 million outstanding. Bonds with features that imply unreliable pricing, a less than certain cash flow, or other indicators of optionality are filtered out of the universe. The remaining universe is categorized into maturity groups, and within each of the maturity groups yields are ranked into percentiles.

### ***Recent Accounting Pronouncements***

See Note 2 of notes to Consolidated Financial Statements for recently issued accounting pronouncements.

### **Environmental Matters**

We are subject to a broad array of international, federal, state, and local laws and regulations relating to safety, pollution, protection of the environment, and the generation, storage, handling, transportation, treatment, disposal, and remediation of hazardous substances and waste materials. In the ordinary course of business, we are subject to frequent environmental inspections and monitoring, and occasional investigations by governmental enforcement authorities. Under these laws, we are or may be required to obtain or maintain permits or licenses in connection with our operations. In addition, under these laws, we are or may be required to remove or mitigate the effects on the environment of the disposal or release of chemical, petroleum, low-level radioactive and other substances at our facilities. We may incur future costs for capital improvements and general compliance under environmental, health, and safety laws, including costs to acquire, maintain, and repair pollution control equipment. Environmental laws and regulations are becoming increasingly stringent, and compliance costs are significant and will continue to be significant in the foreseeable future. There can be no assurance that such laws and regulations or any environmental law or regulation enacted in the future is not likely to have a material effect on our business. We believe we are in compliance with applicable environmental rules and regulations in all material respects.

### **Item 7A. Quantitative and Qualitative Disclosures About Market Risk**

We are exposed to various market, credit, operational, and liquidity risks in the normal course of business, which are discussed below. We manage these risks through normal operating and financing activities and, when appropriate, with derivative instruments. We do not invest in derivative instruments for speculative purposes, but historically have entered into, and may enter into, derivative instruments for hedging purposes in order to reduce the exposure to fluctuations in interest rates, natural gas prices and exchange rates.

### **Market Risk**

A substantial portion of our products and raw materials are commodities that reprice as market supply and demand fundamentals change. Accordingly, product margins and the level of our profitability tend to vary with changes in the business cycle. Our TiO<sub>2</sub> prices may do so in the near term as ore prices and pigment prices are expected to fluctuate over the next few years. We try to protect against such instability through various business strategies. These include provisions in sales contracts allowing us to pass on higher raw material costs through timely price increases and formula price contracts to transfer or share commodity price risk, as well as using varying contract term lengths and selling to a diverse mix of customers by geography and industry to reap the benefits of a diverse portfolio.

## **Credit Risk**

Credit risk is the risk that a borrower or a counterparty will fail to meet their obligations. A significant portion of our liquidity is concentrated in trade accounts receivable that arise from sales of our products to customers. In the case of TiO<sub>2</sub>, the high level of industry concentration has the potential to impact our overall

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exposure to credit risk, either positively or negatively, in that our customers may be similarly affected by changes in economic, industry or other conditions. We have significant exposure to credit risk in industries that are affected by cyclical economic fluctuations. We perform ongoing credit evaluations of our customers from time to time, as deemed appropriate, to mitigate credit risk but generally do not require collateral. Our contracts typically enable us to tighten credit terms if we perceive additional credit risk; however, historic losses due to write offs of bad debt have been relatively low. In addition, due to our international operations, we are subject to potential trade restrictions and sovereign risk in certain countries in which we operate. We maintain allowances for potential credit losses based on specific customer review and current financial conditions. During 2018, 2017 and 2016, our ten largest third-party TiO<sub>2</sub> customers represented 37%, 35% and 36%, respectively, of our consolidated net sales. During both 2018 and 2017, no single customer accounted for 10% of our consolidated net sales. During 2016, one pigment customer accounted for 10% of our consolidated net sales.

### **Interest Rate Risk**

Interest rate risk arises from the possibility that changes in interest rates will impact our financial results. We are exposed to interest rate risk on our floating rate debt, the New Term Loan Facility and Wells Fargo Revolver balance. Using a sensitivity analysis as of December 31, 2018, a hypothetical 1% increase in interest rates would result in a net increase to pre-tax loss of approximately \$4 million on an annualized basis. This is due to the fact that earnings on our floating rate financial assets of \$1.7 billion at December 31, 2018 would increase by the full 1%, offsetting the impact of a 1% increase in interest expense on our \$2.1 billion Term Loan Facility balance.

### **Currency Risk**

Currency risk arises from the possibility that fluctuations in foreign exchange rates will impact our balance sheets due to the translation of our assets and liabilities denominated in foreign currencies, as well as our earnings due to the translation of certain of our subsidiaries' statements of operations from local currencies to U.S. dollars, as well as due to remeasurement of assets and liabilities denominated in currencies other than a subsidiary's functional currency. We manufacture and market our products in a number of countries throughout the world and, as a result, are exposed to changes in foreign currency exchange rates, particularly in Australia, South Africa, and the Netherlands. The exposure is more prevalent in South Africa and Australia as the majority of revenues are earned in U.S. dollars while expenses are primarily incurred in local currencies. Since we are exposed to movements in the South African rand and the Australian Dollar versus the U.S. dollar, we may enter into forward contracts to buy and sell foreign currencies as economic hedges for these foreign currency transactions.

Commencing during the second quarter of 2018, we entered into foreign currency contracts for the South African rand to reduce exposure of our foreign affiliates' balance sheet to fluctuations in foreign currency rates. At December 31, 2018, the fair value of the foreign currency contracts was a loss of \$5 million.

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**Item 8. Financial Statements and Supplementary Data**

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### **Report of Independent Registered Public Accounting Firm**

To the Board of Directors and Shareholders of Tronox Limited

#### ***Opinions on the Financial Statements and Internal Control over Financial Reporting***

We have audited the accompanying consolidated balance sheets of Tronox Limited and its subsidiaries (the Company) as of December 31, 2018 and 2017 and the related consolidated statements of operations, comprehensive income (loss), changes in shareholders' equity, and of cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework* (2013) issued by the COSO.

#### ***Basis for Opinions***

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

#### ***Definition and Limitations of Internal Control over Financial Reporting***

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Stamford, Connecticut  
February 28, 2019

We have served as the Company's auditor since 2014.

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TABLE OF CONTENTS**TRONOX LIMITED****CONSOLIDATED STATEMENTS OF OPERATIONS**

(Millions of U.S. dollars, except share and per share data)

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
<b>Net sales</b>	\$ 1,819	\$ 1,698	\$ 1,309
Cost of goods sold	1,321	1,309	1,176
<b>Gross profit</b>	498	389	133
Selling, general and administrative expenses	267	249	185
Restructuring	—	(1 )	1
Impairment loss	31	—	—
<b>Income (loss) from operations</b>	200	141	(53 )
Interest expense	(193 )	(188 )	(185 )
Interest income . .	33	10	3
(Loss) gain on extinguishment of debt	(30 )	(28 )	4
Other income (expense), net	33	(22 )	(33 )
<b>Income (loss) from continuing operations before income taxes</b>	43	(87 )	(264 )
Income tax (provision) benefit	(13 )	(6 )	125
<b>Net income (loss) from continuing operations</b>	30	(93 )	(139 )
<b>Net income (loss) from discontinued operations, net of tax</b>	—	(179 )	79
<b>Net income (loss)</b>	30	(272 )	(60 )
Net income attributable to noncontrolling interest	37	13	1
<b>Net loss attributable to Tronox Limited</b>	\$ (7 )	\$ (285 )	\$ (61 )
<b>Net income (loss) per share, basic and diluted:</b>			
<b>Continuing operations</b>	\$ (0.06 )	\$ (0.89 )	\$ (1.20 )
<b>Discontinued operations</b>	\$ —	\$ (1.50 )	\$ 0.68
<b>Net income (loss) per share, basic and diluted</b>	\$ (0.06 )	\$ (2.39 )	\$ (0.52 )
<b>Weighted average shares outstanding, basic and diluted (in thousands)</b>	122,881	119,502	116,161

See notes to consolidated financial statements.

TABLE OF CONTENTS**TRONOX LIMITED****CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)**

(Millions of U.S. dollars)

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
<b>Net income (loss)</b>	\$ 30	\$ (272 )	\$ (60 )
<b>Other comprehensive income (loss):</b>			
Foreign currency translation adjustments	(177 )	125	119
Pension and postretirement plans:			
Actuarial gains (losses), net of taxes of less than \$1 million in 2018, 2017, and 2016	(5 )	(6 )	(18 )
Amortization of unrecognized actuarial losses, net of taxes of less than \$1 million in 2018, 2017, and 2016	3	3	2
Removal of Alkali qualified plan actuarial losses due to Sale	—	5	—
Prior service credit (no tax impact, see Note 7)	—	—	(4 )
Pension and postretirement benefit curtailments loss (no tax impact, see Note 7)	—	—	(1 )
Settlement gain on the Netherlands Pension Plan, (no tax impact)	—	—	31
Settlement gain reclassified from accumulated other comprehensive loss to the Consolidated Statements of Operations (no tax impact: see Note 7)	(3 )	—	—
Unrealized gains (losses) on derivative financial instruments, (no tax impact; See Note 7)	1	(4 )	3
<b>Other comprehensive (loss) income</b>	(181 )	123	132
<b>Total comprehensive (loss) income</b>	\$ (151 )	\$ (149 )	\$ 72
<b>Comprehensive income (loss) attributable to noncontrolling interest:</b>			
Net income	37	13	1
Foreign currency translation adjustments	(44 )	29	31
Comprehensive (loss) income attributable to noncontrolling interest	(7 )	42	32
<b>Comprehensive (loss) income attributable to Tronox Limited</b>	\$ (144 )	\$ (191 )	\$ 40

See notes to consolidated financial statements.

TABLE OF CONTENTS**TRONOX LIMITED****CONSOLIDATED BALANCE SHEETS**

(Millions of U.S. dollars, except share and per share data)

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
<b>ASSETS</b>		
<b>Current Assets</b>		
Cash and cash equivalents	\$ 1,034	\$ 1,116
Restricted cash	662	653
Accounts receivable (net of allowance of less than \$1 in 2018 and \$1 in 2017)	317	328
Inventories, net	479	473
Prepaid and other assets	50	61
Income taxes receivable	2	8
<b>Total current assets</b>	<b>2,544</b>	<b>2,639</b>
<b>Noncurrent Assets</b>		
Property, plant and equipment, net	1,004	1,115
Mineral leaseholds, net	796	885
Intangible assets, net	176	198
Inventories, net	—	3
Deferred tax assets	37	1
Other long-term assets	85	23
<b>Total assets</b>	<b>\$ 4,642</b>	<b>\$ 4,864</b>
<b>LIABILITIES AND EQUITY</b>		
<b>Current Liabilities</b>		
Accounts payable	\$ 133	\$ 165
Accrued liabilities	140	163
Long-term debt due within one year	22	22
Income taxes payable	5	3
<b>Total current liabilities</b>	<b>300</b>	<b>353</b>
<b>Noncurrent Liabilities</b>		
Long-term debt, net	3,139	3,125
Pension and postretirement healthcare benefits	93	103
Asset retirement obligations	68	79
Long-term deferred tax liabilities	163	171
Other long-term liabilities	17	18
<b>Total liabilities</b>	<b>3,780</b>	<b>3,849</b>

**Commitments and Contingencies**

**Shareholders' Equity**

Tronox Limited Class A ordinary shares, par value \$0.01 — 94,286,021 shares issued and 94,204,565 shares outstanding at December 31, 2018 and 92,717,935 shares issued and 92,541,463 shares outstanding at December 31, 2017

1

1

Tronox Limited Class B ordinary shares, par value \$0.01 — 28,729,280 shares issued and outstanding at December 31, 2018 and 2017

—

—

Capital in excess of par value

1,579

1,558

Accumulated deficit

(357 )

(327 )

Accumulated other comprehensive loss

(540 )

(403 )

**Total Tronox Limited shareholders' equity**

683

829

Noncontrolling interest

179

186

**Total equity**

862

1,015

**Total liabilities and equity**

\$ 4,642

\$ 4,864

See notes to consolidated financial statements.

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**TRONOX LIMITED**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**  
(Millions of U.S. dollars)

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
<b>Cash Flows from Operating Activities:</b>			
Net income (loss)	\$ 30	\$ (272 )	\$ (60 )
Net income (loss) from discontinued operations, net of tax	—	(179 )	79
Net income (loss) from continuing operations	30	(93 )	(139 )
Adjustments to reconcile net income (loss) from continuing operations to net cash provided by operating activities, continuing operations:			
Depreciation, depletion and amortization	195	182	177
Corporate Reorganization	—	—	(107 )
Deferred income taxes	(21 )	2	(9 )
Share-based compensation expense	21	31	24
Amortization of deferred debt issuance costs and discount on debt	11	15	11
Loss (gain) on extinguishment of debt	30	28	(4 )
Impairment loss	31	—	—
Other non-cash affecting net income (loss)	(9 )	34	43
Changes in assets and liabilities:			
Increase in accounts receivable, net	(11 )	(50 )	(25 )
(Increase) decrease in inventories, net	(47 )	57	106
Decrease (increase) in prepaid and other assets	4	(20 )	(3 )
(Decrease) increase in accounts payable and accrued liabilities	(51 )	7	16
Net changes in income tax payables and receivables	10	(7 )	3
Changes in other non-current assets and liabilities	(23 )	(21 )	(9 )
Cash provided by operating activities – continuing operations	170	165	84
<b>Cash Flows from Investing Activities:</b>			
Capital expenditures	(117 )	(91 )	(86 )
Proceeds from the sale of businesses	6	1,325	—
Loans	(64 )	—	—
Proceeds from the sale of assets	1	—	2
Cash (used in) provided by investing activities – continuing operations	(174 )	1,234	(84 )
<b>Cash Flows from Financing Activities:</b>			
Repayments of short-term debt	—	(150 )	—
Repayments of long-term debt	(606 )	(2,342 )	(31 )
Proceeds from long-term debt	615	2,589	—

Debt issuance costs	(10 )	(37 )	—
Call premium paid	(22 )	(14 )	—
Dividends paid	(23 )	(23 )	(46 )
Restricted stock and performance-based shares settled in cash for taxes	(6 )	(12 )	(1 )
Proceeds from the exercise of warrants and options	6	13	—
Cash (used in) provided by financing activities – continuing operations	(46 )	24	(78 )

**Discontinued Operations:**

Cash provided by operating activities	—	107	126
Cash used in investing activities	—	(25 )	(33 )
<b>Net cash flows provided by discontinued operations</b>	—	82	93

**Effects of exchange rate changes on cash and cash equivalents and restricted cash**

(23 )	13	2
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<b>Net (decrease) increase in cash and cash equivalents and restricted cash</b>	(73 )	1,518	17
<b>Cash and cash equivalents and restricted cash at beginning of period</b>	1,769	251	234
<b>Cash and cash equivalents and restricted cash at end of period - continuing operations</b>	\$ 1,696	\$ 1,769	\$ 251

**Supplemental cash flow information - continuing operations:**

Interest paid, net	\$ 184	\$ 186	\$ 171
Income taxes paid	\$ 28	\$ 10	\$ 2

See notes to consolidated financial statements.

TABLE OF CONTENTS**TRONOX LIMITED****CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY**

(Millions of U.S. dollars)

	Tronox Limited Class A Ordinary Shares	Tronox Limited Class B Ordinary Shares	Capital in Excess of par Value	(Accumulated Deficit) Retained Earnings	Accumulated Other Comprehensive Loss	Total Tronox Limited Shareholders' Equity	Non- controlling Interest	Total Equity
<b>Balance at January 1, 2016</b>	\$ 1	\$ —	\$ 1,500	\$ 89	\$ (598 )	\$ 992	\$ 112	\$ 1,104
Net (loss) income	—	—	—	(61 )	—	(61 )	1	(60 )
Other comprehensive income	—	—	—	—	101	101	31	132
Shares-based compensation	—	—	25	—	—	25	—	25
Class A and Class B share dividends	—	—	—	(47 )	—	(47 )	—	(47 )
Warrants and options exercised	—	—	(1 )	—	—	(1 )	—	(1 )
<b>Balance at December 31, 2016</b>	\$ 1	\$ —	\$ 1,524	\$ (19 )	\$ (497 )	\$ 1,009	\$ 144	\$ 1,153
Net (loss) income	—	—	—	(285 )	—	(285 )	13	(272 )
Other comprehensive income	—	—	—	—	94	94	29	123
Shares-based compensation	—	—	33	—	—	33	—	33
Shares cancelled	—	—	(12 )	—	—	(12 )	—	(12 )
Warrants and options exercised	—	—	13	—	—	13	—	13
Class A and Class B share dividends	—	—	—	(23 )	—	(23 )	—	(23 )
<b>Balance at December 31, 2017</b>	\$ 1	\$ —	\$ 1,558	\$ (327 )	\$ (403 )	\$ 829	\$ 186	\$ 1,015
Net (loss) income	—	—	—	(7 )	—	(7 )	37	30
Other comprehensive loss	—	—	—	—	(137 )	(137 )	(44 )	(181 )
Shares-based compensation	—	—	21	—	—	21	—	21
Shares cancelled	—	—	(6 )	—	—	(6 )	—	(6 )
Warrants and options exercised	—	—	6	—	—	6	—	6

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Class A and Class B share dividends	—	—	—	(23 )	—	(23 )	—	(23 )
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**Balance at December**

<b>31, 2018</b>	\$ 1	\$ —	\$ 1,579	\$ (357 )	\$ (540 )	\$ 683	\$ 179	\$ 862
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See notes to consolidated financial statements.



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### **TRONOX LIMITED**

### **NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

(Millions of U.S. dollars, except share, per share and metric tons data or unless otherwise noted)

#### **1. The Company (To be Updated)**

Tronox Limited (referred to as Tronox, we, us, or our ) is a public limited company registered under the laws of the State of Western Australia. We are a global leader in the production and marketing of titanium bearing mineral sands and titanium dioxide (  $TiO_2$  ) pigment. Through the exploration, mining and beneficiation of mineral sands deposits, we produce titanium feedstock (including chloride slag, slag fines, rutile, synthetic rutile and leucoxene) and its co-products, pig iron and zircon. Titanium feedstock is primarily used to manufacture  $TiO_2$ , a pigment used in the manufacture of paint and plastics. Zircon, a hard, glossy mineral, is used for the manufacture of ceramics, refractories, TV screen glass, and a range of other industrial and chemical products. Pig iron is a metal material used in the steel and metal casting industries to create wrought iron, cast iron, and steel.

We have global operations in North America, Europe, South Africa, and the Asia-Pacific region. We classify our business into one reportable segment,  $TiO_2$ , in which we operate three pigment production facilities located in the United States, The Netherlands and Western Australia and three separate mining operations located in Western Australia and South Africa.

#### *Pending Cristal Acquisition*

Throughout 2018 and into 2019 we continued to work diligently on obtaining regulatory approval for our proposed acquisition of the  $TiO_2$  business of The National Titanium Dioxide Company Ltd., a limited company organized under the laws of the Kingdom of Saudi Arabia ( Cristal ). The transaction was originally announced approximately two years ago when on February 21, 2017, we entered into a definitive agreement with Cristal and one of its affiliates to acquire the  $TiO_2$  business of Cristal for \$1.673 billion of cash, subject to a working capital adjustment at closing, plus 37,580,000 Class A Shares (the Cristal Transaction ). Our shareholders approved the Cristal Transaction on October 2, 2017 as well as gave us the authority to issue the Class A Shares in connection with the transaction. On March 1, 2018, Tronox, Cristal and Seller entered into an Amendment to the Transaction Agreement (the “Amendment”) that extended the termination date under the Transaction Agreement to March 31, 2019, if necessary based on the status of outstanding regulatory approvals. On February 27, 2019, we agreed with Cristal to extend the date on which our acquisition agreement expires from March 31, 2019 to May 19, 2019. If the Cristal Transaction has not closed by May 19, 2019 and the parties have not mutually agreed to extend such date then pursuant to the Amendment, we may be obligated to pay Cristal a \$60 million break-fee.

To date we have received final approval from eight of the nine regulatory jurisdictions whose approvals are required to close the Cristal Transaction including the European Commission ( EC ) and are still seeking approval from the U.S. Federal Trade Commission ( FTC ). With regard to the EC Approval, on July 16, 2018, we announced the submittal to the EC of an executed definitive agreement with Venator Materials PLC ( Venator ) to divest our 8120 paper-laminate product grade (the 8120 Grade ) currently supplied to European customers from our Botlek facility in the Netherlands. Our agreement with Venator is terminable by either party under certain circumstances if the closing does not occur on or prior to April 12, 2019. On August 20, 2018, the EC approved the Cristal transaction based on the conclusion that Venator is a suitable buyer of the 8120 Grade. The EC’s initial approval required that the Cristal Transaction to be consummated by November 16, 2018 but that deadline has been more recently extended by the EC to May 19, 2019.

With respect to the FTC, on December 5, 2017, the FTC announced that it would not approve the Cristal Transaction as proposed and filed an administrative action to prevent the parties from consummating the transaction alleging that the Cristal Transaction would violate Section 7 of the Clayton Antitrust Act and Section 5 of the FTC Act. The

administrative complaint sought, among other things, a permanent injunction to prevent the transaction from being completed. On December 9, 2018, the administrative law judge (the ALJ ) issued an initial decision enjoining Tronox from consummating the proposed Cristal Transaction. We filed an appeal of the administrative law judge's initial decision on February 4, 2019 in which we sought to narrow the geographic scope of the proposed order included in the initial decision. The ALJ's initial decision will not become final until the FTC rules on our appeal. In addition, on September 5, 2018, the U.S. District Court in the District of Columbia granted the FTC a preliminary injunction blocking the Cristal Transaction.

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Following the issuance of a preliminary injunction by the U.S. District Court, we commenced settlement discussions with the FTC. We proposed to divest all of Cristal's North American operations including the Ashtabula, Ohio two-plant TiO<sub>2</sub> production complex to a purchaser acceptable to the FTC. Initially, we intended to divest Cristal's North American operations to Venator. When we announced the divestiture of the 8120 Grade to Venator on July 16, 2018 we also announced that we had entered into a binding Memorandum of Understanding ( MOU ) with Venator providing for the negotiation in good faith of a definitive agreement to sell the entirety of Cristal's North American operations to Venator if a divestiture of all or a substantial part of Ashtabula was required to secure final FTC regulatory approval for the Cristal Transaction. The MOU granted Venator exclusivity for a period of 75 days to negotiate a definitive agreement for the sale of the entirety of the Ashtabula complex. The MOU also provided for a \$75 million break fee if, among other things, the parties, despite negotiating in good-faith and in conformity with the terms in the MOU, failed to reach a definitive agreement for the sale of Cristal's North American operations and Tronox was able to consummate both the Cristal Transaction and the paper-laminate grade divestiture to Venator. On October 1, 2018, we announced that the 75-day exclusivity period under the MOU with Venator had expired without the two companies agreeing to terms.

Subsequent to the expiration of the exclusivity period with Venator, we announced an agreement in principle with INEOS Enterprises A.G., a unit of INEOS and one of the world's largest chemicals companies ( INEOS ), to divest Cristal's North American operations for approximately \$700 million. We, Cristal and INEOS have been engaged in on-going discussions with the FTC since that time regarding the terms and conditions under which the FTC would allow the Cristal Transaction to be consummated. Most recently, on February 11, 2019, in recognition of the progress made to date in settling the dispute with the FTC, we and the FTC staff filed a joint motion with the FTC Commissioners requesting a delay of the deadline for the FTC to respond to our appeal of the ALJ's initial December 10, 2018 decision finding that the proposed acquisition of Cristal may substantially lessen competition for the sale of chloride-based TiO<sub>2</sub> in North America.

*Jazan Slagger and Option Agreement*

On May 9, 2018, we entered into an Option Agreement (the Option Agreement ) with Advanced Metal Industries Cluster Company Limited ( AMIC ) pursuant to which AMIC granted us an option (the Option ) to acquire 90% of a special purpose vehicle (the SPV ), to which AMIC's ownership in a titanium slag smelter facility (the Slagger ) in The Jazan City for Primary and Downstream Industries in the Kingdom of Saudi Arabia ( KSA ) will be contributed together with \$322 million of indebtedness currently held by AMIC (the AMIC Debt ). Upon exercise of the call or put option, there can be no assurance that we may assume this indebtedness and may need to obtain funding to repay it. The execution of the Option Agreement occurred shortly after we entered into a Technical Services Agreement (the Technical Services Agreement ) with AMIC pursuant to which we agreed to immediately commence providing technical assistance to AMIC to facilitate the start-up of the Slagger. National Industrialization Company and Cristal each own 50% of AMIC. The strategic intent of the Option Agreement and Technical Services Agreement is to enable us to further optimize the vertical integration between our TiO<sub>2</sub> pigment production and TiO<sub>2</sub> feedstock production after the closing of the Cristal Transaction. Pursuant to the Option Agreement and during its term, we agreed to lend AMIC and, upon the creation of the SPV, the SPV up to \$125 million for capital expenditures and operational expenses intended to facilitate the start-up of the Slagger. Such funds may be drawn down by AMIC and the SPV, as the case may be, on a quarterly basis as needed based on a budget reflecting the anticipated needs of the Slagger start-up. The obligation to fund up to \$125 million is contingent on our continued reasonable belief that such amounts will be sufficient (in addition to any amounts supplied by AMIC) to bring the Slagger up to certain sustained production levels. If we do not acquire the Slagger, the loans mature on the date that is eighteen months from the termination of the Option Agreement. Pursuant to the Option Agreement, subject to certain conditions, we may exercise the Option at any time on or prior to May 9, 2023. If the Slagger achieves certain production criteria related to sustained quality and tonnage of slag produced (and the other conditions referenced above are satisfied), AMIC may require us to acquire the Slagger (the Put ). If the Option or Put is exercised, we will acquire a 90% ownership

interest in the SPV. During the year ended December 31, 2018, we loaned \$64 million for capital expenditures and operational expenses to facilitate the start-up of the Slagger and we have recorded this loan payment within Other long-term assets on the audited Consolidated Balance Sheet at December 31, 2018. An additional \$25 million was loaned on January 4, 2019. The Option and the Put did not have a significant impact on the financial statements as of or for the periods ended December 31, 2018.

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### *Re-domiciling from Australia to the United Kingdom*

In November 2018, we announced our intention to re-domicile from Western Australia to the United Kingdom (the Re-Domicile Transaction). The Re-Domicile Transaction will be effected via a scheme of arrangement overseen by an Australian Court. Pursuant to such scheme of arrangement, holders of our Class A ordinary shares and Class B ordinary shares will be required to exchange their shares in Tronox Limited on a 1:1 basis for ordinary shares in Tronox Holdings plc, a newly formed entity incorporated under the laws of England and Wales (New Tronox), which shares shall be listed on the New York Stock Exchange. On February 8, 2019, the first Australian Court hearing occurred whereby the Court approved the Class A and Class B shareholder meetings to be convened for the purpose of approving the Re-Domicile Transaction, as well as approved the mailing by us of the definitive proxy statement in connection with such shareholder meetings. We have scheduled a general meeting of our Class A shareholders and a separate meeting of our Class B shareholder to approve the Re-Domicile Transaction on March 8, 2019. The Re-Domicile Transaction may have an impact on South African capital gains tax for our Class B shareholders. See Specific Provisions in the Exxaro Completion Agreement relating to the Re-Domicile Transaction below for a discussion of our agreement with the Class B shareholders associated with South African capital gains tax.

### *Exxaro Mineral Sands Transaction Completion Agreement*

On November 26, 2018, we and certain of our subsidiaries (collectively, the Tronox Parties) and Exxaro Resources Limited (Exxaro) entered into the Exxaro Mineral Sands Transaction Completion Agreement (the Completion Agreement). The Completion Agreement provides for the orderly sale of Exxaro's remaining approximately 23% ownership interest in us during 2019, helps to facilitate the Re-Domicile Transaction, as well as addresses several legacy issues related to our 2012 acquisition of Exxaro's mineral sands business (the 2012 Exxaro transaction).

### *Orderly Sale of Exxaro's 23% in Tronox*

In the 2012 Exxaro transaction, as part of the consideration for Exxaro's mineral sands business, we issued to Exxaro approximately 38.5% of our then outstanding voting securities in the form of Class B ordinary shares. On March 8, 2017, Exxaro announced its intention to begin to sell its ownership stake in us over time. On October 10, 2017, in order to sell a portion of its ownership interest in us, Exxaro converted 22,425,000 of its Class B ordinary shares into Class A ordinary shares and sold those shares in an underwritten registered offering. The Completion Agreement sets forth the terms under which Exxaro may convert and then sell its remaining 28,729,280 Class B ordinary shares during the course of 2019. The Completion Agreement contemplates that the sale of Exxaro's remaining ownership interest in Tronox will be undertaken in a manner that we believe will not cause us to lose, under limitations set forth in section 382 of the U.S Internal Revenue Code, the benefit of approximately \$4.1 billion of net operating losses and/or the approximately \$1.1 billion of section 163(j) interest expense carryforwards. For further information regarding the risk of us losing certain tax attributes, see the section included elsewhere in this Form 10-K entitled Risk Factors – Risks Relating to our Business - Our ability to use our tax attributes to offset future income may be limited.

### *Specific Provisions in the Exxaro Completion Agreement relating to the Re-Domicile Transaction*

Pursuant to the terms of the Completion Agreement, Exxaro agreed to vote its Class B ordinary shares in favor of the Re-Domicile Transaction. In addition, the Completion Agreement contains several other provisions that are material with respect to the Re-Domicile Transaction, including:

- We have the right to repurchase from Exxaro any Class B ordinary shares (or from the completion date of the Re-Domicile Transaction, any of its ordinary shares in the newly formed Tronox U.K. entity) that Exxaro desires to sell. The purchase price of any such repurchase will be based on market-related prices;
-

One of the Tronox Parties has covenanted to pay Exxaro an amount equal to any South African capital gains tax assessed on Exxaro in respect of any profit arising to it on a disposal of any of its ordinary shares in the newly formed Tronox U.K. entity subsequent to the completion date of the Re-Domicile Transaction where such tax would not have been assessed but for the Re-Domicile Transaction. Similarly, Exxaro has covenanted to pay one of the Tronox Parties an amount equal to any South

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African tax savings Exxaro may realize in certain situations from any tax relief that would not have arisen but for the Re-domicile Transaction (such as losses on a disposal of any of Exxaro's ordinary shares in the newly formed Tronox U.K. entity subsequent to the completion date of the Re-domicile Transaction); and

- Exxaro has also agreed that it will enter into a new shareholder agreement with us conditional upon completion of the Re-Domicile Transaction which, among other things, will enable us to eliminate the Class B ordinary shares.

*Legacy issues related to the 2012 Exxaro transaction addressed in the Completion Agreement*

Pursuant to the 2012 Exxaro transaction, Exxaro retained a 26% ownership interest in our two South African subsidiaries related to the mineral sands business to enable us to satisfy certain Black Economic Empowerment regulations promulgated by the South African Department of Mineral Resources. The 2012 Exxaro transaction agreements contemplated that by 2022, Exxaro would sell to us its remaining 26% interests in those two South African subsidiaries for 7.2 million additional Class B ordinary shares. The Completion Agreement allows Exxaro and us to conclude matters from that transaction in a way that we believe is mutually beneficial to both parties by, among other things, providing us with the option to pay cash consideration for Exxaro's remaining 26% interests in the two South African subsidiaries in lieu of issuing additional Class B ordinary shares. Additionally, the Completion Agreement amends such flip-in rights granted to Exxaro by accelerating the triggering of such right based upon the application of the once-empowered-always-empowered principle that has recently been confirmed by the South African High Court.

Furthermore, pursuant to the Completion Agreement, the parties agreed to accelerate the date on which we will buy from Exxaro its 26% membership interest in Tronox Sands LLP, a U.K. limited liability partnership (Tronox Sands). Tronox Sands holds intercompany loans that Exxaro held prior to our 2012 acquisition of Exxaro's mineral sands business. On February 15, 2019, we completed the redemption of Exxaro's ownership interest in Tronox Sands for consideration of approximately ZAR 2.06 billion (or approximately \$148 million) in cash, which represents Exxaro's indirect share of the loan accounts in our South African subsidiaries.

### ***Basis of Presentation***

We are considered a domestic company in Australia and, as such, are required to report in Australia under International Financial Reporting Standards (IFRS). Additionally, we are not considered a foreign private issuer in the U.S.; therefore, we are required to comply with the reporting and other requirements imposed by the U.S. securities law on U.S. domestic issuers, which, among other things, requires reporting under accounting principles generally accepted in the United States of America (U.S. GAAP). The consolidated financial statements included in this Form 10-K are prepared in conformity with U.S. GAAP. The U.S. dollar is our reporting currency for our consolidated financial statements in both U.S. GAAP and IFRS.

Our consolidated financial statements include the accounts of all majority-owned subsidiary companies. All intercompany balances and transactions have been eliminated in consolidation. Certain prior period amounts have been reclassified to conform to the manner and presentation in the current period.

### ***Revisions***

During the interim period ended March 31, 2018, we disclosed that we revised our long-term debt due within one year and long-term debt, net at December 31, 2017, in our Consolidated Balance Sheet. Our long-term debt due within one year had been understated by \$5 million with a corresponding overstatement in our long-term debt, net.

During the interim period ended June 30, 2018, we disclosed that we had revised our accounts receivable, net of allowance for doubtful accounts and prepaid and other assets in the Consolidated Balance Sheet at December 31, 2017. We had identified certain current assets of \$7 million which we had included in accounts receivable, net of allowance for doubtful accounts that should have been included in Prepaid and other assets.

***Out of Period Adjustment***

During the year ended December 31, 2018, we recognized a \$3 million settlement gain in Other income (expense), net in the Consolidated Statement of Operations related to our former U.S. postretirement medical plan which was eliminated effective January 1, 2015. This amount had been deferred in Accumulated other



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comprehensive loss in the Consolidated Balance Sheet pending satisfaction of certain settlement obligations by us. Based on additional information provided, we concluded this gain should have been recognized during the first quarter of 2015 as all the obligations required for settlement accounting had been satisfied by that date. The Company has concluded that the impact of this out of period adjustment is not material to the consolidated financial statements for any prior quarterly or annual period impacted or the full year 2018 financial statements. See Note 20 for additional information.

### ***Use of Estimates***

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting periods. It is at least reasonably possible that the effect on the financial statements of a change in estimate due to one or more future confirming events could have a material effect on the financial statements.

## **2. Significant Accounting Policies**

### ***Foreign Currency***

The U.S. dollar is the functional currency for our operations, except for our South African operations, whose functional currency is the Rand, and our European operations, whose functional currency is the Euro. We determine the functional currency of each subsidiary based on a number of factors, including the predominant currency for revenues, expenditures and borrowings. Adjustments from the remeasurement of non-functional currency monetary assets and liabilities are recorded in Other income (expense), net in the Consolidated Statements of Operations. When the subsidiary's functional currency is not the U.S. dollar, translation adjustments resulting from translating the functional currency financial statements into U.S. dollar equivalents are recorded in Accumulated other comprehensive loss in the Consolidated Balance Sheets.

Gains and losses on intercompany foreign currency transactions that are not expected to be settled in the foreseeable future are reported in the same manner as translation adjustments.

### ***Revenue Recognition***

We recognize revenue at a point in time when the customer obtains control of the promised products. For most transactions this occurs when products are shipped from our manufacturing facilities or at a later point when control of the products transfers to the customer at a specified destination or time. All amounts billed to a customer in a sales transaction related to shipping and handling represent revenues earned and are reported as Net sales in the Consolidated Statements of Operations. Accruals are made for sales returns, rebates and other allowances, which are recorded in Net sales in the Consolidated Statements of Operations, and are based on our historical experience and current business conditions.

### ***Cost of Goods Sold***

Cost of goods sold includes costs for purchasing, receiving, manufacturing, and distributing products, including raw materials, energy, labor, depreciation, depletion, shipping and handling, freight, warehousing, and other production costs.

### ***Research and Development***

Research and development costs, included in Selling, general and administrative expenses in the Consolidated Statements of Operation comprising of salaries, building costs, utilities, administrative expenses, and allocations of corporate costs, were \$11 million, \$8 million, and \$9 million during 2018, 2017, and 2016, respectively, and were expensed as incurred within Selling, General and Administrative expenses.

***Selling, General and Administrative Expenses***

Selling, general and administrative expenses include costs related to marketing, research and development, agent commissions, and legal and administrative functions such as corporate management, human resources, information technology, investor relations, accounting, treasury, and tax compliance.

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### ***Income Taxes***

We use the asset and liability method of accounting for income taxes. The estimation of the amounts of income taxes involves the interpretation of complex tax laws and regulations and how foreign taxes affect domestic taxes, as well as the analysis of the realizability of deferred tax assets, tax audit findings, and uncertain tax positions.

Deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and tax bases of assets and liabilities using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. A valuation allowance is provided against a deferred tax asset when it is more likely than not that all or some portion of the deferred tax asset will not be realized. We periodically assess the likelihood that we will be able to recover our deferred tax assets, and reflect any changes in our estimates in the valuation allowance, with a corresponding adjustment to earnings or other comprehensive income (loss), as appropriate. All available positive and negative evidence is weighted to determine whether a valuation allowance should be recorded.

The amount of income taxes we pay is subject to ongoing audits by federal, state, and foreign tax authorities, which may result in proposed assessments. Our estimate for the potential outcome for any uncertain tax issue is highly judgmental. We assess our income tax positions, and record tax benefits for all years subject to examination based upon our evaluation of the facts, circumstances, and information available at the reporting date. For those tax positions for which it is more likely than not that a tax benefit will be sustained, we record the amount that has a greater than 50% likelihood of being realized upon settlement with a taxing authority that has full knowledge of all relevant information. Interest and penalties are accrued as part of tax expense, where applicable. If we do not believe that it is more likely than not that a tax benefit will be sustained, no tax benefit is recognized. See Note 7.

### ***Earnings per Share***

Basic and diluted earnings per share are calculated using the two-class method. Under the two-class method, earnings used to determine basic earnings per share are reduced by an amount allocated to participating securities. Participating securities include restricted shares issued under the Tronox Management Equity Incentive Plan (the "MEIP") (see Note 19), which contains non-forfeitable dividend rights. Our unexercised options and unvested restricted share units do not contain non-forfeitable rights to dividends and, as such, are not considered in the calculation of basic earnings per share. Our unvested restricted shares do not have a contractual obligation to share in losses; therefore, when we record a net loss, none of the loss is allocated to participating securities. Consequently, in periods of net loss, the two-class method does not have an effect on basic loss per share.

Diluted earnings per share is calculated by dividing net earnings allocable to ordinary shares by the weighted-average number of ordinary shares outstanding for the period, as adjusted for the potential dilutive effect of non-participating restricted share units, options, and prior to February 2018 Series A and Series B Warrants. The options and Series A and Series B Warrants are included in the calculation of diluted earnings per ordinary share utilizing the treasury stock method. See Note 8.

### ***Fair Value Measurement***

We measure fair value on a recurring basis utilizing valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs, to the extent possible, and consider counterparty credit risk in our assessment of fair value. The fair value hierarchy is as follows:

- Level 1 – Quoted prices in active markets for identical assets and liabilities;
-

Level 2 – Quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active or other inputs that are observable or can be corroborated by observable market data; and,

- Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets and liabilities

See Note 15.

**TABLE OF CONTENTS*****Cash and Cash Equivalents***

We consider all investments with original maturities of three months or less to be cash equivalents. We maintain cash and cash equivalents in bank deposit and money market accounts that may exceed federally insured limits. The financial institutions where our cash and cash equivalents are held are generally highly rated and geographically dispersed, and we have a policy to limit the amount of credit exposure with any one institution. We have not experienced any losses in such accounts and believe we are not exposed to significant credit risk.

At December 31, 2018, included in restricted cash was \$662 million related to our Blocked Term Loan (defined below). Upon consummation of the Cristal acquisition, the Blocked Term Loan will become available to our subsidiary, Tronox Finance LLC. See Note 14. At December 31, 2018, 2017 and 2016, we had restricted cash in Australia related to outstanding performance bonds of less than \$1 million, \$2 million and \$3 million, respectively.

***Accounts Receivable, net of allowance for doubtful accounts***

We perform credit evaluations of our customers, and take actions deemed appropriate to mitigate credit risk. Only in certain specific occasions do we require collateral in the form of bank or parent company guarantees or guarantee payments. We maintain allowances for potential credit losses based on specific customer review and current financial conditions.

***Inventories, net***

Pigment inventories are stated at the lower of actual cost and net realizable value, net of allowances for obsolete and slow-moving inventory. The cost of inventories is determined using the first-in, first-out method. Carrying values include material costs, labor, and associated indirect manufacturing expenses. Costs for materials and supplies, excluding titanium ore, are determined by average cost to acquire. Feedstock and co-products inventories including titanium ore are stated at the lower of the weighted-average cost of production or market. Inventory costs include those costs directly attributable to products, including all manufacturing overhead but excluding distribution costs. Raw materials are carried at actual cost.

We review, at the end of each quarter, the cost of our inventory in comparison to its net realizable value. We also periodically review our inventory for obsolescence. In either case, 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. Inventories expected to be sold or consumed within twelve months after the balance sheet date are classified as current assets and all other inventories are classified as non-current assets. See Note 9.

***Long Lived Assets***

Property, plant and equipment, net is stated at cost less accumulated depreciation, and is depreciated over its estimated useful life using the straight-line method as follows:

Land improvements	10 — 20 years
Buildings	10 — 40 years
Machinery and equipment	3 — 25 years
Furniture and fixtures	10 years

Maintenance and repairs are expensed as incurred, except for costs of replacements or renewals that improve or extend the lives of existing properties, which are capitalized. Upon retirement or sale, the cost and related accumulated

depreciation are removed from the respective account, and any resulting gain or loss is included in Cost of goods sold or Selling, general, and administrative expenses in the Consolidated Statements of Operations. See Note 10.

We capitalize interest costs on major projects that require an extended period of time to complete. See Note 14.

Mineral property acquisition costs are capitalized as tangible assets when management determines that probable future benefits consisting of a contribution to future cash inflows have been identified and adequate

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financial resources are available or are expected to be available as required to meet the terms of property acquisition and anticipated exploration and development expenditures. Mineral leaseholds are depleted over their useful lives as determined under the units of production method. Mineral property exploration costs are expensed as incurred. When it has been determined that a mineral property can be economically developed as a result of establishing proven and probable reserves, the costs incurred to develop such property through the commencement of production are capitalized. See Note 11.

Intangible assets are stated at cost less accumulated amortization, and are amortized on a straight-line basis over their estimated useful lives, which range from 3 to 20 years. See Note 12.

We evaluate the recoverability of the carrying value of long-lived assets that are held and used whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Under such circumstances, we assess whether the projected undiscounted cash flows of our long-lived assets are sufficient to recover the carrying amount of the asset group being assessed. If the undiscounted projected cash flows are not sufficient, we calculate the impairment amount by discounting the projected cash flows using our weighted-average cost of capital. For assets that satisfy the criteria to be classified as held for sale, an impairment loss, if any, is recognized to the extent the carrying amount exceeds fair value, less cost to sell. The amount of the impairment of long-lived assets is written off against earnings in the period in which the impairment is determined.

### ***Business Acquisitions***

Business acquisitions are accounted for using the acquisition method under Accounting Standards Codification ( ASC ) 805, *Business Combinations* ( ASC 805 ), which requires recording assets acquired and liabilities assumed at fair value as of the acquisition date. Under the acquisition method of accounting, each tangible and separately identifiable intangible asset acquired and liabilities assumed is recorded based on their preliminary estimated fair values on the acquisition date. The initial valuations are derived from estimated fair value assessments and assumptions used by management. Acquisition related costs are expensed as incurred and are included in Selling, general and administrative expenses in the Consolidated Statements of Operations.

### ***Long-term Debt***

Long-term debt is stated net of unamortized original issue premium or discount. Premiums or discounts are amortized using the effective interest method with amortization expense recorded in Interest and debt expense, net in the Consolidated Statements of Operations. Deferred debt issuance costs related to a recognized debt liability are presented in the Consolidated Balance Sheets as a direct deduction from the carrying amount of that debt liability, consistent with debt discounts and are amortized using the effective interest method with amortization expense recorded in Interest and debt expense, net in the Consolidated Statements of Operations. See Note 14.

### ***Asset Retirement Obligations***

Asset retirement obligations are recorded at their estimated fair value, and accretion expense is recognized over time as the discounted liability is accreted to its expected settlement value. Fair value is measured using expected future cash outflows discounted at our credit-adjusted risk-free interest rate, which are considered Level 3 inputs. We classify accretion expense related to asset retirement obligations as a production cost, which is included in Cost of goods sold in the Consolidated Statements of Operations. See Note 16.

### ***Environmental Remediation and Other Contingencies***

We recognize a loss and record an undiscounted liability when litigation has commenced or a claim or assessment has been asserted, or, based on available information, commencement of litigation or assertion of a claim or assessment is probable, and the associated costs can be reasonably estimated. See Note 16.

***Self-Insurance***

We are self-insured for certain levels of general and vehicle liability, property, workers' compensation and health care coverage. The cost of these self-insurance programs is accrued based upon estimated fully developed settlements for known and anticipated claims. Any resulting adjustments to previously recorded reserves are reflected in current operating results. We do not accrue for general or unspecific business risks.



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### ***Share-based Compensation***

*Equity Restricted Share and Restricted Share Unit Awards* — The fair value of equity instruments is measured based on the share price on the grant date and is recognized over the vesting period. These awards contain service, market, and/or performance conditions. For awards containing only a service or a market condition, we have elected to recognize compensation costs using the straight-line method over the requisite service period for the entire award. For awards containing a market condition, the fair value of the award is measured using the Monte Carlo simulation under a lattice model approach. For awards containing a performance condition, the fair value is the grant date close price and compensation expense is not recognized until we conclude that it is probable that the performance condition will be met. We reassess the probability at least quarterly. See Note 19.

*Option Awards* — The Black-Scholes option pricing model is utilized to measure the fair value of options on the grant date. The options contain only service conditions, and have graded vesting provisions. We have elected to recognize compensation costs using the straight-line method over the requisite service period for the entire award. See Note 19.

### ***Defined Benefit Pension and Postretirement Benefit Plans***

We recognize the funded status of our defined benefit pension plans and postretirement benefit plans in the Consolidated Balance Sheet. The funded status is measured as the difference between the fair value of plan assets and the benefit obligation at the measurement date. The benefit obligation for the defined benefit plans is the projected benefit obligation (PBO), which represents the actuarial present value of benefits expected to be paid upon retirement based on employee services already rendered and estimated future compensation levels. The benefit obligation for our postretirement benefit plans is the accumulated postretirement benefit obligation (APBO), which represents the actuarial present value of postretirement benefits attributed to employee services already rendered. The fair value of plan assets related to our defined benefit plan represents the current market value of assets held in a trust fund, which is established for the sole benefit of plan participants.

If the fair value of plan assets exceeds the benefit obligation, the plan is overfunded, and the excess is recorded as a prepaid pension asset. On the other hand, if the benefit obligation exceeds the fair value of plan assets, the plan is underfunded, and the deficit is recorded as pension and postretirement healthcare benefits obligation in the Consolidated Balance Sheet. The portion of the pension and postretirement healthcare obligations payable within the next 12 months is recorded in accrued liabilities in the Consolidated Balance Sheet.

Net periodic pension and postretirement benefit cost represents the aggregation of service cost, interest cost, expected return on plan assets, amortization of prior service costs or credits and actuarial gains or losses previously recognized as a component of OCI and it is recorded in the Consolidated Statement of Operations. Net periodic cost is recorded in cost of goods sold and selling, general and administrative expenses in the Consolidated Statement of Operations based on the employees' respective functions.

Actuarial gains or losses represents the effect of remeasurement on the benefit obligation principally driven by changes in the plan actuarial assumptions. Prior service costs or credits arise from plan amendments. The actuarial gains or losses and prior service costs or credits are initially recognized as a component of Other Comprehensive income in the Consolidated Statement of Comprehensive Income (Loss). Those gains or losses and prior service costs or credits are subsequently recognized as a component of net periodic cost.

The measurement of benefit obligations and net periodic cost is based on estimates and assumptions approved by management. These valuations reflect the terms of the plans and use participant-specific information such as compensation, age and years of service, as well as certain assumptions, including estimates of discount rates, expected return on plan assets, rate of compensation increases and mortality rates.

*Defined Contribution Plans* — We recognize our contribution as expense when they are due. The expense is recorded in cost of goods sold or selling, general and administrative expenses the Consolidated Statement of Operations based on the employees' respective functions.

*Multiemployer Plan* — We treat our multiemployer plan like a defined contribution plan. A pension plan to which two or more unrelated employers contribute is generally considered to be a multiemployer plan. As a defined contribution plan, we recognize the contribution for the period as a net benefit cost and any contributions due and unpaid as a liability.

**TABLE OF CONTENTS*****Recently Adopted Accounting Pronouncements***

In May 2017, the FASB issued ASU 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting* ( ASU 2017-09 ), which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under ASU 2017-09, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. On January 1, 2018, we adopted the new standard, and during the second quarter of 2018, we applied the guidance under the new standard for a modification to a share-based payment award. See Note 19 for additional information.

In March 2017, the FASB issued ASU 2017-07, *Compensation-Retirement Benefits: Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost* ( ASU 2017-07 ), which requires employers to present the service cost component of the net periodic benefit cost in the same income statement line item(s) as other employee compensation costs arising from service rendered during the period. In addition, under the new guidance, only the service cost component of net periodic pension costs and net periodic postretirement costs are eligible for capitalization in assets. Other components must be presented separately from the line item(s) that include the service cost and outside of operating income. As a result of our adopting ASU 2017-07 during 2018, we reclassified pension and postretirement healthcare benefit costs of \$3 million for both years ended December 31, 2017 and 2016, from Income (loss) from operations to Other income (expense), net in our Consolidated Statements of Operations.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash* ( ASU 2016-18 ), which requires that the reconciliation of the beginning-of-period and end-of period amounts shown in the statement of cash flows include restricted cash and restricted cash equivalents. ASU 2016-18 does not define restricted cash or restricted cash equivalents, but an entity will need to disclose the nature of the restrictions. We adopted ASU 2016-18 during the first quarter of 2018. Restricted cash includes \$662 million and \$651 million as of December 31, 2018 and December 31, 2017, respectively, related to the Blocked Term Loan. See Note 14. Restricted cash also includes \$2 million at December 31, 2017 required by our performance bonds issued for our energy supply contracts in Australia.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)* which states that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Topic 606 supersedes the revenue recognition requirements under Revenue Recognition (Topic 605). On January 1, 2018, we adopted the new standard using the modified retrospective approach applied to contracts that were not completed as of January 1, 2018. The adoption of this new standard did not have a material impact to our consolidated financial statements. No adjustment to the opening balance of retained earnings at January 1, 2018 was required. Results for reporting periods beginning after January 1, 2018 are presented under Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under Topic 605. See Note 3 for additional information.

***Recently Issued Accounting Pronouncements***

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement ( Topic 820 ): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement*. The standard modifies the disclosure requirements in Topic 820, Fair Value Measurement, by: removing certain disclosure requirements related to the fair value hierarchy; modifying existing disclosure requirements related to measurement uncertainty; and adding new disclosure requirements, such as disclosing the changes in unrealized gains and losses for the period included in other comprehensive income for recurring Level 3 fair value measurements held at the end of the reporting period and disclosing the range and weighted average of significant unobservable inputs used to develop Level 3 fair value

measurements. This standard is effective for fiscal years and interim periods within those fiscal years beginning after December 15, 2019, with early adoption permitted. We are currently evaluating the effect, if any, that the standard will have on our disclosures.

In August 2018, the FASB also issued ASU 2018-14, *Compensation - Retirement Benefits - Defined Benefit Plans - General (Topic 715-20): Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans*. The standard modifies the disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans by removing and adding certain disclosures for these plans. The eliminated disclosures include (a) the amounts in Accumulated Other Comprehensive Income expected to be recognized in

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net periodic benefit costs over the next fiscal year, (b) the amount and timing of plan assets expected to be returned to the employer, and (c) the effects of a one-percentage-point change in assumed health care cost trend rates on the net periodic benefit costs and the benefit obligation for postretirement health care benefits. The new disclosures include the interest crediting rates for cash balance plans and an explanation of significant gains and losses related to changes in benefit obligations. This standard is effective for fiscal years and interim periods within those fiscal years beginning after December 15, 2020, with early adoption permitted. We are currently evaluating the effect, if any, that the standard will have on our disclosures.

In February 2016, the FASB issued ASU 2016-02, *Leases* ( ASU 2016-02 ) which includes a lessee accounting model that recognizes two types of leases - finance leases and operating leases. The standard requires that a lessee recognize on the balance sheet assets and liabilities for leases with lease terms of more than 12 months. The recognition, measurement and presentation of expenses and cash flows arising from a lease by a lessee will depend on its classification as a finance or an operating lease. The standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. Early adoption is permitted. The new standard, as originally issued would have required adoption using a modified retrospective transition to apply the new guidance at the beginning of the earliest comparative period presented. In July 2018, the FASB issued an alternative method that permits application of the new guidance at the beginning of the year of adoption, recognizing a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. On January 1, 2019, we adopted the new standard using the cumulative-effect adjustment approach. We elected the package of practical expedients under the transition guidance, which does not require the reassessment of whether existing contracts contain a lease or whether the classification or unamortized initial direct costs of existing leases would be different under the new guidance. As an accounting policy election, we excluded short-term leases (leases that have a term of 12 months or less and do not include a purchase option that we are reasonably certain to exercise) from the balance sheet presentation. Additionally, we elected to account for non-lease components in a contract as part of a single lease component for all asset classes. As a result of our evaluation of the adoption impact, the estimated lease liability and related right-of-use asset are approximately \$47 million and \$45 million, respectively. The impact to our consolidated statements of income and consolidated statements of cash flows is not expected to be material. We continue to enhance our enterprise-wide lease management system and update our business processes and internal controls to ensure we meet the new accounting and disclosure requirements in the first quarter of 2019.

### 3. Revenue

#### *Nature of Contracts and Performance Obligations*

We primarily generate revenue from selling TiO<sub>2</sub> pigment products, products derived from titanium bearing mineral sands and related co-products, primarily zircon and pig iron, to our customers. These products are used for the manufacture of paints, coatings, plastics, paper, and a wide range of other applications. We account for a contract with our customer when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance, and collectability of consideration is probable.

Our promise in a contract typically relates to the transferring of a product or multiple distinct products that are substantially the same and that have the same pattern of transfer, representing a single performance obligation within a contract. We have elected to account for shipping and handling activities that occur after control of the products has transferred to the customer as contract fulfillment activities, rather than a separate performance obligation. Amounts billed to a customer in a sales transaction related to shipping and handling activities continue to be reported as Net sales and related costs as Cost of goods sold in the Consolidated Statements of Operations.

The duration of our contract period is one year or less. As such, we have elected to recognize incremental costs incurred to obtain contracts, which primarily consist of commissions paid to third-party sales agents, as Selling,

general and administrative expenses in the Consolidated Statements of Operations. Furthermore, we have elected not to disclose the value of unsatisfied performance obligations at each period end, given the original expected duration of our contracts are one year or less.

*Transaction Price*

Revenue is measured as the amount of consideration that we expect to be entitled in exchange for transferring products to the customer. The transaction price typically consists of fixed cash consideration. We also

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offer various incentive programs to our customers, such as rebates, discounts, and other price adjustments that represent variable consideration. We estimate variable consideration and include such consideration amounts in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Our estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based largely on an assessment of our anticipated performance and all information (historical, current and forecasted) that is reasonably available to us. We adjust our estimate of revenue at the earlier of when the amount of consideration we expect to receive changes or when the consideration becomes fixed. Sales returns rarely happen in our business, therefore it is unlikely that a significant reversal of revenue will occur.

Sales and similar taxes we collect on behalf of governmental authorities are excluded from the transaction price for the determination of revenue. The expected costs associated with product warranties continue to be recognized as expense when the products are sold. Customer payment terms and conditions vary by contract and customer, although the timing of revenue recognition typically does not differ from the timing of invoicing. Additionally, as we generally do not grant extended payment terms, we have determined that our contracts generally do not include a significant financing component.

### *Revenue Recognition*

We recognize revenue at a point in time when the customer obtains control of the promised products. For most transactions this occurs when products are shipped from our manufacturing facilities or at a later point when control of the products transfers to the customer at a specified destination or time.

### *Contract Balances*

Contract assets represent our rights to consideration in exchange for products that have transferred to a customer when the right is conditional on situations other than the passage of time. For products that we have transferred to our customers, our rights to the consideration are typically unconditional and only the passage of time is required before payments become due. These unconditional rights are recorded as accounts receivable. As of December 31, 2018, and December 31, 2017, we did not have material contract asset balances.

Contract liabilities represent our obligations to transfer products to a customer for which we have received consideration from the customer. Infrequently we may receive advance payment from our customers that is accounted for as deferred revenue. Deferred revenue is earned when control of the product transfers to the customer, which is typically within a short period of time from when we received the advanced payment. Contract liability balances as of December 31, 2018 and December 31, 2017 were less than \$1 million and \$3 million, respectively. Contract liability balances were reported as Accounts payable in the Consolidated Balance Sheets. All contract liabilities as of December 31, 2017 were recognized as revenue in Net sales in the Consolidated Statements of Operations during the first quarter of 2018.

### *Disaggregation of Revenue*

We operate under one operating and reportable segment, TiO<sub>2</sub>. See Note 22 for details. We disaggregate our revenue from contracts with customers by product type and geographic area. We believe this level of disaggregation appropriately depicts how the nature, amount, timing and uncertainty of our revenue and cash flows are affected by economic factors and reflects how our business is managed.

Net sales to external customers by geographic areas where our customers are located were as follows:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
North America	\$ 649	\$ 572	\$ 497
South and Central America	72	61	42
Europe, Middle-East and Africa	541	518	351
Asia Pacific	557	547	419
Total net sales	\$ 1,819	\$ 1,698	\$ 1,309



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Net sales from external customers for each similar type of product were as follows:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Pigment	\$ 1,265	\$ 1,210	\$ 966
Zircon	293	209	162
Pig Iron	87	63	34
Feedstock and other products	137	162	90
Electrolytic	37	54	57
Total net sales	\$ 1,819	\$ 1,698	\$ 1,309

Feedstock and other products mainly include rutile prime, ilmenite, Chloride ( CP ) slag and other mining products. Electrolytic products mainly include electrolytic manganese dioxide and boron. We sold our Electrolytic operations on September 1, 2018. See Note 5. The nature, amount, timing and uncertainty of revenue and cash flows typically do not differ significantly among different products.

**4. Discontinued Operations**

In the third quarter of 2017, we completed the previously announced sale of our wholly owned subsidiary, Alkali, to Genesis Energy, L.P.. Sales, costs and expenses and income taxes attributable to Alkali for the years ended December 31, 2017 and 2016 have been aggregated in a single caption entitled Income (loss) from discontinued operations, net of tax in our Consolidated Statement of Operations.

Alkali, which was previously one of our two operating and reportable segments, included certain allocated corporate costs for our reporting of segment operating results. In the presentation of Alkali as Discontinued Operations, we have not included the corporate costs of \$3 million, and \$4 million respectively, for the years ended December 31, 2017 and 2016, within Discontinued Operations and now are included in the unallocated Corporate costs.

The following table presents the major classes of line items constituting the Income from discontinued operations, net of tax in our Consolidated Statements of Operations:

	<b>Year Ended December 31,</b>	
	<b>2017</b>	<b>2016</b>
Net sales	\$ 521	\$ 786
Cost of goods sold	448	671
Selling, general and administrative expense	18	25
Restructuring expense	1	—
Interest expense	1	1
Other income (expense)	—	(2 )
Income before income taxes	55	89
Income tax provision	(1 )	(10 )
Loss on sale of discontinued operations, no tax impact	(233 )	—
(Loss) income from discontinued operations, net of tax	\$ (179 )	\$ 79

**5. Asset Sale**

On September 1, 2018, Tronox LLC, our indirect wholly owned subsidiary sold to EMD Acquisition LLC certain of the assets and liabilities of our Henderson Electrolytic Operations based in Henderson, Nevada (the Henderson Electrolytic Operations ), a component of our TiQsegment, for \$1.3 million in cash and a Secured Promissory Note of \$4.7 million. On December 27, 2018, we received the full settlement of the Promissory Note of \$4.7 million from EMD Acquisition LLC. The total pre-tax loss on the sale of \$31 million has been recorded in Impairment loss in the Consolidated Statements of Operations.

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Other income (expense), net is comprised of the following:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Net realized and unrealized foreign currency gains (losses)	\$ 29	\$ (20 )	\$ (31 )
Pension and postretirement benefit interest cost, expected return on assets and amortization of actuarial losses	(2 )	(3 )	(3 )
Pension and postretirement benefit settlement gains (losses) <sup>(1)</sup>	3	—	(1 )
Other, net	3	1	2
Total	\$ 33	\$ (22 )	\$ (33 )

(1) 2018 gain relates to our former U.S. retiree medical plan and 2016 losses related to our Netherlands pension plan. See Note 20.

**7. Income Taxes**

Our operations are conducted through various subsidiaries in a number of countries throughout the world. We have provided for income taxes based upon the tax laws and rates in the countries in which operations are conducted and income is earned.

Income (loss) from continuing operations before income taxes is comprised of the following:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
United Kingdom	\$ (122 )	\$ (74 )	\$ 362
Australia	(86 )	(143 )	(145 )
International	251	130	(481 )
Income (loss) from continuing operations before income taxes	\$ 43	\$ (87 )	\$ (264 )

The income tax (provision) benefit is summarized below:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
United Kingdom:			
Current	\$ (1 )	\$ (2 )	\$ (1 )
Deferred	3	1	—
Australian:			
Current	(11 )	—	65
International:			
Current	(22 )	(2 )	52
Deferred	18	(3 )	9
Income tax (provision) benefit	\$ (13 )	\$ (6 )	\$ 125

The following table reconciles the applicable statutory income tax rates to our effective income tax rates for Income tax (provision) benefit as reflected in the Consolidated Statements of Operations.

	Year Ended December 31,					
	2018		2017		2016	
	19	%	19	%	30	%
Statutory tax rate						
Increases (decreases) resulting from:						
Tax rate differences	24		53		44	
U.S. federal tax reform (including rate change)	(1	)	(1,166	)	—	
Disallowable expenditures	88		(10	)	(17	)
Valuation allowances	(474	)	675		80	

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	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Corporate Reorganization	—	375	(123 )
Tax rate changes	41	3	(4 )
State and local taxes	8	1	1
Withholding taxes	—	—	42
Prior year accruals	368	(1 )	(3 )
Branch taxation	(37 )	43	(3 )
Deferred gross margin	(9 )	—	—
Other, net	3	1	—
Effective tax rate	30 %	(7 )%	47 %

During the year ended December 31, 2017, Tronox Limited, the public parent which is registered under the laws of the State of Western Australia, became managed and controlled in the U.K. The statutory tax rate in the U.K. at both December 31, 2018 and 2017 was 19%. During 2016, Tronox Limited was managed and controlled in Australia which has a statutory tax rate of 30%.

The Company reached a settlement agreement with the Australian Tax Office ( ATO ) on November 26, 2018 for the tax years 2012 through 2015, which were under examination by the ATO. This settlement resulted in the accrual of an \$11 million current tax provision and the loss of \$154 million in deferred tax assets related to Australian net operating losses ( NOLs ). The change to deferred taxes is fully offset by a valuation allowance and results in no impact to the consolidated provision. The settlement of \$11 million was paid to the ATO in December 2018. Both the current tax provision and NOL adjustment from the ATO settlement are reflected in the Prior year accruals line of the effective tax rate table.

On December 22, 2017, the U.S. enacted major tax reform legislation. Our deferred tax impact of that legislation has been included in the effective income tax rate table above as a separate line item. It is almost entirely offset in the Valuation allowances line of the effective tax rate table. The gross deferred tax impacts were primarily from our large deferred tax assets being revalued from the previous U.S. statutory rate of 35% down to the newly enacted rate of 21%, executive compensation accruals which are no longer expected to be deductible under the new legislation, and a change to the portion of an indefinite lived deferred tax liability we could realize based on the new net operating loss indefinite carryforward period and usage limitation.

The effective tax rate for 2018 and 2017 differs from the United Kingdom statutory rate of 19% primarily due to prior year accruals, disallowable expenditures, U.S. tax reform legislation, valuation allowances, and rates different than the United Kingdom statutory rate of 19%. For 2016 it differs from the Australian statutory rate of 30% primarily due to valuation allowances, rates different than the Australian statutory rate of 30%, and withholding tax accruals on interest income. The current year rate was impacted by tax settlements for prior years and changes in tax rates in a foreign jurisdiction impacting our deferred tax assets, partially offset by a benefit of \$48 million due to the release of a valuation allowance for deferred tax assets associated with our operating subsidiary in the Netherlands.

During the fourth quarter of 2016, we implemented various steps of an internal corporate restructuring plan to simplify our corporate structure and thereby improve operational, administrative, and commercial synergies within each of our operating segments (the Corporate Reorganization ). As a result of the Corporate Reorganization, we reduced our cross jurisdictional financing arrangements and consequently reversed the deferred tax assets related to intercompany interest deductions. The related withholding tax amounts were also reversed as a result of the Corporate Reorganization. Additionally, we reduced our deferred tax assets related to loss carryforwards which will no longer be

available to utilize. The changes to deferred taxes are offset by valuation allowances and result in no impact to the consolidated provision for income taxes for the year ended December 31, 2016. The net income impact of the Corporate Reorganization was a benefit of \$137 million in the fourth quarter of 2016, reflecting the reversal of \$139 million of withholding tax accruals, offset by a foreign currency loss of \$2 million. For the year ended December 31, 2016, the net income impact was \$107 million, reflecting a net reduction in withholding tax accruals of \$110 million, offset by a foreign currency loss of \$3 million.

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Changes in our state apportionment factors and state statutory rate changes caused our overall effective state tax rates to change. Due to the large deferred tax asset created by the Anadarko litigation settlement in 2014, these state rate changes have a material impact on deferred taxes for 2016, 2017, and 2018. These are reflected within the Tax rate changes line above. The changes to deferred tax are offset by valuation allowances. During 2018, this line also includes the deferred tax impacts of tax rate reductions enacted in the Netherlands and the U.K.

During 2018, the statutory tax rates on income earned in Australia (30%), the United States (21%), South Africa (28%), and the Netherlands (25%) are higher than the United Kingdom statutory rate of 19%. The statutory tax rate on income earned in Switzerland (8%) and Jersey (0%) are lower than the United Kingdom statutory rate of 19%. Also, we continue to maintain a full valuation allowance in Australia and the U.S. Tax rates will be reduced in the Netherlands and the United Kingdom to 20.5% and 17%, respectively, in future years.

Net deferred tax assets (liabilities) at December 31, 2017 and 2016 were comprised of the following:

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
Deferred tax assets:		
Net operating loss and other carryforwards	\$ 1,672	\$ 1,834
Property, plant and equipment, net	77	81
Reserves for environmental remediation and restoration	21	28
Obligations for pension and other employee benefits	48	49
Investments	24	29
Grantor trusts	659	669
Inventories, net	4	7
Interest	238	245
Other	11	16
Total deferred tax assets	2,754	2,958
Valuation allowance associated with deferred tax assets	(2,619 )	(2,825 )
Net deferred tax assets	135	133
Deferred tax liabilities:		
Inventories, net	(2 )	—
Property, plant and equipment, net	(208 )	(244 )
Intangible assets, net	(44 )	(52 )
Other	(7 )	(7 )
Total deferred tax liabilities	(261 )	(303 )
Net deferred tax liability	\$ (126 )	\$ (170 )
Balance sheet classifications:		
Deferred tax assets — long-term	\$ 37	\$ 1
Deferred tax liabilities — long-term	\$ (163 )	\$ (171 )
Net deferred tax liability	\$ (126 )	\$ (170 )

The net deferred tax liabilities reflected in the above table include deferred tax assets related to grantor trusts, which were established as Tronox Incorporated emerged from bankruptcy during 2011. The balances relate to the assets contributed to such grantor trusts by Tronox Incorporated and the proceeds from the resolution of previous litigation of \$5.2 billion during 2014, which resulted in additional deferred tax assets of \$2.0 billion. This increase was fully offset by valuation allowances. During 2017 and 2018, the U.S. net operating loss increased as the grantor trusts spent a portion of the funds received from the litigation.



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Both the Grantor trusts amount and the Net operating loss and other carryforwards amount above were significantly reduced during 2017 as a result of the U.S. tax reform federal rate change from 35% down to 21%. The reduction to the Net operating loss and other carryforwards line was offset by current year tax losses and by additional net capital losses resulting from the final steps in completing our 2016 Corporate Reorganization.

There was a decrease to our valuation allowance of \$205 million during 2018, a decrease of \$532 million in 2017, and a decrease of \$218 million in 2016. The table below sets forth the changes, by jurisdiction:

	December 31,		
	2018	2017	2016
Australia	\$ (144 )	\$ 359	\$ (258 )
United Kingdom	8	10	—
United States	(12 )	(899 )	40
The Netherlands	(57 )	(1 )	—
South Africa	—	(1 )	—
Total (decrease) increase in valuation allowances	\$ (205 )	\$ (532 )	\$ (218 )

We released the valuation allowance of the operating entity in the Netherlands in 2018. During the period ended June 30, 2018, the Company had accumulated enough objective positive evidence to support the prospective use of its deferred tax assets held by the operating entity in the Netherlands. The valuation allowance in Australia decreased following the Company's settlement which reduced its prior year NOLs. This was partially offset by current year losses in Australia.

The decrease to our valuation allowance in the United States in 2017 was primarily the result of the tax reform legislation impacts. The increase to our valuation allowances in both Australia and the United Kingdom during 2017 was to offset deferred tax assets generated from book losses and Corporate Reorganization net capital losses. The decrease to the valuation allowance in The Netherlands is due to \$12 million NOL utilization, offset by the effect of foreign currency exchange rates changes between 2016 and 2017 of \$11 million. The decrease to our valuation allowance in Australia during 2016 is primarily the result of the Corporate Reorganization. When we reduced our deferred tax assets related to intercompany interest deductions and loss carryforwards which will no longer be available to utilize, it caused a corresponding reduction to the valuation allowance and resulted in no impact to the consolidated provision for income taxes for the year ended December 31, 2016. The increase to our valuation allowance in the United States during 2016 is primarily the result of an increase to our net operating loss partially offset by a reduction to our deferred tax assets caused by a lower effective state income tax rate.

At December 31, 2018, we maintain full valuation allowances related to the total net deferred tax assets in Australia and the United States, as we cannot objectively assert that these deferred tax assets are more likely than not to be realized. It is reasonably possible that a portion of these valuation allowances could be reversed within the next year due to increased book profitability levels and our pending acquisition of the Cristal TiO<sub>2</sub> Business. Future provisions for income taxes will include no tax benefits with respect to losses incurred and tax expense only to the extent of current state tax payments until the valuation allowances are eliminated. Additionally, we have valuation allowances against specific tax assets in the Netherlands, South Africa, and the United Kingdom.

These conclusions were reached by the application of ASC 740, *Income Taxes*, and require that all available positive and negative evidence be weighted to determine whether a valuation allowance should be recorded. The more significant evidential matter in Australia, the United States, the Netherlands, and the United Kingdom relates to recent book losses and the lack of sufficient projected taxable income. The more significant evidential matter for South Africa relates to capital losses and assets that cannot be depleted or depreciated for tax purposes.

An ownership change occurred during 2012, as a result of the Exxaro Transaction. These ownership changes resulted in a limitation under IRC Sections 382 and 383 related to U.S. net operating losses. We do not expect that the application of these net limitations related to the 2012 ownership change will have any material effect on our U.S. federal income tax liabilities. The Company did not have any transactions during 2018 that triggered an ownership change under IRC Sections 382 and 383.

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The Company's ability to use any net operating losses and section 163(j) interest expense carryforwards (which are now subject to Section 382 limitations per the new recently enacted U.S. major tax reform legislation) generated by it could be substantially limited if the Company were to experience another ownership change as defined under IRC Section 382. In general, an ownership change would occur if the Company's 5-percent shareholders, as defined under IRC Section 382, including certain groups of persons treated as 5-percent shareholders, collectively increased their ownership in the Company by more than 50 percentage points over a rolling three-year period. If an ownership change does occur during 2019, the resulting impact could be a limitation of up to \$5.2 billion composed of both U.S. net operating losses and interest limitation carryforwards. There would be minimal impact on the \$2.5 billion future Grantor Trust deductions from an IRC Sections 382 change.

The deferred tax assets generated by tax loss carryforwards in Australia and the United States have been fully offset by valuation allowances. The expiration of these carryforwards at December 31, 2018 is shown below. The Australian and South African tax loss carryforwards do not expire.

	<b>United Kingdom</b>	<b>Australia</b>	<b>The Netherlands</b>	<b>U.S. Federal</b>	<b>U.S. State</b>	<b>Tax Loss Carryforwards Total</b>
2019	\$ —	\$ —	\$ —	\$ —	\$ 1	\$ 1
2020	—	—	—	—	10	10
2021	—	—	7	—	2	9
2022	—	—	32	—	—	32
2023	—	—	37	—	17	54
Thereafter	—	—	67	4,070	4,049	8,186
No Expiration	103	190	—	45	2	340
Total tax loss carryforwards	\$ 103	\$ 190	\$ 143	\$ 4,115	\$ 4,081	\$ 8,632

At December 31, 2018, Tronox Limited had foreign subsidiaries with undistributed earnings. Although we would not be subject to income tax on these earnings, amounts totaling \$258 million could be subject to withholding tax if distributed. We have made no provision for deferred taxes for Tronox Limited related to these undistributed earnings because they are considered to be indefinitely reinvested outside of the parents' taxing jurisdictions.

The noncurrent liabilities section of our Consolidated Balance Sheet does not reflect any reserves for uncertain tax positions for either 2018 or 2017.

Our Australian returns are closed through 2011. However, under Australian tax laws, transfer pricing issues have no limitation period. Our U.S. returns are closed for years through 2014. Our Netherlands returns are closed through 2015. Our South African returns are closed through 2013.

We believe that we have made adequate provision for income taxes that may be payable with respect to years open for examination; however, the ultimate outcome is not presently known and, accordingly, additional provisions may be necessary and/or reclassifications of noncurrent tax liabilities to current may occur in the future.

On December 22, 2017 the U.S. government enacted the Tax Cuts and Jobs Act (H.R. 1), which created sweeping tax reform, and the SEC issued Staff Accounting Bulletin 118 (SAB 118), which provided guidance on accounting for tax effects of H.R. 1 under ASC 740. As listed above these acts significantly impacted the effective tax rate disclosure for the year ended December 31, 2017.

H.R. 1 included a number of broad and complex changes to the U.S. tax code. The most significant of these changes to the Company was the reduction of the federal corporate tax rate from 35% down to 21%. This change represents the most substantial portion of the amount presented in the 2017 effective tax rate as U.S. federal tax reform. The effect of this rate change on the U.S. deferred tax assets and liabilities as well as their associated valuation allowance was considered to be complete during the year ended December 31, 2017. Other provisions of this tax reform had been reasonably estimated but were not yet deemed complete.

SAB 118 provides for a measurement period to complete the accounting for income taxes from H.R. 1 that should not extend beyond one year from the enactment date, or December 22, 2018. Under the guidance of Staff

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Accounting Bulletin 118, our accounting for Tax Cuts and Jobs Act (H.R. 1) was considered complete as of December 22, 2018. There are no material financial statement differences for the year ended December 31, 2018, or any interim period therein, from the information reported for the year ended December 31, 2017 resulting from the additional guidance issued by both the Internal Revenue Service and state taxing authorities.

During the three months ended March 31, 2018, the Company took steps necessary to restore a deferred interest deduction previously determined to be non-deductible under preliminary guidance on the provisions of H.R. 1. Concerns surrounding the new Base Erosion and Anti-Abuse Tax (BEAT) along with the changes to interest expense deductibility under IRC §163(j) remained outstanding until the period ended December 31, 2018. An IRS Proposed Regulation issued December 13, 2018 regarding BEAT, in conjunction with a Notice issued April 16, 2018 and Proposed Regulation issued November 26, 2018 regarding 163(j), resolved those outstanding concerns. We believe the guidance which is currently available is sufficient to support our final position regarding the impact of U.S. tax reform.

**8. Loss Per Share**

The computation of basic and diluted loss per share for the periods indicated is as follows:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
<b>Numerator – Basic and Diluted:</b>			
Net income (loss) from continuing operations	\$ 30	\$ (93 )	\$ (139 )
Less: Net income (loss) from continuing operations attributable to noncontrolling interest	37	13	1
Undistributed net loss from continuing operations attributable to Tronox Limited	(7 )	(106 )	(140 )
Net (loss) income from discontinued operations available to ordinary shares	—	(179 )	79
Net loss available to ordinary shares	\$ (7 )	\$ (285 )	\$ (61 )
<b>Denominator – Basic and Diluted:</b>			
Weighted-average ordinary shares (in thousands)	122,881	119,502	116,161
<b>Net income (loss) per Ordinary Share:</b>			
Basic and diluted net loss from continuing operations per ordinary share	\$ (0.06 )	\$ (0.89 )	\$ (1.20 )
Basic and diluted net (loss) income from discontinued operations per ordinary share	—	(1.50 )	0.68
Basic and diluted net loss per ordinary share	\$ (0.06 )	\$ (2.39 )	\$ (0.52 )

Net loss per ordinary share amounts were calculated from exact, unrounded net loss and share information. We have issued shares of restricted stock which are participating securities that do not have a contractual obligation to share in losses; therefore, when we have a net loss, none of the loss is allocated to these participating securities. Consequently, for the years ended December 31, 2018, 2017 and 2016, the two-class method did not have an effect on our net loss per ordinary share calculation, and as such, dividends paid during these periods did not impact this calculation.

In computing diluted net loss per share under the two-class method, we considered potentially dilutive shares. Anti-dilutive shares not recognized in the diluted net loss per share calculation for the years ended December 31,

2018, 2017 and 2016 were as follows:

	<b>Shares</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Options	1,319,743	1,707,133	1,970,481
Series A Warrants	—	222,939	1,440,662
Series B Warrants	—	328,563	1,953,207
Restricted share units	5,336,433	5,478,269	5,587,331
Series A and Series B Warrants expired on February 14, 2018.			

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Inventories, net consisted of the following:

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
Raw materials	\$ 102	\$ 137
Work-in-process	43	35
Finished goods, net	225	194
Materials and supplies, net	109	110
Total	479	476
Less: Inventories, net – non-current	—	(3 )
Inventories, net – current	\$ 479	\$ 473

Materials and supplies, net consists of processing chemicals, maintenance supplies, and spare parts, which will be consumed directly and indirectly in the production of our products.

At December 31, 2018 and 2017, inventory obsolescence reserves were \$13 million and \$17 million, respectively. At December 31, 2018 and December 31, 2017, reserves for lower of cost and net realizable value were \$17 million and \$27 million, respectively.

**10. Property, Plant and Equipment**

Property, plant and equipment, net of accumulated depreciation, consisted of the following:

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
Land and land improvements	\$ 96	\$ 95
Buildings	242	267
Machinery and equipment	1,395	1,387
Construction-in-progress	63	103
Other	39	41
Total	1,835	1,893
Less: accumulated depreciation	(831 )	(778 )
Property, plant and equipment, net	\$ 1,004	\$ 1,115

Substantially all the Property, plant and equipment, net is pledged as collateral for our debt. See Note 14.

The table below summarizes depreciation expense related to property, plant and equipment for the periods presented, recorded in the specific line items in our Consolidated Statements of Operations:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Cost of goods sold	\$ 131	\$ 122	\$ 114
Selling, general and administrative expenses	3	3	3

Total	\$	134	\$	125	\$	117
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**11. Mineral Leaseholds, net**

Mineral leaseholds, net of accumulated depletion, consisted of the following:

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
Mineral leaseholds	\$ 1,238	\$ 1,303
Less accumulated depletion	(442 )	(418 )
Mineral leaseholds, net	\$ 796	\$ 885

Depletion expense related to mineral leaseholds during 2018, 2017, and 2016 was \$35 million, \$32 million, and \$35 million, respectively, and was recorded in Cost of goods sold in the Consolidated Statements of Operations.



TABLE OF CONTENTS**12. Intangible Assets, net**

Intangible Assets, net of accumulated amortization, consisted of the following:

	<b>December 31, 2018</b>			<b>December 31, 2017</b>		
	<b>Gross Cost</b>	<b>Accumulated Amortization</b>	<b>Net Carrying Amount</b>	<b>Gross Cost</b>	<b>Accumulated Amortization</b>	<b>Net Carrying Amount</b>
Customer relationships	\$ 291	\$ (154 )	\$ 137	\$ 291	\$ (134 )	\$ 157
TiO <sub>2</sub> technology	32	(13 )	19	32	(11 )	21
Internal-use software	47	(27 )	20	45	(25 )	20
Intangible assets, net	\$ 370	\$ (194 )	\$ 176	\$ 368	\$ (170 )	\$ 198

The table below summarizes amortization expense related to intangible assets for the periods presented, recorded in the specific line items in our Consolidated Statements of Operations:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Cost of goods sold	\$ 1	\$ 1	\$ 1
Selling, general and administrative expenses	25	24	24
Total	\$ 26	\$ 25	\$ 25

Estimated future amortization expense related to intangible assets is \$27 million for 2019, \$26 million for 2020, \$25 million for 2021, \$23 million for 2022, \$22 million for 2023 and \$53 million thereafter.

**13. Accrued Liabilities**

Accrued liabilities consisted of the following:

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
Employee-related costs and benefits	\$ 69	\$ 72
Interest	16	21
Sales rebates	18	19
Taxes other than income taxes	5	7
Asset retirement obligations	6	3
Derivatives	6	1
Other	20	40
Accrued liabilities	\$ 140	\$ 163

**14. Debt***Wells Fargo Revolver*

On September 22, 2017, we entered into a new global senior secured asset-based syndicated revolving credit facility with Wells Fargo Bank, N.A. (the "Wells Fargo Revolver"). The Wells Fargo Revolver provides us with up to \$550 million of revolving credit lines, with an \$85 million sublimit for letters of credit, and has a maturity date of

September 22, 2022. Our availability of revolving credit loans and letters of credit is subject to a borrowing base. Borrowings bear interest at our option, at either an adjusted London Interbank Offered Rate ( LIBOR ) plus an applicable margin that ranges from 1.25% to 1.75%, or a base rate, which is defined to mean the greatest of (a) the administrative agent's prime rate, (b) the Federal funds effective rate plus 0.50% and (c) the adjusted LIBOR for a one-month period plus 1.00% plus a margin that ranges from 0.25% to 0.75%, in each case, based on the average daily borrowing availability. At December 31, 2018, there were no outstanding revolving credit loans under the Wells Fargo Revolver, excluding \$16 million of issued and undrawn letters of credit under the Wells Fargo Revolver. Debt issuance costs associated with the Wells Fargo Revolver of \$5 million were included in Other long-term assets in the Consolidated Balance Sheets at December 31, 2018 and is being amortized over the life of the Wells Fargo Revolver.

TABLE OF CONTENTS*ABSA Revolving Credit Facility*

On December 13, 2017, we entered into an agreement for a revolving credit facility with ABSA Bank Limited ( ABSA ) acting through its ABSA Capital Division for an amount up to R750 million (approximately \$52 million at December 31, 2018 exchange rate) maturing on December 13, 2020 (the ABSA Revolver ). The ABSA Revolver bears interest at (i) the base rate (defined as one month Johannesburg Interbank Agreed Rate, which is the mid-market rate for deposits in South African Rand for a period equal to the relevant period which appears on the Reuters Screen SAFETY Page alongside the caption YLD) as of 11h00 Johannesburg time on the first day of the applicable period, plus (ii) the Margin, which ranges from 3.45% to 3.85%, in each case, based on the aggregate loan amount outstanding as a percentage of the total commitments of the ABSA Facility. During 2018 we had no drawdowns or repayments on the ABSA Revolver. At December 31, 2018, there was no outstanding borrowings on the ABSA Revolver.

Long-term debt, net of an unamortized discount and debt issuance costs, consisted of the following:

	<b>Original Principal</b>	<b>Annual Interest Rate</b>	<b>Maturity Date</b>	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Term Loan Facility, net of unamortized discount	\$ 2,150	Variable	9/22/2024	\$ 2,119	\$ 2,138
Senior Notes due 2022	600	7.50 %	3/15/2022	—	584
Senior Notes due 2025	450	5.75 %	10/01/2025	450	450
Senior Notes due 2026	615	6.50 %	4/15/2026	615	—
Capital leases				16	19
Long-term debt				3,200	3,191
Less: Long-term debt due within one year				(22 )	(22 )
Debt issuance costs				(39 )	(44 )
Long-term debt, net				\$ 3,139	\$ 3,125

The average effective interest rate for the Term Loan Facility was 5.5% and 5.2% for the years ended December 31, 2018 and 2017, respectively.

At December 31, 2018, the scheduled maturities of our long-term debt were as follows:

	<b>Total Borrowings</b>
2019	22
2020	22
2021	22
2022	23
2023	23
Thereafter	3,097
Total	3,209
Remaining accretion associated with the Term Loan Facility	(9 )
Total borrowings	\$ 3,200
<i>Term Loan Facility</i>	

On September 22, 2017, we entered into a new senior secured first lien term loan facility (the Term Loan Facility ) with the lenders party thereto and Bank of America, N.A., as administrative agent, with a maturity date of September 22, 2024. The Term Loan Facility consists of (i) a U.S. dollar term facility in an aggregate principal amount of \$1.5 billion (the Term Loans ) with our subsidiary, Tronox Finance LLC ( Tronox Finance ) as the borrower and (ii) a U.S. dollar term facility in an aggregate principal amount of \$650 million (the Blocked Term Loan ) with our unrestricted subsidiary, Tronox Blocked Borrower LLC (the Blocked Borrower ) as the borrower, which Blocked Term Loan was funded into a blocked account. Upon consummation of the Cristal Transaction, the Blocked Borrower will merge with and into Tronox Finance, and the Blocked New Term Loan will become available to Tronox Finance. If the Cristal Transaction is terminated, the Blocked Term Loan will be repaid to the lenders of such Blocked Term Loan, and as the termination would represent a Prepayment Event as defined in our Term Loan Facility, we will be required to prepay \$800 million of outstanding borrowing under the Term Loan Facility. The Blocked Term Loan and the \$800 million of borrowings under the Term Loan Facility are included in Long-term debt, net as we expect the Cristal transaction to be completed in some form. In the event of an asset sale, some or all of the net proceeds from the sale may

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be required to be used to prepay borrowings under the Term Loan Facility based on the ratio of the total combined debt outstanding under the Term Loan Facility and the Wells Fargo Revolver to the consolidated EBITDA, as defined in the Term Loan Facility, for the previous four quarters. If this ratio greater the three, then all of the net proceeds from an asset sale would be required to be used to prepay borrowings under the Term Loan Facility, while if the ratio were less than three but greater than 2.75, 50% of the net proceeds would be required for prepayment and if the ratio were less than 2.75, no prepayment would be required.

The proceeds from the Blocked Term Loan are included in Restricted cash in the Consolidated Balance Sheets at December 31, 2018. The Blocked Term Loan under the Term Loan Facility bear interest at the Applicable Rate defined by reference to a grid-pricing matrix that relates to our first lien net leverage ratio. Based upon our first lien net leverage ratio the Applicable Rate under the Term Loan Facility as of December 31, 2018 was 300 basis points plus LIBOR. The Term Loan Facility was issued net of an original issue discount of \$11 million.

On February 25, 2019, we entered into an amendment to both our Term Loan Facility and Wells Fargo Revolver. The purpose of each amendment was to make certain of our U.K. subsidiaries restricted subsidiaries, update the relevant indebtedness disclosure schedules to include certain inter-company indebtedness that had been in existence prior to the execution of each such facility, and waive an administrative omission under such facility.

### *Senior Notes due 2025*

On September 22, 2017, Tronox Finance plc, issued 5.75% senior notes due 2025 for an aggregate principal amount of \$450 million (the Senior Notes due 2025 ), which notes were issued under an indenture dated September 22, 2017 (the 2025 Indenture ). The 2025 Indenture and the Senior Notes due 2025 provide among other things, that the Senior Notes due 2025 are senior unsecured obligations of Tronox Finance plc and are guaranteed on a senior and unsecured basis by us and certain of our other subsidiaries. The Senior Notes due 2025 have not been registered under the Securities Act, and may not be offered or sold in the U.S. absent registration or an applicable exemption from registration requirements. Interest is payable on April 1 and October 1 of each year beginning on April 1, 2018 until their maturity date of October 1, 2025. The terms of the 2025 Indenture, among other things, limit, in certain circumstances, the ability of us and certain of our subsidiaries to: incur secured indebtedness, engage in certain sale-leaseback transactions and merge, consolidate or sell substantially all of our assets. The terms of the 2025 Indenture also include certain limitations on our non-guarantor subsidiaries incurring indebtedness.

### *Senior Notes due 2026*

On April 6, 2018, Tronox Incorporated issued 6.5% Senior Notes due 2026 for an aggregate principal amount of \$615 million ( Senior Notes due 2026 ). The 2026 Indenture and the Senior Notes due 2026 provide, among other things, that the Senior Notes due 2026 are senior unsecured obligations of Tronox Incorporated and are guaranteed on a senior and unsecured basis by us and certain of our other subsidiaries. The Senior Notes due 2026 have not been registered under the Securities Act and may not be offered or sold in the U.S. absent registration or an applicable exemption from registration requirements. Interest is payable on April 15 and October 15 of each year beginning on October 15, 2018 until their maturity date of April 15, 2026. The terms of the 2026 Indenture, among other things, limit, in certain circumstances, our and certain of our subsidiaries ability to: incur secured indebtedness; engage in certain sale-leaseback transactions; and merge, consolidate or sell substantially all of our assets. The terms of the 2026 Indenture also include certain limitations on our non-guarantor subsidiaries incurring indebtedness. The proceeds of the offering were used to fund the redemption of our Senior Notes due 2022. Debt issuance costs of \$10 million related to the Senior Notes due 2026 were recorded as a direct reduction of the carrying value of the long-term debt. Additionally, in connection with the redemption of our Senior Notes due 2022, we recorded \$30 million in debt extinguishment costs including a call premium of \$22 million during the second quarter of 2018.

*Capital Leases*

We have capital lease obligations in South Africa, which are payable through 2031 at a weighted average interest rate of approximately 14%. At December 31, 2018 and 2017, assets recorded under capital lease obligations were \$20 million and \$23 million, respectively. Related accumulated amortization was \$8 million and \$8 million at December 31, 2018 and 2017, respectively. During 2018, 2017, and 2016 we made principal payments of less than \$1 million for all periods.

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At December 31, 2018, future minimum lease payments, including interest, were as follows:

	<b>Principal Repayments</b>	<b>Interest</b>	<b>Total Payments</b>
2019	\$ 1	\$ 2	\$ 3
2020	1	2	3
2021	1	2	3
2022	1	2	3
2023	1	2	3
Thereafter	11	7	18
Total	\$ 16	\$ 17	\$ 33

***Debt Covenants***

At December 31, 2018, we had no financial covenants in the Wells Fargo Revolver, the ABSA Revolver and the Term Loan Facility, however, only the ABSA Revolver had a financial maintenance covenant that requires us to maintain a ratio of consolidated EBITDA to net interest expense of not less than 5 to 1 and a ratio of consolidated net debt to consolidated EBITDA of not less than 2 to 1. The ABSA financial maintenance covenant only applies to local operation and only when the ABSA Revolver is drawn upon.

***Interest and Debt Expense, Net***

Interest and debt expense, net in the Consolidated Statements of Operations consisted of the following:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Interest on debt	\$ 180	\$ 171	\$ 171
Amortization of deferred debt issuance costs and discounts on debt	11	15	11
Capitalized interest	(3 )	(2 )	(3 )
Interest on capital leases and letters of credit and commitments	5	4	6
Total interest and debt expense, net	\$ 193	\$ 188	\$ 185

In connection with obtaining debt, we incurred debt issuance costs, which are being amortized through the respective maturity dates using the effective interest method for our long-term debt and on a straight-line basis for our Wells Fargo Revolver. At December 31, 2018, we had deferred debt issuance costs of \$5 million related to the Wells Fargo Revolver, which is recorded in Other long-term assets in the Consolidated Balance Sheets. At December 31, 2018, we had \$9 million and \$39 million of debt discount and debt issuance costs, respectively, related to our term loan and senior notes, which were recorded as a direct reduction of the carrying value of the long-term debt in the Consolidated Balance Sheets.

**15. Fair Value Measurement**

For financial instruments that are subsequently measured at fair value, the fair value measurement is grouped into levels. See Note 2.

Our debt is recorded at historical amounts. The following table presents the fair value of our debt at both December 31, 2018 and December 31, 2017:

	<b>December 31, 2018</b>	<b>December 31, 2017</b>
Term Loan Facility	\$ 2,074	\$ 2,170
Senior Notes due 2022	NA	609
Senior Notes due 2025	368	463
Senior Notes due 2026	518	NA

We determined the fair value of the Term Loan Facility, the Senior Notes due 2022, the Senior Notes due 2025 and the Senior Notes due 2026 using quoted market prices, which under the fair value hierarchy is a Level 1 input.



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Commencing in the second quarter of 2018, we entered into foreign currency contracts for the South African rand to reduce exposure of a foreign subsidiary's balance sheet to fluctuations in foreign currency rates. The Company uses a combination of zero-cost collars or forward contracts to reduce the exposure. For accounting purposes, these foreign currency contracts are not considered hedges. The change in fair value associated with these contracts is recorded in Other income (expense), net within the Consolidated Statement of Operations and partially offsets the change in value of third party and intercompany-related receivables not denominated in the functional currency of the subsidiary. At December 31, 2018, there was \$173 million, in the aggregate, of notional amount outstanding foreign currency contracts with a fair value of a loss of \$5 million. We determined the fair value of the foreign currency contracts using inputs other than quoted prices in active markets that are observable either directly or indirectly. The fair value hierarchy for the foreign currency contracts is a Level 2 input. For the year ended December 31, 2018, we have recorded realized and unrealized losses of \$6 million related to foreign currency contracts in our Consolidated Statement of Operations.

The carrying value of cash and cash equivalents, restricted cash, accounts receivable and accounts payable approximate fair value due to the short-term nature of these items.

**16. Asset Retirement Obligations**

Asset retirement obligations consist primarily of rehabilitation and restoration costs, landfill capping costs, decommissioning costs, and closure and post-closure costs. Activity related to asset retirement obligations was as follows:

	<b>Year Ended December 31,</b>	
	<b>2018</b>	<b>2017</b>
Balance, January 1	\$ 82	\$ 76
Additions	6	1
Accretion expense	5	5
Remeasurement/translation	(8 )	5
Changes in estimates, including cost and timing of cash flows	(4 )	—
Settlements/payments	(3 )	(5 )
Transferred with the sale of Henderson Electrolytic	(4 )	—
Balance, December 31	\$ 74	\$ 82

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
Asset retirement obligations were classified as follows:		
Current portion included in Accrued liabilities	\$ 6	\$ 3
Noncurrent portion included in Asset retirement obligations	68	79
Asset retirement obligations	\$ 74	\$ 82

We used the following assumptions in determining asset retirement obligations at December 31, 2018: inflation rates between 2.4% - 5.2% per year; credit adjusted risk-free interest rates between 7.0% -17.6%; the life of mines between 11-24 years and the useful life of assets between 10-32 years.

***Environmental Rehabilitation Trust***

In accordance with applicable regulations, we have established an environmental rehabilitation trust for the prospecting and mining operations in South Africa, which receives, holds, and invests funds for the rehabilitation or management of asset retirement obligations. The trustees of the fund are appointed by us, and consist of sufficiently qualified employees capable of fulfilling their fiduciary duties. At December 31, 2018 and 2017, the environmental rehabilitation trust assets were \$12 million and \$13 million, respectively, which were recorded in Other long-term assets in the Consolidated Balance Sheets.

## **17. Commitments and Contingencies**

**Leases**—We lease office space, railcars, storage, and equipment under non-cancelable lease agreements, which expire on various dates through 2030. Total rental expense related to operating leases recorded in Cost of

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goods sold in the Consolidated Statements of Operations was \$22 million, \$22 million and \$21 million during 2018, 2017 and 2016, respectively. Total rental expense related to operating leases recorded in Selling, general and administrative expense in the Consolidated Statements of Operations, was \$2 million each during 2018, 2017 and 2016.

At December 31, 2018, minimum rental commitments under non-cancelable operating leases were as follows:

	<b>Operating</b>
2019	\$ 15
2020	6
2021	5
2022	4
2023	3
Thereafter	4
Total	\$ 37

**Purchase and Capital Commitments**—At December 31, 2018, purchase commitments were \$121 million for 2019, \$55 million for 2020, \$39 million for 2021, \$31 million for 2022, \$21 million for 2023, and \$69 million thereafter.

**Letters of Credit**—At December 31, 2018, we had outstanding letters of credit and bank guarantees of \$38 million, of which \$16 million were letters of credit issued under the Wells Fargo Revolver, \$17 million were bank guarantees issued by ABSA Bank Limited ( ABSA ), \$4 million were bank guarantees issued by Standard Bank and less than \$1 million were performance bonds with Austraclear.

**Other Matters**—From time to time, we may be party to a number of legal and administrative proceedings involving legal, environmental, and/or other matters in various courts or agencies. These proceedings, individually and in the aggregate, may have a material adverse effect on us. These proceedings may be associated with facilities currently or previously owned, operated or used by us and/or our predecessors, some of which may include claims for personal injuries, property damages, cleanup costs, and other environmental matters. Current and former operations may also involve management of regulated materials that are subject to various environmental laws and regulations including the Comprehensive Environmental Response Compensation and Liability Act, the Resource Conservation and Recovery Act or state equivalents. Similar environmental laws and regulations and other requirements exist in foreign countries in which we operate.

## **18. Shareholders Equity**

The changes in outstanding Class A ordinary shares ( Class A Shares ) and Class B Shares for 2018 and 2017 were as follows:

### **Class A Shares:**

Balance, January 1, 2017	65,165,672
Shares issued for share-based compensation	3,048,824
Shares cancelled for share-based compensation	(623,920 )
Shares issued upon options exercised	165,974
Exxaro Share Transaction	22,425,000
Shares issued upon warrants exercised	2,359,913

Balance, December 31, 2017	92,541,463
Shares issued for share-based compensation	1,426,133
Shares cancelled for share-based compensation	(315,697 )
Shares issued upon options exercised	214,763
Shares issued upon warrants exercised <sup>(1)</sup>	337,903
Balance, December 31, 2018	94,204,565

**TABLE OF CONTENTS****Class B Shares:**

Balance, January 1, 2017	51,154,280
Exxaro Share Transaction	(22,425,000 )
Balance, December 31, 2017	28,729,280
2018 activity	—
Balance, December 31, 2018	28,729,280

(1) Series A and Series B Warrants expired on February 14, 2018.

***Dividends***

During the years 2018 and 2017 we declared and paid quarterly dividends of \$0.045 per share, or \$0.18 per share for the full year, to holders of our Class A Shares and Class B Shares.

**Accumulated Other Comprehensive Income (Loss) Attributable to Tronox Limited**

The tables below present changes in accumulated other comprehensive income (loss) by component for 2018, 2017 and 2016.

	<b>Cumulative Translation Adjustment</b>	<b>Pension Liability Adjustment</b>	<b>Unrealized Gains (losses) on Derivatives</b>	<b>Total</b>
Balance, January 1, 2016	\$ (496 )	\$ (102 )	\$ —	\$ (598 )
Other comprehensive income (loss)	88	8	4	100
Amounts reclassified from accumulated other comprehensive income (loss)	—	2	(1 )	1
Balance, December 31, 2016	\$ (408 )	\$ (92 )	\$ 3	\$ (497 )
Other comprehensive income (loss)	96	(6 )	(3 )	87
Amounts reclassified from accumulated other comprehensive income (loss)	—	8	(1 )	7
Balance, December 31, 2017	\$ (312 )	\$ (90 )	\$ (1 )	\$ (403 )
Other comprehensive income (loss)	(133 )	(5 )	1	(137 )
Amounts reclassified from accumulated other comprehensive income (loss)	—	—	—	—
Balance, December 31, 2018	\$ (445 )	\$ (95 )	\$ —	\$ (540 )

**19. Share-based Compensation**

Share-based compensation expense consisted of the following:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
Restricted shares and restricted share units	\$ 21	\$ 30	\$ 20
Options	—	—	2
T-Bucks Employee Participation Plan	—	1	2
Total share-based compensation expense (continuing operations) <sup>(1)</sup>	\$ 21	\$ 31	\$ 24

(1) 2017 and 2016 excludes \$2 million and \$1 million, respectively relating to discontinued operations. See Note 4.  
***Tronox Limited Management Equity Incentive Plan***

On June 15, 2012, we adopted the MEIP, which permits the grant of awards that are comprised of incentive options, nonqualified options, share appreciation rights, restricted shares, restricted share units, performance awards, and other share-based awards, cash payments, and other forms as the compensation committee of the

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Board of Directors (the Board) in its discretion deems appropriate, including any combination of the above. Subject to further adjustment, the maximum number of shares which may be the subject of awards (inclusive of incentive options) is 20,781,225 Class A Shares. These shares were increased by 8,000,000 on the affirmative vote of our shareholders on May 25, 2016.

*Restricted Shares*

We did not grant any restricted shares during 2018. Restricted shares issued under the MEIP contain non-forfeitable dividend rights. The following table presents a summary of activity for 2018:

	<b>Number of Shares</b>	<b>Weighted Average Grant Date Fair Value</b>
Outstanding, January 1, 2018	176,472	\$ 4.92
Vested	(95,016 )	6.08
Outstanding, December 31, 2018	81,456	\$ 3.57
Expected to vest, December 31, 2018	81,456	\$ 3.57

At December 31, 2018, unrecognized compensation expense related to nonvested restricted shares was minimal and is expected to be recognized in the first quarter of 2019. Since the restricted shares were granted to certain members of our Board, the unrecognized compensation expense was not adjusted for estimated forfeitures. The total fair value of restricted shares that vested during 2018, 2017 and 2016 was less than \$1 million, \$1 million, and \$3 million, respectively.

*Restricted Share Units ( RSUs )*

During 2017, a total of 1,397,471 RSUs were granted, pursuant to an Integration Incentive Award program ( Integration Incentive Award ) established in connection with the Cristal Transaction, to certain executive officers and managers with significant integration accountability. In addition, during the second quarter of 2018, an additional 139,225 RSUs were granted under the Integration Incentive Award. These RSUs would have vested two years from the date of the close of the Cristal Transaction and the number of shares that would have been issued to grantees would have been based upon the achievement of established performance conditions. Under the original terms of the Integration Incentive Award, if the Cristal Transaction did not close by July 1, 2018, all unvested awards pursuant to the Integration Incentive Award would immediately be canceled and forfeited.

During the second quarter of 2018, terms of the Integration Incentive Award were modified to eliminate the requirement that the Cristal Transaction must close by July 1, 2018. We accounted for this modification as a Type III modification since, at the modification date, the expectation of the award vesting changed from improbable to probable. As a result, we reversed approximately \$6 million of previously recorded expense related to the Integration Incentive Award. The issued and unvested RSUs under the Integration Incentive Award were revalued based on the closing price of the Company's stock on the modification date and will vest two years from the date the Cristal Transaction closes and based upon the achievement of established performance conditions. As a result, the estimated expense associated with the revalued award is being expensed over the period from the modification date through two years from the estimated date that the Cristal Transaction will close.

During the third and fourth quarter of 2018, an additional 90,161 and 40,161 RSUs, respectively, were granted under the modified terms of the Integration Incentive Award. The estimated expense associated with these awards is being recognized over the period from the grant dates through two years from the estimated date that the Cristal Transaction

will close.

In addition to the Integration Incentive Award, during 2018, we granted RSUs which have time and/or performance conditions. Both the time-based awards and the performance-based awards are classified as equity awards. For the time-based awards valued at the weighted average grant date fair value, 3,828 were granted to certain members of the Board in lieu of cash fees earned and vested immediately, 65,222 vest ratably over an approximate one-year period and 590,093 RSUs vest ratably over a twenty-eight to thirty-six month period ending February 8, 2021. For the performance-based awards, 574,244 RSUs cliff vest at the end of a



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twenty-eight to thirty-six month period ending February 8, 2021. Vesting of the performance-based awards is determined, for 50% of the award, based on Earnings per Share ( EPS ) growth, and the other 50%, based on Operating Return on Net Assets ( ORONA ) over the applicable three-year measurement period. The combined results are then subject to a Total Shareholder Return ( TSR ) modifier calculation over the same three-year measurement period. The TSR metric is considered a market condition for which we use a Monte Carlo simulation to determine the grant date fair value.

The following table presents a summary of activity for RSUs for 2018:

	<b>Number of Shares</b>	<b>Weighted Average Grant Date Fair Value</b>
Outstanding, January 1, 2018	5,478,269	\$ 11.33
Granted	1,502,934	19.23
Vested	(1,331,117 )	12.41
Forfeited	(313,653 )	17.67
Outstanding, December 31, 2018	5,336,433	\$ 12.92
Expected to vest, December 31, 2018	5,571,292	\$ 12.92

At December 31, 2018, there was \$40 million of unrecognized compensation expense related to nonvested RSUs, adjusted for estimated forfeitures, which is expected to be recognized over a weighted-average period of 2.0 years. The weighted-average grant-date fair value of RSUs granted during 2018, 2017 and 2016 was \$19.23 per unit, \$17.55 per unit, and \$4.07 per unit, respectively. The total fair value of RSUs that vested during 2018, 2017 and 2016 was \$17 million, \$23 million and \$10 million, respectively.

*Options*

The fair value of options granted is determined on the grant date using the Black-Scholes option-pricing model and is recognized in earnings on a straight-line basis over the employee service period of three years, which is the vesting period. The assumptions used in the Black-Scholes option-pricing model on the grant date are based on (i) a fair value using the closing price of our Class A Shares on the grant date, (ii) a risk-free interest rate based on U.S. Treasury Strips available with a maturity period consistent with the expected life assumption, (iii) an expected volatility assumption based on historical price movements of our peer group, and (iv) a dividend yield determined based on the Company's expected dividend payouts. We did not issue any options during 2018 and 2017 and all our options outstanding are fully vested at December 31, 2018.

The following table presents a summary of option activity for 2018:

	<b>Number of Options</b>	<b>Weighted Average Exercise Price</b>	<b>Weighted Average Contractual Life (years)</b>	<b>Intrinsic Value</b>
Outstanding, January 1, 2018	1,707,133	\$ 21.27	4.29	\$ 1
Exercised	(214,763 )	19.09		
Forfeited	(467 )	21.98		
Expired	(172,160 )	22.01		

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Outstanding and Exercisable, December 31, 2018	1,319,743	\$	21.53	4.16	\$	—
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The aggregate intrinsic values in the table represent the total pre-tax intrinsic value (the difference between our share price at the indicated dates and the options' exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their in-the-money options at the end of the year. The amount will change based on the fair market value of our stock. Total intrinsic value of options exercised during 2018 and 2017 was less than \$1 million and \$1 million, respectively. No options were exercised during 2016 and consequently, there was no related intrinsic value. We issue new

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shares upon the exercise of options. During both 2018 and 2017, we received \$4 million and \$3 million, respectively, in cash for the exercise of stock options. Since no stock options were exercised during 2016, no cash was received. At both December 31, 2018 and 2017, there was no unrecognized compensation expense related to options.

### **20. Pension and Other Postretirement Healthcare Benefits**

The following provides information regarding our U.S. and foreign plans:

#### **U.S. Plans**

*Qualified Retirement Plan* — We sponsor a noncontributory qualified defined benefit plan (funded) (the U.S. Qualified Plan) in accordance with the Employee Retirement Income Security Act of 1974 (ERISA) and the Internal Revenue Code. We made contributions into funds managed by a third party, and those funds are held exclusively for the benefit of the plan participants. Benefits under the U.S. Qualified Plan were generally calculated based on years of service and final average pay. The U.S. Qualified Plan was frozen and closed to new participants on June 1, 2009.

*Postretirement Healthcare Plan* — We sponsored an unfunded U.S. postretirement healthcare plan. Effective January 1, 2015, we eliminated the pre-65 retiree medical programs. Participants who retired prior to January 1, 2015 received a one-time subsidy aggregating to less than \$1 million towards medical cost through a health reimbursement arrangement that we established for them. This action resulted in a settlement gain of \$3 million which had been deferred to Accumulated other comprehensive loss in the Consolidated Balance Sheet as settlement accounting requirements were deemed not fully satisfied. During 2018, a review of additional information indicated that full settlement had occurred, and we concluded this gain should not have been deferred beyond January 1, 2015 as all the conditions required for settlement accounting had been satisfied by that date. Accordingly, in September 2018, we released the \$3 million from Accumulated other comprehensive loss and recorded such amount in Other income (expense), net in the Consolidated Statement of Operations.

Benefits under this plan for participants who had not retired as of January 1, 2015 were eliminated.

#### **Foreign Plans**

*The Netherlands Plan* — On January 1, 2007, we established the TDF-Botlek Pension Fund Foundation (the Netherlands Plan) to provide defined pension benefits to qualifying employees of Tronox Pigments (Holland) B.V. and its related companies. During 2014, in response to the tax and pension legislation changes in the Netherlands, our benefit committee approved to end future benefit accruals under the Netherlands Plan and replaced it with a multiemployer plan effective January 1, 2015 (the Netherlands Collective Contribution Plan). As a result of this decision, effective January 1, 2015, benefit contributions commenced under the multiemployer plan while the Netherlands Plan was frozen.

A small transition arrangement (the VPL Plan) was established in 2005 for the benefit of certain of our Botlek employees, which was added to the Netherlands Pension Plan when it was established in 2007. In August 2016, we agreed with the Board of Trustees of the Netherlands Pension Plan to settle the VPL portion of the plan. Under the settlement agreement, we transferred \$1 million into accounts established with industrywide Pension Fund for the Graphical Industry (PGB) for the benefit of the participants as a full settlement of our obligation under the VPL Plan. Accordingly, during 2016, we recognized a curtailment gain of \$1 million included in Other income (expense), net in the Consolidated Statement of Operations. This amount had previously been recognized in Accumulated other comprehensive loss in the Consolidated Balance Sheet as prior service credits.

On November 1, 2016 (the Settlement Date ), we agreed with the Board of Trustees to settle the remaining portion of the Netherlands Pension Plan. Under the settlement agreement, we transferred the Netherlands Botlek Pension Plan assets of \$126 million to the PGB for the benefit of the participants as a full settlement of our obligation under the Pension Plan. As a result of this action, we recorded a settlement loss of \$2 million in Other income (expense) in the Consolidated Statement of Operations for the year ended December 31, 2016.

*Netherlands Collective Contribution Plan* — Effective January 1, 2015, we ceased offering benefits under the Netherlands Plan to qualifying employees and established a multiemployer plan, the collective contribution

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plan ( CDC Plan ). Under the CDC plan, employees earn benefits based on their pensionable salaries each year determined using a career average benefit formula. The collective bargaining agreement between us and the participants require us to contribute 20.6% of the participants' pensionable salaries into a pooled fund administered by the industrywide PGB. The pensionable salary is the annual income of employees subject to a cap, which is adjusted each year to reflect the current requirements of the Netherlands' Wages and Salaries Tax Act of 1964. Our obligation under this plan is limited to the fixed percentage contribution we make each year. The employees are entitled to any returns generated from the investment activities of the fund.

The following table outlines the details of our participation in the CDC Plan for the year ended December 31, 2018. The CDC disclosures provided herein are based on the fund's 2017 annual report, which is the most recently available public information. Based on the total plan assets and accumulated benefit obligation information in the plan's annual report, the zone status was green as of December 31, 2017. A green zone status indicates that the plan was at least 80 percent funded. The FIP/RP Status Pending/Implemented column indicates whether a financial improvement plan (FIP) or a rehabilitation plan (RP) is either pending or has been implemented. As of December 31, 2018, we are not aware of any financial improvement or rehabilitation plan being implemented or pending. The last column lists the expiration date of the collective-bargaining agreement to which the plan is subject.

Pension Protection Act Zone Status					Tronox Contributions			Expiration date of Collective- Bargaining Agreement
Pension Fund	EIN/Pension Plan Number	2018	2017	FIP/RP Pending/ Implemented	2018	2017	Surcharge Imposed	
PGB	NA	N/A	Green	No	\$ 4	\$ 4	No	12/31/2019

On the basis of the information available in the CDC Plan 2017 annual report, our contribution does not constitute more than 5 percent of the total contribution to the plan by all participants. During 2018, the fund did not impose any surcharge on us.

*South Africa Postretirement Healthcare Plan* — As part of the Exxaro Transaction, we established a post-employment healthcare plan, which provides medical and dental benefits to certain Namakwa Sands employees, retired employees and their registered dependents (the South African Plan). The South African Plan provides benefits as follows: (i) members employed before March 1, 1994 receive 100% post-retirement and death-in-service benefits; (ii) members employed on or after March 1, 1994 but before January 1, 2002 receive 2% per year of completed service subject to a maximum of 50% post-retirement and death-in-service benefits; and, (iii) members employed on or after January 1, 2002 receive no post-retirement and death-in-service benefits.

*Benefit Obligations and Funded Status* — The following provides a reconciliation of beginning and ending benefit obligations, beginning and ending plan assets, funded status, and balance sheet classification of our U.S. Qualified Plan and South Africa postretirement healthcare plan as of and for the years ended December 31, 2018 and 2017. The benefit obligations and plan assets associated with our principal benefit plans are measured on December 31.

	U.S. Qualified Plan		Postretirement Healthcare Plan	
	Year Ended December 2018	2017	Year Ended December 2018	2017
<i>Change in benefit obligations:</i>				
Benefit obligation, beginning of year	\$ 377	\$ 369	\$ 8	\$ 8

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Service cost	—	—	—	—
Interest cost	13	15	1	1
Net actuarial (gains) losses	(27 )	25	(1 )	(1 )
Foreign currency rate changes	—	—	(1 )	—
Benefits paid	(30 )	(26 )	—	—
Administrative expenses	(4 )	(6 )	—	—
Benefit obligation, end of year <sup>(1)</sup>	329	377	7	8

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	<b>U.S. Qualified Plan</b>		<b>Postretirement Healthcare Plan</b>	
	<b>Year Ended December</b>		<b>Year Ended December</b>	
	<b>2018</b>	<b>2017</b>	<b>2018</b>	<b>2017</b>
<i>Change in plan assets:</i>				
Fair value of plan assets, beginning of year	282	262	—	—
Actual return on plan assets	(17 )	33	—	—
Employer contributions <sup>(21)</sup>	12	19	—	—
Benefits paid	(30 )	(26 )	—	—
Administrative expenses	(4 )	(6 )	—	—
Fair value of plan assets, end of year	243	282	—	—
Net underfunded status of plans	\$ (86 )	\$ (95 )	\$ (7 )	\$ (8 )
<i>Classification of amounts recognized in the Consolidated Balance Sheets:</i>				
Accrued liabilities	\$ —	\$ —	\$ —	
Pension and postretirement healthcare benefits	(86 )	(95 )	(7 )	(8 )
Total liabilities	(86 )	(95 )	(7 )	(8 )
Accumulated other comprehensive (income) loss	95	92	—	(2 )
Total	\$ 9	\$ (3 )	\$ (7 )	\$ (10 )

(1) Since the benefits under the U.S. Qualified Plan are frozen, the projected benefit obligation and accumulated benefit obligation are the same.

(2) We expect 2019 contributions to be \$10 million for the qualified retirement plan.

As a result of the underfunded status of our U.S. Qualified Plan, we have a projected minimum funding requirement of \$14 million for 2018, which will be payable in 2019.

*Expected Benefit Payments* — The following table shows the expected cash benefit payments for the next five years and in the aggregate for the years 2024 through 2027:

	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024-2028</b>
U.S. Qualified Plan	\$ 28	\$ 27	\$ 27	\$ 26	\$ 25	\$ 113
Postretirement Healthcare Plan	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 2

*Retirement and Postretirement Healthcare Expense* — The table below presents the components of net periodic cost associated with the U.S. and foreign plans recognized in the Consolidated Statements of Operations for 2018, 2017, and 2016:

	<b>U.S. Qualified Plan</b>			<b>Postretirement Healthcare Plans</b>		
	<b>Year Ended December 31,</b>			<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Net periodic cost:						
Service cost	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Interest cost	13	15	19	1	1	1
Expected return on plan assets	(15 )	(15 )	(19 )	—	—	—

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Net amortization of actuarial loss	3	3	2	—	—	—
Curtailment gains	—	—	(1 )	—	—	—
Settlement losses (gains)	—	—	2	(3 )	—	—
Total net periodic cost - continuing operations <sup>(1)</sup>	\$ 1	\$ 3	\$ 3	\$ (2 )	\$ 1	\$ 1

(1) Recorded in Other income (expense), net in the Consolidated Statement of operations.



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Pretax amounts that are expected to be reclassified from Accumulated other comprehensive loss in the Consolidated Balance Sheets to retirement expense during 2019 related to unrecognized actuarial losses are \$2 million for the U.S. retirement plans.

*Assumptions* — The following weighted average assumptions were used to determine net periodic cost:

	<b>2018</b>		<b>2017</b>		<b>2016</b>	
	<b>U.S. Qualified Plan</b>		<b>U.S. Qualified Plan</b>		<b>U.S. Qualified Plan</b>	
						<b>Netherlands Plan</b>
Discount rate	3.71	%	4.25	%	4.75	%
Expected return on plan assets	5.64	%	5.64	%	5.64	%

The following weighted average assumptions were used in estimating the U.S. Qualified Plan actuarial present value of benefit obligations:

	<b>2018</b>		<b>2017</b>		<b>2016</b>	
Discount rate	4.40	%	3.71	%	4.25	%

In 2018, the mortality improvement scale that had been used in the 2017 was updated by the Society of Actuaries to reflect actual experience in mortality rates. We updated our mortality assumption accordingly resulting in a decrease of \$1 million to our projected benefit obligation as compared to December 31, 2017.

The following weighted-average assumptions were used in determining the actuarial present value of the South African Plan:

	<b>2018</b>		<b>2017</b>		<b>2016</b>	
Discount rate	11.38	%	11.54	%	10.87	%

*Expected Return on Plan Assets* — In forming the assumption of the U.S. long-term rate of return on plan assets, we considered the expected earnings on funds already invested, earnings on contributions expected to be received in the current year, and earnings on reinvested returns. The long-term rate of return estimation methodology for the U.S. Qualified Plan is based on a capital asset pricing model using historical data and a forecasted earnings model. An expected return on plan assets analysis is performed which incorporates the current portfolio allocation, historical asset-class returns, and an assessment of expected future performance using asset-class risk factors.

*Discount Rate* — The discount rates selected for estimation of the actuarial present value of the benefit obligations of the U.S. Qualified Plan were 4.40% and 3.71% at December 31, 2018 and 2017, respectively. The 2018 and 2017 rates were selected based on the results of a cash flow matching analysis, which projected the expected cash flows of the plans using a yield curves model developed from a universe of Aa-graded U.S. currency corporate bonds (obtained from Bloomberg) with at least \$50 million outstanding. Bonds with features that imply unreliable pricing, a less than certain cash flow, or other indicators of optionality are filtered out of the universe. The remaining universe is categorized into maturity groups, and within each of the maturity groups yields are ranked into percentiles.

*Plan Assets* — Asset categories and associated asset allocations for our funded U.S. Qualified Plan at December 31, 2018 and 2017:

<b>December 31,</b>			
<b>2018</b>		<b>2017</b>	
<b>Actual</b>	<b>Target</b>	<b>Actual</b>	<b>Target</b>

Qualified Plan:

Equity securities	50 %	50 %	50 %	50 %
Debt securities	48	48	48	48
Cash and cash equivalents	2	2	2	2
Total	100 %	100 %	100 %	100 %

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The U.S. Qualified Plan is administered by a board-appointed committee that has fiduciary responsibility for the plan's management. The committee maintains an investment policy stating the guidelines for the performance and allocation of plan assets, performance review procedures and updating of the policy. At least annually, the U.S. plan's asset allocation guidelines are reviewed in light of evolving risk and return expectations.

Substantially all of the plan's assets are invested with nine mutual fund managers, eight separately managed equity accounts, one fixed-income fund manager and one money-market fund manager. To control risk, equity fund managers are prohibited from entering into the following transactions, (i) investing in commodities, including all futures contracts, (ii) purchasing leveraged stock, (iii) short selling, and (iv) option trading. In addition, equity fund managers are prohibited from purchasing on margin and are prohibited from purchasing Tronox securities. Equity managers are monitored to ensure investments are in line with these guidelines and are generally permitted to invest in U.S. common stock, U.S. preferred stock, U.S. securities convertible into common stock, common stock of foreign companies listed on major U.S. exchanges, common stock of foreign companies listed on foreign exchanges, and cash and cash equivalents.

Fixed-income fund managers are prohibited from investing in (i) direct real estate mortgages or commingled real estate funds, (ii) private placements above certain portfolio thresholds, (iii) tax exempt debt of state and local governments above certain portfolio thresholds, (iv) fixed income derivatives that would cause leverage, (v) guaranteed investment contracts, and (vi) Tronox securities. They are permitted to invest in debt securities issued by the U.S. government, its agencies or instrumentalities, commercial paper rated A3/P3, Federal Deposit Insurance Corporation insured certificates of deposit or bankers' acceptances and corporate debt obligations. Each fund manager's portfolio has an average credit rating of A or better.

The fair values of pension investments as of December 31, 2018 are summarized below:

<b>U.S. Qualified Plan</b>					
<b>Fair Value Measurement at December 31, 2018, Using:</b>					
	<b>Quoted Prices in Active Markets for Identical Assets (Level 1)</b>		<b>Significant Other Observable Inputs (Level 2)</b>	<b>Significant Unobservable Inputs (Level 3)</b>	<b>Total</b>
Asset category:					
Commingled Equity Funds	\$	67 <sup>(1)</sup>	\$	—	\$ 67
Equity Securities		54 <sup>(2)</sup>		—	54
Debt securities:					
Corporate		—	56 <sup>(3)</sup>	—	56
Government		61 <sup>(4)</sup>	—	—	61
Cash & cash equivalents:					
Commingled cash equivalents fund		5 <sup>(5)</sup>	—	—	5
Total at fair value	\$	187	\$	56	\$ 243

(1) For commingled equity funds owned by the funds, fair value is based on observable quoted prices on active exchanges, which are level 1 inputs.

(2) For equity securities, fair value is based on observable quoted prices on active exchanges, which are level 1 inputs.

- (3) For corporate related debt securities, the fair value is based on observable inputs of comparable market transactions, which are level 2 inputs.
- (4) For government related debt securities, the fair value is based on observable quoted prices on active exchanges, which are level 1 inputs.
- (5) For commingled cash equivalents funds, fair value is based on observable quoted prices on active exchanges, which are level 1 inputs.

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The fair values of pension investments as of December 31, 2017 are summarized below:

<b>U.S. Qualified Plan</b>				
<b>Fair Value Measurement at December 31, 2017, Using:</b>				
	<b>Quoted Prices in Active Markets for Identical Assets (Level 1)</b>	<b>Significant Other Observable Inputs (Level 2)</b>	<b>Significant Unobservable Inputs (Level 3)</b>	<b>Total</b>
Asset category:				
Commingled Equity Funds	\$ 94 <sup>(1)</sup>	\$ —	\$ —	\$ 94
Equity Securities	47 <sup>(2)</sup>	—	—	47
Debt securities:				
Corporate	—	66 <sup>(3)</sup>	—	66
Government	68 <sup>(4)</sup>	—	—	68
Cash & cash equivalents:				
Commingled cash equivalents fund	7 <sup>(5)</sup>	—	—	7
Total at fair value	\$ 216	\$ 66	\$ —	\$ 282

- (1) For commingled equity funds owned by the funds, fair value is based on observable quoted prices on active exchanges, which are level 1 inputs.
- (2) For corporate related debt securities, the fair value is based on observable inputs of comparable market transactions, which are level 2 inputs.
- (3) For government related debt securities, the fair value is based on observable quoted prices on active exchanges, which are level 1 inputs.
- (4) For commingled cash equivalents funds, fair value is based on observable quoted prices on active exchanges, which are level 1 inputs.

**Defined Contribution Plans***U.S. Savings Investment Plan*

In 2006, we established the U.S. Savings Investment Plan (the "SIP"), a qualified defined contribution plan under section 401(k) of the Internal Revenue Code. Under the SIP, our regular full-time and part-time employees contribute a portion of their earnings, and we match these contributions up to a predefined threshold. Our matching contribution is 100% of the first 6% of employee contributions. Effective January 1, 2013, we established a profit sharing contribution at 6% of employees' pay (discretionary contribution). The discretionary contribution is subject to our Board of Directors' approval each year. The Board approved discretionary contribution of 6% of pay for 2018, 2017 and 2016. Our matching contribution to the SIP vests immediately; however, our discretionary contribution is subject to vesting conditions that must be satisfied over a three-year vesting period. Contributions under the SIP, including our match, are invested in accordance with the investment options elected by plan participants. Compensation expenses associated with our matching contribution to the SIP was \$4 million, \$4 million and \$3 million during 2018, 2017 and 2016, respectively, which was included in Selling, general and administrative expenses in the Consolidated Statements of Operations. Compensation expense associated with our discretionary contribution was \$5 million in 2018, \$5 million 2017 and \$4 million in 2016, which was included in Selling, general and administrative expenses in the Consolidated Statements of Operations.

*U.S. Benefit Restoration Plan*

In 2006, we established the U.S. Benefit Restoration Plan (the "BRP"), a nonqualified defined contribution plan, for employees whose eligible compensation is expected to exceed the IRS compensation limits for qualified plans. Under the BRP, participants can contribute up to 20% of their annual compensation and incentive. Our matching contribution under the BRP is the same as the SIP. Our matching contribution under this plan vests immediately to plan participants. Contributions under the BRP, including our match, are invested in accordance with the investment options elected by plan participants. Compensation expense associated with our matching contribution to the BRP was \$1 million each during 2018, 2017 and 2016 which was included in Selling, general and administrative expenses in the Consolidated Statements of Operations.

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We had service level agreements with Exxaro for research and development that expired during the third quarter of 2017. Such service level agreements amounted to expenses of \$1 million each during 2017 and 2016 which was included in Selling general and administrative expense in the Consolidated Statements of Operations. Additionally, we had a professional service agreement with Exxaro related to the Fairbreeze construction project, which ended in January 2017. We made payments to Exxaro of less than \$1 million during 2017 and \$2 million during 2016, which were capitalized in Property, plant and equipment, net in our Consolidated Balance Sheets. At December 31, 2018 there were no related party payables and at December 31, 2017 we had less than \$1 million of related party payables, which were recorded in Accounts payable in our Consolidated Balance Sheets.

**22. Segment Information**

We operate our business under one operating segment, TiO<sub>2</sub>, which is also our reportable segment. Segment performance is evaluated based on segment operating income (loss), which represents the results of segment operations before unallocated costs, such as general corporate expenses not specifically identified to the TiO<sub>2</sub> segment, interest expense, other income (expense), net and income tax expense or benefit. We incur overhead expenses related to support services provided by senior management, finance, legal and other functions that are centralized at our corporate headquarters, as well as similar services performed at other global offices. Components of these overhead expenses are generally allocated to our TiO<sub>2</sub> segment based on either time or headcount depending on the nature of the expense. Management believes that this method of allocation is representative of the value and related services provided to our TiO<sub>2</sub> segment.

The following table provides net sales and income (loss) from operations of our TiO<sub>2</sub> segment, as well as a reconciliation of our segment income to our income (loss) from continuing operations:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
<b>Net sales (TiO<sub>2</sub>)</b>	\$ 1,819	\$ 1,698	\$ 1,309
TiO <sub>2</sub> segment operating income	\$ 323	\$ 262	\$ 5
<b>Reconciliation</b>			
TiO <sub>2</sub> segment operating income	323	\$ 262	\$ 5
Unallocated corporate expenses	(123 )	(121 )	(58 )
Interest expense	(193 )	(188 )	(185 )
Interest income	33	10	3
(Loss) gain on extinguishment of debt	(30 )	(28 )	4
Other income (expense), net	33	(22 )	(33 )
<b>Income (loss) from continuing operations before income taxes</b>	\$ 43	\$ (87 )	\$ (264 )

During 2018, 2017 and 2016 our ten largest third-party TiO<sub>2</sub> customers represented 37%, 35% and 36%, respectively, of our consolidated net sales. During 2018 and 2017, no single customer accounted for 10% of our consolidated net sales. During 2016 one customer accounted for 10% of our consolidated net sales.

Net sales to external customers based on country of production, were as follows:

	<b>Year Ended December 31,</b>		
	<b>2018</b>	<b>2017</b>	<b>2016</b>
U.S. operations	\$ 685	\$ 663	\$ 570
International operations:			
Australia	444	452	352
South Africa	444	350	200
The Netherlands	246	233	187
Total net sales	\$ 1,819	\$ 1,698	\$ 1,309



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Total assets of continuing operations were as follows:

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
TiO <sub>2</sub> segment	\$ 2,841	\$ 3,058
Corporate	1,801	1,806
Total	\$ 4,642	\$ 4,864

Property, plant and equipment, net and mineral leaseholds, net, by geographic region, were as follows:

	<b>December 31,</b>	
	<b>2018</b>	<b>2017</b>
U.S. operations	\$ 176	\$ 193
International operations:		
South Africa	782	919
Australia	802	849
The Netherlands	40	39
Total	\$ 1,800	\$ 2,000

**23. Quarterly Results of Operations (Unaudited)**

The following represents our unaudited quarterly results for the years ended December 31, 2018 and 2017. These quarterly results were prepared in conformity with generally accepted accounting principles and reflect all adjustments that are, in the opinion of management, necessary for a fair statement of the results, and were of a normal recurring nature.

Unaudited quarterly results for 2018:

	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>
Net sales	\$ 442	\$ 492	\$ 456	\$ 429
Cost of goods sold	327	348	335	311
Gross profit	115	144	121	118
Net (loss) income	(41 )	50	15	6
Net income attributable to noncontrolling interest	3	14	9	11
<b>Net (loss) income attributable to Tronox Limited<sup>(1)</sup></b>	<b>\$ (44 )</b>	<b>\$ 36</b>	<b>\$ 6</b>	<b>\$ (5 )</b>
(Loss) income per share, basic	\$ (0.36 )	\$ 0.30	\$ 0.05	\$ (0.05 )
(Loss) income per share, diluted	\$ (0.36 )	\$ 0.29	\$ 0.05	\$ (0.05 )

During the third quarter of 2018, we recorded out-of-period adjustments that should have been recorded previously that increased net income by \$3 million. After evaluating the quantitative and qualitative aspects of the (1) adjustments, we concluded the effect of this adjustment, individually and in the aggregate, was not material to our previously issued interim and annual consolidated financial statements and is not material to our 2018 consolidated financial statements.

Unaudited quarterly results for 2017:

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	<b>1<sup>st</sup> Quarter<sup>(1)</sup></b>	<b>2<sup>nd</sup> Quarter<sup>(1)</sup></b>	<b>3<sup>rd</sup> Quarter<sup>(1)</sup></b>	<b>4<sup>th</sup> Quarter</b>
Net sales	\$ 378	\$ 421	\$ 435	\$ 464
Cost of goods sold	315	326	329	339
Gross profit	63	95	106	125
Net (loss) income from continuing operations	(51 )	(16 )	(28 )	2
Net income (loss) from discontinued operations, net of tax	13	21	(213 ) <sup>(2)</sup>	—
Net (loss) income	(38 )	5	(241 )	2
Net income attributable to noncontrolling interest	3	2	6	2

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	1 <sup>st</sup> Quarter <sup>(1)</sup>	2 <sup>nd</sup> Quarter <sup>(1)</sup>	3 <sup>rd</sup> Quarter <sup>(1)</sup>	4 <sup>th</sup> Quarter
<b>Net (loss) income attributable to Tronox Limited</b>	\$ (41 )	\$ 3	\$ (247 )	\$ —
(Loss) income from continuing operations per share, basic and diluted	\$ (0.46 )	\$ (0.15 )	\$ (0.28 )	\$ —
Income (loss) from discontinued operations per share, basic and diluted	\$ 0.11	\$ 0.17	\$ (1.79 )	\$ —

During the third quarter of 2017, we completed the sale of our wholly owned subsidiary, Tronox Alkali Corporation ( Alkali ), to Genesis Energy, L.P. As part of the calculation of the loss on the sale, during the third quarter of 2017, we reclassified \$5 million of Alkali transactional expenses that we had incurred in the six months ended June 30, 2017 from continuing operations and included such amounts in the loss on sale calculation within the results of discontinued operations. Of the \$5 million transactional expenses, \$3 million had been recorded

- (1) during the first quarter of 2017 and \$2 million had been recorded during the second quarter of 2017. Although the Statement of Operations for the nine months ended September 30, 2017 was not impacted, when the results were restated in the third quarter of 2017 to present Alkali as discontinued operations for the previous periods, income from operations was overstated by the \$5 million of transactional expenses for the third quarter ended September 30, 2017. As a result, during the third quarter of 2018, we revised the results for the first, second and third quarters of 2017.

- (2) Includes a loss of \$233 million on the Alkali Sale.

**24. Subsequent Event**

On November 26, 2018, we and Exxaro entered into the Completion Agreement. The Completion Agreement provides for the orderly sale of Exxaro's remaining approximately 23% ownership interest in us during 2019, helps to facilitate the Re-Domicile Transaction, as well as addresses several legacy issues related to our 2012 Exxaro transaction.

Pursuant to the Completion Agreement, the parties agreed to accelerate the date on which we will buy from Exxaro its 26% membership interest in Tronox Sands. Tronox Sands holds intercompany loans that Exxaro held prior to our 2012 acquisition of Exxaro's mineral sands business. On February 15, 2019, we completed the redemption of Exxaro's ownership interest in Tronox Sands for consideration of approximately ZAR 2.06 billion (or approximately \$148 million) in cash, which represents Exxaro's indirect share of the loan accounts in our South African subsidiaries.

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**Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure**  
None.

**Item 9A. Controls and Procedures**  
***Evaluation of Disclosure Controls and Procedures***

As of December 31, 2018, our management, with the participation of our Chief Executive Officer ( CEO ) and Chief Financial Officer ( CFO ), has conducted an evaluation of our disclosure controls and procedures. Based on that evaluation, our CEO and CFO concluded that our disclosure controls and procedures were effective as of December 31, 2018.

***Management's Report on Internal Controls Over Financial Reporting***

Management of Tronox Limited and its subsidiaries is responsible for establishing and maintaining adequate internal controls over financial reporting. Internal controls over financial reporting is a process designed under the supervision of our principal executive and principal financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's financial statements for external purposes in accordance with U.S. generally accepted accounting principles.

Our internal controls over financial reporting include those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of the Company's management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Management assessed the effectiveness of our internal controls over financial reporting as of December 31, 2018. In making this assessment, management used the criteria in *Internal Control-Integrated Framework* (2013) set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on our assessment using those criteria, management concluded that our internal control over financial reporting as of December 31, 2018 was effective.

Because of its inherent limitations, internal controls over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2018 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which appears herein.

***Changes in Internal Control Over Financial Reporting***

There have been no changes to our internal control over financial reporting during the year ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

**Item 9B. Other Information**

As discussed elsewhere in this annual report, on September 22, 2017, (x) Tronox US Holdings Inc., a wholly owned, indirect subsidiary of the Company, the Company, and certain of the Company's other subsidiaries entered into a revolving syndicated facility agreement (the ABL Facility) with a syndicate of lenders and Wells Fargo Bank, National Association, as issuing bank, swingline lender, administrative agent, and collateral agent and (y) the Company, Tronox Finance LLC, a wholly owned, indirect subsidiary of the Company,

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and certain of the Company's other subsidiaries entered into a first lien term loan credit agreement (the Term Loan Facility) and together with the ABL Facility, the Facilities and individually, each a Facility) with a syndicate of lenders and Bank of America, N.A., as administrative agent, and collateral agent.

On February 26, 2019, the Company and certain of its subsidiaries and the other parties party thereto entered into (x) an amendment and waiver to the ABL Facility (the ABL Amendment) and (y) an amendment and waiver to the Term Loan Facility (the Term Loan Amendment) and together with the ABL Amendment, the Amendments and individually, each an Amendment).

The purpose of each Amendment was to make certain of our U.K. subsidiaries restricted subsidiaries, update the relevant indebtedness disclosure schedules to include certain inter-company indebtedness that had been in existence prior to the execution of each such Facility, and waive an administrative omission under such facility.

TABLE OF CONTENTS**PART III****Item 10. Directors, Executive Officers and Corporate Governance**

Information regarding our executive officers, members of the Board of Directors, including its audit committee and audit committee financial experts, as well as information regarding our Code of Business Conduct and Ethics that applies to our Chief Executive Officer and senior financial officers, will be presented in Tronox Limited's definitive proxy statement for its 2019 annual general meeting of shareholders, which will be filed not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, and is incorporated herein by reference.

The information required to be furnished pursuant to this item with respect to compliance with Section 16(a) of the Exchange Act will be set forth under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" in Tronox Limited's definitive proxy statement for its 2019 annual general meeting of shareholders, and is incorporated herein by reference.

**Item 11. Executive Compensation**

Information regarding executive officer and director compensation will be presented in Tronox Limited's definitive proxy statement for its 2019 annual general meeting of shareholders, filed not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, and is incorporated herein by reference.

**Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters**

Information regarding security ownership of certain beneficial owners and management and related shareholder matters will be presented in Tronox Limited's definitive proxy statement for its 2019 annual general meeting of shareholders, filed not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, and is incorporated herein by reference.

**Equity Compensation Plan Information**

The following table provides information as of December 31, 2018 regarding securities issued under the Tronox Limited Management Equity Incentive Plan (the "Tronox Limited MEIP").

	<b>Number of securities to be issued upon exercise of outstanding restricted shares, restricted share units and options</b>	<b>Weighted-average exercise price of outstanding restricted shares, restricted share units and options</b>	<b>Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in the second column)<sup>(1)</sup></b>
Equity compensation plans approved by security holders	6,737,632	\$ 14.49	7,514,969
Equity compensation plans not approved by security holders	—	—	—
<b>Total</b>	<b>6,737,632</b>	<b>\$ 14.49</b>	<b>7,514,969</b>

(1) Each restricted share unit awarded under the Tronox Limited MEIP was granted at no cost to the persons receiving them and represents the contingent right to receive the equivalent number of Class A Shares.

**Item 13. Certain Relationships and Related Transactions, and Director Independence.**

Information regarding certain relationships and related transactions and director independence will be presented in Tronox Limited's definitive proxy statement for its 2019 annual general meeting of shareholders, filed not later than

120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, and is incorporated herein by reference.

**Item 14. Principal Accounting Fees and Services.**

Information regarding principal accounting fees and services will be presented in Tronox Limited's definitive proxy statement for its 2019 annual general meeting of shareholders, filed not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, and is incorporated herein by reference.



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### **PART IV**

#### **Item 15. Exhibits, Financial Statement Schedules.**

(a) The following documents are filed as part of this Annual Report on Form 10-K:

1. Consolidated Financial Statements

Reference is made to the Index to Consolidated Financial Statements and Consolidated Financial Statement Schedules appearing at Item 8. Financial Statements and Supplementary Data in this report.

2. Consolidated Financial Statement Schedules

All financial statement schedules are omitted as they are inapplicable, or the required information has been included in the consolidated financial statements or notes thereto.

- 2.1 Amended and Restated Transaction Agreement by and among Tronox Incorporated, Tronox Limited, Concordia Acquisition Corporation, Concordia Merger Corporation, Exxaro Resources Limited, Exxaro Holdings Sands (Proprietary) Limited and Exxaro International BV, dated as of April 20, 2012 (incorporated by reference to Annex A to the proxy statement/prospectus which forms a part of the Registration Statement on Form S-4/A filed by Tronox Limited and Tronox Incorporated on May 4, 2012).
- 2.2 Stock and Asset Purchase Agreement, dated as of February 3, 2015, by and among FMC Corporation, Tronox US Holdings Inc. and Tronox Limited (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed by Tronox Limited on February 5, 2015).
- 2.3 Transaction Agreement, dated as of February 21, 2017, by and between Cristal, Tronox Limited and Cristal Inorganic Chemicals Netherlands Coöperatief W.A. (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed by Tronox Limited on February 21, 2017).
- 2.4 Amendment No. 1 to Transaction Agreement, dated as of March 1, 2018, by and among The National Titanium Dioxide Company Limited, Tronox Limited and Cristal Inorganic Chemicals Netherlands Coöperatief W.A. (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed by Tronox Limited on March 1, 2018).
- 3.1 Constitution of Tronox Limited, as amended on November 3, 2016 (incorporated by reference to Exhibit 3.1 of the Annual Report on Form 10-K for the Fiscal Year Ended December 31, 2016 filed by Tronox Limited on February 24, 2017).
- 4.1 Indenture, dated as of September 22, 2017 among Tronox Finance plc, the Company and the other guarantors named therein and Wilmington Trust, National Association, as trustee (incorporated by reference to Exhibit 4.1 of the Current Report on Form 8-K filed by Tronox Limited on September 25, 2017).
- 4.2 Indenture, dated as of April 6, 2018, among Tronox Incorporated, the Company and other guarantors named therein and Wilmington Trust, National Association, as trustee (incorporated by reference to Exhibit 4.1 of the Current Report on Form 8-K filed by Tronox Limited on April 6, 2018).
- 10.1\* Shareholders' Agreement by and between Tronox Sands Holdings PTY Limited, Tronox Limited, Exxaro Resources Limited, Exxaro Sands (Proprietary) Limited and Exxaro TSA Sands Proprietary Limited (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed by Tronox Limited on June 20, 2012).
- 10.2 Shareholder's Deed dated June 15, 2012 by and between Tronox Limited, Thomas Casey, and Exxaro Resources Limited (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed by Tronox Limited on June 20, 2012).
- 10.3\* Tronox Limited Management Equity Incentive Plan (incorporated by reference to Exhibit 10.16 of the Registration Statement on Form S-4/A filed by Tronox Limited and Tronox Incorporated on April 23, 2012).
- 10.4

Single Tenant Industrial Lease by and between Le Petomane XXVII, Inc., not individually but solely in the representative capacity as the Trustee of the Nevada Environmental Response Trust, and Tronox LLC dated February 14, 2011 (incorporated by reference to Exhibit 10.3 of the Annual Report on Form 10-K filed by Tronox Limited on February 27, 2014).

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- 10.5\* Tronox Limited Annual Performance Bonus Plan (incorporated by reference to Exhibit B of the Definitive Proxy Statement of Tronox Limited filed on Form DEF 14A on April 15, 2013).
- 10.6\* Employment Agreement entered into as of July 25, 2013 by and between Tronox LLC and Jean Francois Turgeon (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed by Tronox Limited on August 7, 2013).
- 10.7\* Amended and Restated Employment Agreement dated as of December 23, 2014 by and between Tronox LLC and John Romano (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 24, 2014).
- 10.8\* Employment Agreement dated as of June 15, 2012 by and between Tronox LLC and Willem Van Niekerk (incorporated by reference to Exhibit 10.29 of the Annual Report on Form 10-K filed by Tronox Limited on February 26, 2015).
- 10.9\* Employment Agreement Extension entered into as of July 13, 2016 by and between Tronox LLC and Jean-Francois Turgeon (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on July 15, 2016).
- 10.10\* Amendment No. 2 to Tronox Limited Management Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on September 9, 2016).
- 10.11\* Employment Agreement entered into as of October 17, 2016 by and between Tronox LLC and Timothy Carlson (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on October 17, 2016).
- 10.12\* Amendment No. 1 to Tronox Limited Management Equity Incentive Plan (incorporated by reference to Exhibit A of the Definitive Proxy Statement of Tronox Limited filed on Form DEF 14A on April 8, 2016).
- 10.13\* General form of executive officer Time-Based Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.1 to the Company's Report on Form 10-Q filed on May 4, 2017).
- 10.14\* General form of executive officer Performance-Based Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.2 to the Company's Report on Form 10-Q filed on May 4, 2017).
- 10.15\* General form of Director Grant Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.3 to the Company's Report on Form 10-Q filed on May 4, 2017).
- 10.16\* General form of Cristal Transaction Integration Synergy Savings Performance-Based Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.4 to the Company's Report on Form 10-Q filed on May 4, 2017).
- 10.17\* Stock Purchase Agreement, dated as of August 2, 2017, by and among Tronox Limited, Tronox US Holdings Inc., Tronox Alkali Corporation, and Genesis Energy, L.P. (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed by Tronox Limited on August 3, 2017).
- 10.18 Revolving Syndicated Facility Agreement, dated as of September 22, 2017 among the Company, Tronox US Holdings Inc. and certain of the Company's other subsidiaries along with a syndicate of lenders and Wells Fargo Bank, National Association, as issuing bank, swingline lender, administrative agent, and collateral agent (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed by Tronox Limited on September 25, 2017).
- 10.19 First Lien Term Loan Credit Agreement, dated as of September 22, 2017 among Tronox Finance LLC and its unrestricted subsidiary Tronox Blocked Borrower LLC, and certain of the Company's other subsidiaries, along with a syndicate of lenders and Bank of America, N.A. as administrative agent and collateral agent (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed by Tronox Limited on September 25, 2017).
- 10.20\* Employment Agreement by and between Tronox LLC and Jeffry N. Quinn (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K/A filed by Tronox Limited on November 28, 2017).

- 10.21 Exxaro Mineral Sands Transaction Completion Agreement, dated as of November 26, 2018, by and among Tronox Limited, the other Tronox Parties named therein and Exxaro Resources Limited (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K filed by Tronox Limited on November 28, 2018).

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<u>10.22</u>	Amendment Agreement to Shareholders' Agreement Relating to Tronox KZN Sands and Tronox Mineral Sands dated November 27, 2018, by and between Tronox Sands Holding PTY Limited, Tronox Limited, Exxaro Resources Limited, Tronox KZN Sands (Proprietary) Limited and Tronox Mineral Sands Proprietary Limited (filed herewith).
<u>10.23</u>	Deed of Amendment to Shareholders' Deed , dated November 27, 2018, by and between Tronox Limited and Exxaro Resources Limited (filed herewith).
<u>10.24</u>	Amendment No. 1 and Waiver to Revolving Syndicated Facility Agreement, dated as of February 26, 2019 among the Company, Tronox US Holdings Inc. and certain of the Company's other subsidiaries along with the party thereto and Wells Fargo Bank, National Association, as administrative agent (filed herewith).
<u>10.25</u>	Amendment No. 1 and Waiver to First Lien Term Loan Credit Agreement, dated as of February 26, 2019 among the Company, Tronox Finance LLC and certain of the Company's other subsidiaries, along with the lenders party thereto and Bank of America, N.A. as administrative agent (filed herewith).
<u>14.1</u>	Tronox Code of Ethics and Business Conduct, effective November 15, 2018 (filed herewith).
<u>21.1</u>	Subsidiaries of Tronox Limited.
<u>23.1</u>	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm for Tronox Limited.
<u>31.1</u>	Rule 13a-14(a) Certification of Jeffry N. Quinn.
<u>31.2</u>	Rule 13a-14(a) Certification of Timothy Carlson.
<u>32.1</u>	Section 1350 Certification for Jeffry N. Quinn.
<u>32.2</u>	Section 1350 Certification for Timothy Carlson.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

\* Indicates management contract or compensatory plan or arrangement.

**Item 16. Form 10-K Summary.**

None.

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Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 28<sup>th</sup> day of February 2019.

TRONOX LIMITED  
(Registrant)

By: /s/ Timothy Carlson  
Name: Timothy Carlson  
Title: Senior Vice President and Chief  
Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Jeffry N. Quinn Jeffry N. Quinn	President, Chief Executive Officer and Director (Principal Executive Officer)	February 28, 2019
/s/ Timothy Carlson Timothy Carlson	Senior Vice President, Chief Financial Officer and Director (Principal Financial Officer)	February 28, 2019
/s/ Robert Loughran Robert Loughran	Vice President, Corporate Controller (Principal Accounting Officer)	February 28, 2019
/s/ Ilan Kaufthal Ilan Kaufthal	Non-executive Chairman of the Board	February 28, 2019
/s/ Daniel Blue Daniel Blue	Director	February 28, 2019
/s/ Mxolisi Mgojo Mxolisi Mgojo	Director	February 28, 2019
/s/ Andrew P. Hines Andrew P. Hines	Director	February 28, 2019
/s/ Wayne A. Hinman Wayne A. Hinman	Director	February 28, 2019

/s/ Peter Johnston  
Peter Johnston

Director

February 28, 2019

/s/ Sipho Nkosi  
Sipho Nkosi

Director

February 28, 2019

/s/ Ginger M. Jones  
Ginger M. Jones

Director

February 28, 2019