

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, 2022

OR

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 HOLDINGS PLC

(Exact name of registrant as specified in its charter)

England and Wales

98-1467236

(State or other jurisdiction of incorporation or organization)

(I.R.S. Employer Identification No.)

263 Tresser Boulevard, Suite 1100
Stamford, Connecticut 06901

Laporte Road, Stallingborough
Grimsby, North East Lincolnshire, DN40 2PR
United Kingdom

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

Ordinary Shares, par value \$0.01 per share

New York Stock Exchange

Trading Symbol: TROX

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

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

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 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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

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, 2022 was approximately \$1,963,135,524.

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, 2023, the registrant had 154,496,923 ordinary shares outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's proxy statement for its 2022 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.



TRONOX HOLDINGS PLC
ANNUAL REPORT ON FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2022
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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 risk that our customers might reduce demand for our products;
- market conditions and price volatility for titanium dioxide (“TiO₂”), zircon and other feedstock products, as well as global and regional economic downturns, that adversely affect the demand for our end-use products;
- the possibility that Chinese production of chloride technology, improvements in product quality and expansion of their TiO₂ production capacity, including via chloride technology, may occur more quickly than anticipated;
- changes in prices or supply availability of energy or other raw materials;
- liability, production delays and additional expenses from environmental and industrial accidents;
- production curtailments, shutdowns or additional expenditures resulting from equipment upgrades, industrial accidents, equipment failures and deterioration of assets;
- the possibility that cybersecurity incidents or other security breaches may seriously impact our results of operations and financial condition;
- risks of operating a global business;
- political and social instability, and unrest, in the regions in which we operate, including the European Union, South Africa and the Middle East region;
- fluctuations in currency exchange rates;
- the risk 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 returns or there may be a delay in realizing expected returns on our capital projects, including Project newTRON and our Atlas Campaspe mining investment;
- 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 and Energy to the Mining Charter (as defined elsewhere herein);

- the risk that our TiO₂ products are subject to increased regulatory scrutiny that may impede or inhibit widespread usage of TiO₂ and/or diminish the Company's ability to sustain or grow its business or may add significant costs of doing business;
- ESG issues, including those related to climate change and sustainability, may subject us to additional costs and restrictions;
- extreme weather conditions could pose physical risks to our facilities and disrupt the operations of our supply chain and increase operational costs;
- the risk that our ability to use our tax attributes to offset future income may be limited;
- concentrated share ownership in the hands of Cristal may result in conflicts of interest and/or prevent minority shareholders from influencing the Company;
- the risk that we are dependent on, and compete with other mining and chemical businesses for, key human resources in the countries in which we operate; and
- impact of English law and our articles of association on our ability to manage our capital structure flexibly and the anti-takeover protections incorporated into our articles of association.

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.

PART I

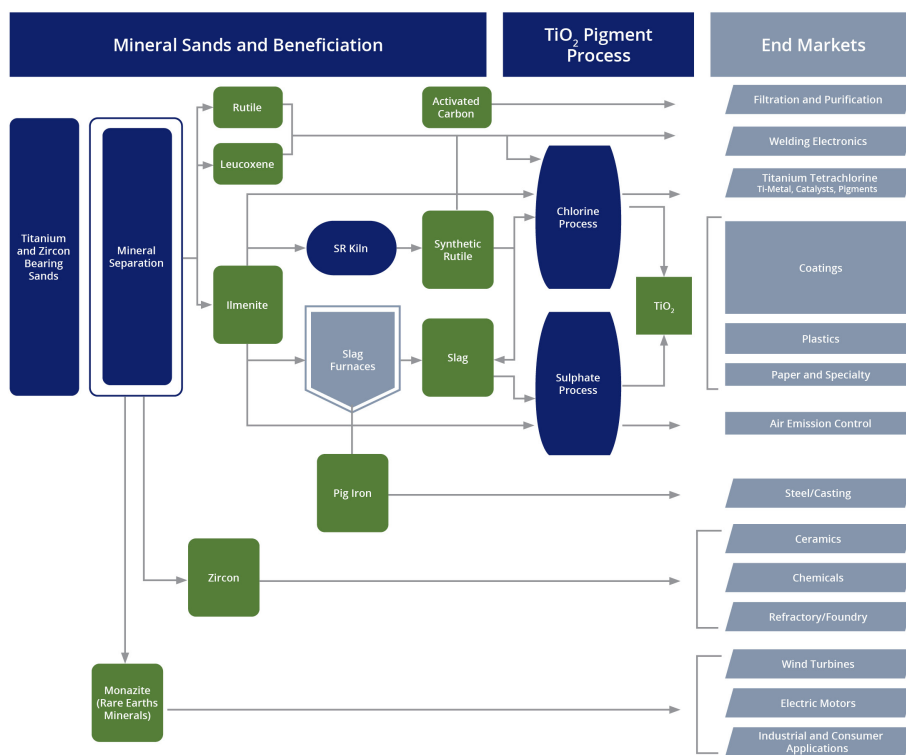
For the purposes of this discussion, references to “we,” “us,” and, “our” refer to Tronox Holdings plc, together with its consolidated subsidiaries (collectively referred to as “Tronox” or the “Company”). We are a public limited company formed under the laws of England and Wales. We are considered a domestic company in the United Kingdom and, as such, are required to comply with filing requirements in the United Kingdom. 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”).

Item 1. Business

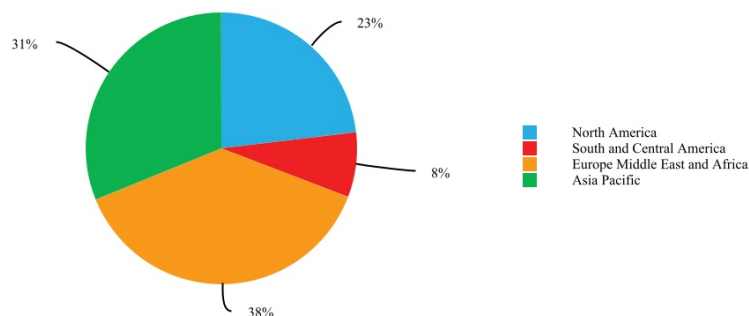
Overview

Tronox is the world’s leading vertically integrated manufacturer of TiO₂ pigment. We operate titanium-bearing mineral sand mines and beneficiation and smelting operations in Australia and South Africa to produce feedstock materials that can be processed into TiO₂ for pigment, high purity titanium chemicals, including titanium tetrachloride, and ultrafine TiO₂ used in certain specialty applications. Our strategy is to be vertically integrated and produce enough feedstock materials to be as self-sufficient as possible in the production of TiO₂ at our 9 pigment facilities located in the United States, Australia, Brazil, UK, France, the Netherlands, China and the Kingdom of Saudi Arabia (“KSA”). We believe that vertical integration is the best way to achieve our ultimate goal of delivering low cost, high-quality pigment to our approximately 1,200 TiO₂ customers throughout the world. The mining, beneficiation and smelting of titanium bearing mineral sands also creates meaningful quantities of co-products including zircon, pig iron and the rare-earth bearing mineral, monazite, which we also supply to customers around the world.

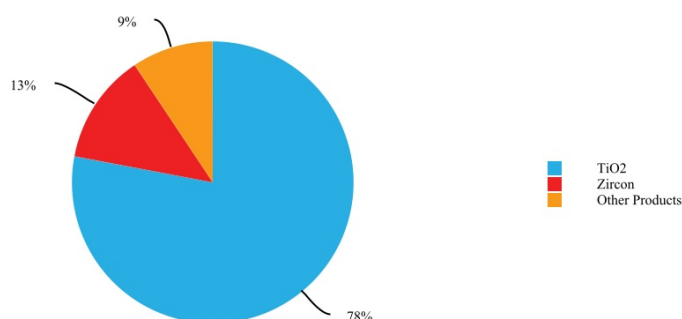
The following chart highlights the TiO₂ value chain we participate in.



The following sets forth the percentage of our revenue derived from sales of our products by geographic region for the year ended December 31, 2022.



The below sets forth the percentage of our revenue derived from sales of our products for the year ended December 31, 2022.



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.

2022 Key Strategic Initiatives

The following sets forth the key strategic initiatives underway in 2022:

Become the Low Cost TiO₂ Producer by Investing in our Business Processes and Strengthening Vertical Integration

Our ability to compete effectively in the TiO₂ industry is determined by many factors, including innovation, reliability, product quality, customer service and price. The business processes that allow us to maximize the benefit of our vertical integration and global footprint --- the so-called “hidden factory” --- needs to be optimized if we are to successfully meet the pricing and other competitive pressures that characterize our industry. One of the largest investment projects that we continued to pursue in 2022 to improve our global business processes is what we call “Project newTRON”, a multi-year IT-enabled transformation program that includes both operational and business transformation.

In terms of strengthening vertical integration, in 2022, we have progressed the construction of a new significant mine in Eastern Australia called Atlas Campaspe. Atlas Campaspe is intended to replace feedstock supply from our Snapper / Ginkgo mines in Eastern Australia which are largely depleted. Our pre-mining feasibility work indicates that Atlas Campaspe is abundant

in natural rutile and high-value zircon, and will be a significant source of high grade ilmenite suitable for direct use, synthetic rutile production, or slag processing. In addition, in 2022, we invested in expanding our Fairbreeze and Namakwa mines in South Africa. Like Atlas Campaspe, we believe these expansions are extremely attractive mine development projects, rich in ilmenite, rutile and zircon that are expected to replace existing mines which would otherwise deplete in early 2024. We have numerous other mine development projects in earlier stages of development in Western Australia and on the Eastern and Western Capes of South Africa, all of which are intended to maintain or expand our level of feedstock vertical integration.

Our vertical integration strategy may also benefit from the titanium slag smelter facility (the “Slagger”) located in The Jazan City for Primary and Downstream Industries in KSA currently owned and operated by Advanced Smelting Industries Co. Ltd. (“ASIC”), an indirect, wholly-owned subsidiary of Tasnee and Cristal. Under the terms of a May 2018 Option Agreement between Tronox and Advanced Metals Industries Cluster Company Limited (“AMIC”), the direct shareholder of ASIC, we are required to purchase 100% of the feedstock material produced at the Slagger, a significant portion of which we consume at our TiO₂ pigment facility in Yanbu, Saudi Arabia. In addition, pursuant to the Option Agreement, AMIC granted us an option (the “Option”) to acquire 90% of ASIC. The Option may be exercised if the Slagger achieves certain production criteria related to sustained quality and tonnage of slag produced. The Option Agreement expires in May 2023.

Capital Allocation

In 2022, we continued to generate sufficient cash to return cash to shareholders in the form of dividends and share repurchases. During 2022, we paid a total of \$87 million to shareholders in the form of dividends and repurchased approximately \$50 million in shares. We also continued to strengthen our balance sheet. From the end of 2021 to the end of 2022, our annual interest expense decreased from \$157 million to \$125 million, and our outstanding indebtedness decreased from \$2.6 billion to \$2.5 billion.

Develop Our Position as a Significant Supplier of Rare Earth Oxides

Tronox’s existing mining operations and tailing piles in South Africa and Australia contain significant quantities of monazite, a mineral containing rare earth elements (REEs) widely recognized as a critical mineral for the energy transformation underway to decarbonize the world’s economy. For these applications, REE must first be processed into an oxide form --- rare earth oxides or “REO” --- that can then be metallized for the production of permanent magnets. Every step of the REE supply chain today is dominated by China. China’s dominance of the processing of REO and production of permanent magnets is widely recognized as a serious strategic challenge by democratic governments around the world.

The separation, beneficiation and processing technologies that Tronox uses to turn titanium-bearing ores into TiO₂ are applicable for turning monazite into REO. In the past, we sold our monazite in unconcentrated form as a waste product but given the increased value associated with REE, we are now seeking to maximize the value of our existing geologic resources and deploy our substantial technical know how and human capital to become a significant supplier of REO to non-Chinese producers of metals and permanent magnets.

Our Principal Products

TiO₂

TiO₂ Pigment

TiO₂ pigment is used in a wide range of products due to its ability to impart whiteness, brightness, and opacity. TiO₂ 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. TiO₂ pigment is considered to be a quality of life product. At present, it is our belief that there is no effective substitute for TiO₂ pigment because no other white pigment has the physical properties for achieving comparable opacity and brightness or can be incorporated as cost effectively.

Ultrafine Specialty TiO₂

We produce ultrafine TiO₂ at our manufacturing facility in Thann, France. We market ultrafine TiO₂ products under the CristalActiv® trademark. Ultrafine TiO₂ has highly catalytic properties due to the relatively high surface area of each TiO₂ molecule. The principal use of ultrafine TiO₂ products is in NOx emission control products utilized in stationary, mobile and marine applications.

In 2022, we generated \$2.7 billion in revenue from sales of TiO₂.

Zircon

Zircon ($ZrSiO_4$) is a co-product of mining mineral sands deposits for titanium feedstock. Zircon is 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 adds 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 we mine, but has a relatively high 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 2022, we generated \$438 million in revenue from sales of zircon.

Other Products

High Purity Pig Iron

During the process of smelting ilmenite at our smelters to increase the concentration of titanium and produce titanium 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 engine blocks, brake calipers and steering knuckles in cars and trucks.

Monazite

Like zircon, monazite is a co-product of mining mineral sands deposits for titanium feedstock. Monazite is concentrated and processed to remove contaminants, such as uranium and thorium, before being separated into specific rare earth oxides (REOs) such as neodymium (Nd), praseodymium (Pr), terbium (Tb), and dysprosium (Dy). These REOs can then be metallized and formed into permanent magnets, particularly NdFeB magnets, that are needed to manufacture electric vehicle motors, wind turbines and other green economy applications.

Feedstock

Most TiO_2 products are derived from three naturally occurring minerals which are commonly referred to as heavy minerals or mineral sands: ilmenite, leucoxene and rutile. Ilmenite, rutile, leucoxene, as well as titanium slag and synthetic rutile which are processed from ilmenite, are the primary feedstock materials that we use for the production of TiO_2 pigment. Titanium slag is produced by smelting ilmenite in an electric arc furnace to separate titanium-oxide from the iron and other impurities. Synthetic rutile is produced by reducing ilmenite in a rotary kiln, followed by leaching under various conditions to remove the metallic iron from the reduced ilmenite grains. The purpose of both processes is to increase the titanium concentration of the ilmenite. There is substantial overlap amongst each of the aforementioned with the primary differentiating factor being the level of titanium content. For instance, rutile has the highest titanium dioxide content of approximately 94% to 96%, while ilmenite has the lowest of approximately 45% to 65%. As a result of our continued pursuit of our vertical integration strategy, we currently do not expect to actively sell feedstock going forward.

Titanium Tetrachloride

We sell titanium tetrachloride (" $TiCl_4$ ") from our facilities in Thann, France and Yanbu, KSA. At our Thann facility in France, we produce $TiCl_4$ dedicated for sale to customers for use mainly in the production of various types of pigments and catalyst products. At our Yanbu facility, we produce excess $TiCl_4$ which we sell directly to a joint venture between Advanced Metal Industries Cluster and Toho Titanium Metal Co. Ltd. ("ATTM") for use at a titanium sponge plant facility that is adjacent to our Yanbu facility.

In 2022, we generated \$323 million in revenue from the sale of high purity pig iron, monazite, titanium tetrachloride and other products. This amount also includes revenue generated from the 8120 paper laminate grade to Venator Materials plc ("Venator"). In 2019, as part of the Cristal transaction and in order to obtain approval by regulators in the European Union, we sold the 8120 paper laminate grade to Venator and entered into a three-year transitional supply agreement which terminated in April 2022. Revenue from 8120 paper laminate grade sales to Venator are included within Other products until the expiration date of the supply agreement with Venator.

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 current operational 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;
- 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;
- 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;
- Eastern Australia operations consisting of the Ginkgo mine, a floating heavy mineral concentration plant located there, the Atlas mine and a heavy mineral concentration plant located there and a mineral separation plant located at Broken Hill, New South Wales;
- Perth Basin operations in Western Australia consisting of the Wonnerup mine and a mineral separation plant; and
- Our Paraiba, Brazil mining operations ceased during 2020 in line with our life of mine plan; however, we believe there is enough feedstock to supply the Brazil pigment plant through 2023.

Zircon and monazite are often, but not always, found in mineral sands deposits containing ilmenite. They are extracted, alongside ilmenite and rutile, as part of the initial mineral sands separation process.

The mining of mineral sands deposits is conducted either “wet,” by dredging or hydraulic water jets, or “dry,” by 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 after the mineral sands have been mined 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 (rutile, zircon and monazite) and magnetic (ilmenite) fractions utilizing a variety of techniques. Through the separation process, we produce zircon which is sold directly to customers, rutile and leucoxene which can immediately be used as feedstock material to make TiO₂ pigment, and monazite which we currently sell in a relatively unconcentrated form but which we plan on further processing before sale to extract greater value.

Ilmenite is generally further refined for use in our TiO₂ 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 TiO₂ feedstock material, and 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. Activated carbon is a byproduct of this process. Our synthetic rutile has a titanium dioxide content of approximately 89% to 92% and is also considered a TiO₂ feedstock material.

Our current mining and beneficiation operations have an annual production capacity of approximately 832,000 metric tons (“MT”) of titanium feedstock, which is comprised of 182,000 MT of rutile and leucoxene, 240,000 MT of synthetic rutile and 410,000 MT of titanium slag. We currently have the capability to produce approximately 297,000 MT of zircon and 250,000 MT of pig iron per year.

Competitive Conditions of Mining and Feedstock Production

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 feedstock typically utilized by TiO₂ producers.

Pigment producers procure a range of types of feedstocks from multiple feedstock producers to create varying blends of feedstock materials that maximize the efficiency and economic returns of their unique production technique under conditions applicable at the time of production. Pigment producers frequently switch the relative amount of each feedstock they procure based on a number of factors including: the relative cost of feedstocks, feedstock logistics costs, the cost of, and availability of, chemicals used to process feedstocks, as well as waste management costs. Hence, there is a high degree of substitutability between and among titanium feedstocks.

Production of TiO₂ Pigment

TiO₂ 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 (collectively known as finishing). Currently, approximately 87% of our TiO₂ pigment production capacity is produced using the chloride process and approximately 13% of our TiO₂ production capacity is produced using the sulfate process.

We use the sulfate process at our manufacturing facility in Thann, France to produce ultrafine TiO₂ products.

In the chloride process, feedstock (slag, synthetic rutile, natural rutile or ilmenite ores) are reacted with chlorine (the chlorination step) and carbon to form TiCl₄ in a continuous fluid bed reactor. Purification of TiCl₄ to remove impurities is accomplished using selective condensation and distillation processes. The purified TiCl₄ 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. Due to the nature of the production process, the final pigment product is not sensitive to the feedstocks used to create it, as substantially all substances other than TiO₂ are removed during the process. The chloride process currently accounts for substantially all of the industry-wide TiO₂ production capacity in North America, and approximately 44% of industry-wide capacity globally.

In the sulfate process, ilmenite and/or slag are dissolved in concentrated sulfuric acid. After removing impurities, dissolved titanium is hydrolyzed and separated from the remaining sulfuric acid. The titanium hydrolysate is subsequently calcined in a rotary kiln to produce a raw TiO₂. The product is then further finished in a similar way to TiO₂ produced through the chloride process.

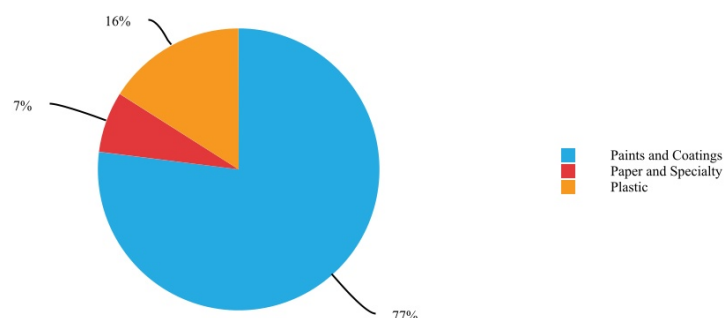
Commercial production of TiO₂ pigment results in one of two different crystal forms: rutile, which is manufactured using either the chloride process or the sulfate process, or anatase, which is only produced using the sulfate process. Rutile TiO₂ is preferred over anatase TiO₂ for many of the largest 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.

The primary raw materials used in the production of chloride TiO₂ 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 TiO₂ 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 of TiO₂

We supply and market TiO₂ under the brand name TIONA® and CristalActiv® to approximately 1,200 customers in approximately 120 countries, including market leaders in each of the key end-use markets for TiO₂, and we have supplied each of our top ten customers with TiO₂ for more than 10 years. We have implemented a margin stabilization program which we believe provides relative certainty over availability of product and price stability to customers who choose to participate, and have also initiated a long-term partnership strategy that we believe will strengthen the commitments from our customers across all regions and products. The long-term partnership strategy and margin stabilization programs are key parts of our TiO₂ marketing and sales strategy, enabling us to focus on predictability and reliability of TiO₂ delivery across the supply and demand cycle.

The following sets forth the percentage of our TiO₂ sales volume by end-use market for the year ended December 31, 2022:



In addition to price and product quality, we compete on the basis of technical support and customer service. We sell our products through both a direct sales force and third-party agents and distributors. Our direct sales, marketing and technical service organizations execute our sales and marketing strategy on a global basis. Due to the technical requirements of TiO₂ 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 aligning ourselves with customers growing faster than the market and effective customer management through the development and maintenance of strong relationships. We develop customer relationships and manage customer contact across multiple contact points within the organization including our sales, technical service and marketing, research and development, and customer service teams. These primary points of contact are supplemented by direct contact with plant operations personnel, supply chain specialists, and senior management. We believe that multiple points of customer contact facilitate efficient problem solving, supply chain support, formula optimization and co-development of products.

Competitive Conditions of TiO₂ Pigment

The global market in which our TiO₂ pigment business operates is highly competitive. Competition is based on a number of factors such as price, product quality and service. We face competition from both chloride process pigment producers and sulfate process pigment producers. 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, LB Group, Kronos Worldwide Inc., INEOS, and Venator. 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. The majority of scientists supporting our TiO₂ pigment product development and testing are located in Oklahoma City, Oklahoma, USA and Stallingborough, UK, while the majority of scientists supporting our TiO₂ ultrafine specialty business are located in Thann, France. In addition, the research and development personnel relating to our mineral sands operations are located in Australia and South Africa. Our research and development initiatives for concentration and separation of REOs is centered in Perth, Australia.

New process developments are focused on increased throughput, efficiency gains and general processing-related improvements for our customers. Ongoing development of process technology contributes to cost reduction, enhanced production flexibility, increased capacity, and improved consistency of product quality. Process technology research also pertains to concentration and separation of monazite into neodymium (Nd), praseodymium (Pr), terbium (Tb), and dysprosium (Dy), the types of REOs that are most in demand for EV and wind turbine applications.

Product development activities in paints and coatings were focused on product stewardship and sustainability improvements of the product line. In order to enhance production flexibility, technology transfer activities were focused on the décor paper segment in Europe, upgrading our sulfate offering from our Fuzhou facility, and further harmonizing the product line at Yanbu TiO₂ production facility with other sites. Specialty product development in plastics is expected to drive further growth in this segment in the coming years. In line with Tronox's sustainability goals, the process and product development teams are collaborating on more sustainable, lower carbon footprint technologies for all end use segments. With regard to our TiO₂ ultrafine specialty business, research and development activities are focused on a broad array of areas including direct lithium extraction, carbon direct air capture and developing more effective catalysts for use in selective catalytic reduction.

Patents, Trademarks, Trade Secrets and Other Intellectual Property Rights

Protection of our proprietary intellectual property is important to our business. At December 31, 2022, we held 99 patents and 5 patent applications in the U.S., and approximately 625 in foreign counterparts, including both issued patents and pending patent applications. Our U.S. patents have expiration dates ranging through 2039. Additionally, we have 11 trademark registrations in the U.S., as well as 280 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—If our intellectual property were compromised or copied by competitors, or if competitors were to develop similar intellectual property, our results of operations could be negatively affected. Further, third parties may claim that we infringe on their intellectual property rights which could result in costly litigation."

Human Capital

Tronox employs approximately 6,500 people across six continents, and we believe it is our rich diversity and exceptional operational and technical expertise that, combined with our vertical integration model, position Tronox as the world's leading vertically integrated manufacturer of titanium dioxide pigment. Recognizing the importance of our human capital, we have made People, Culture and Capabilities one of our five strategic pillars, and placed a priority around developing leaders who will help us effectively (i) acquire, develop and nurture our talent, and (ii) foster a culture that embodies the values that are important to us, starting with safety and operating our business responsibly.

People

Because we operate both titanium ore mines and titanium dioxide pigment plants, and because our operations span the world, we require specialty skills in mining and TiO₂ pigment manufacturing. We also need people who are willing to learn skills across both mining and chemicals operations and who can help us extract value from our integrated model. The below map sets forth the approximate number of employees as of December 31, 2022, in each of the global regions in which we operate.



Accordingly, we place a high priority on knowledge transfer (including by relocating skilled leaders across countries and between mining and TiO₂ pigment operations, by staffing high-potential employees in regions on global projects, and by enabling collaboration in global centers of excellence), and we place a high priority on fostering diversity, equity and inclusion. We are committed to creating an organization where leaders encourage a diverse workforce, where people feel valued and respected, have access to opportunities, and in which a variety of different voices are encouraged and heard. For instance, during 2022, we created and launched an educational series dedicated to Diversity and Inclusion (D&I). This educational series utilized by our employees discussing topics such as bias, micro-inequities, and Tronox's role in supporting D&I. In addition, in 2022, our D&I regional chapters implemented initiatives that reflected our focus on D&I. For instance, we believe a significant achievement was the uniform initiative which provided means by which employees have access to work uniforms that are more inclusive.

We also place an uncompromising focus on operating safe, reliable, and responsible facilities, and we measure our progress with both safety metrics and leading indicators. We believe every employee and contractor has a responsibility for safety, and we proactively identify and manage risk, conduct ourselves responsibly, exercise good judgement, and take accountability for our actions. In 2022, our employees worked more than 12 million hours with 22 recordable injuries and no fatalities from our operations, and our contractors worked more than 9 million hours with 20 recordable injuries and no fatalities from our operations.

Culture

We aim to create an organizational culture where employees unleash their full value through living our values, and fostering a high-performance culture. We apply an "outward mindset" by which we mean that each employee should be highly aware of the organization's goals and how his or her individual actions affect the entire organization.

Nearly all of our employees have been through training and development courses which instill the principles of working with an outward mindset. The consistent training and reinforcement of the importance of acting with an outward mindset has enabled us to transform our culture. We believe this cultural transformation is reflected in our results, starting with safety: our people truly care for one another, and not only other employees, but also our contractors, visitors and communities. Shaped by an outward mindset, our people have embraced our global diversity and are naturally inclusive.

Today, we are a collaborative group of people who naturally want to be helpful to others, and we adjust our own efforts to make our colleagues' work easier, however we can.

Building on the foundation of applying an outward mindset, we have adopted a set of core values that describes our expectations of one another, starting with safety. Every performance review starts with a self-assessment and manager's assessment of our consistency in living our values. Employees are encouraged – and provided a toolkit – to develop in the values where they are weak, and to help coach others in the values where they are strong.

Tronox Core Values

- We have an uncompromising focus on operating safe, reliable and responsible facilities.
- We honor our responsibility to create value for stakeholders.
- We treat others with respect, and act with personal and organizational integrity.

- We build our organization with diverse, talented people who make a positive difference and we invest in their success.
- We are adaptable, decisive and effective.
- We are trustworthy and reliable, and we build mutually rewarding relationships.
- We share accountability, and have high expectations for ourselves and one another.
- We do the right work the right way in every aspect of our business.
- We celebrate the joy of working together to accomplish great things.

Capabilities

At Tronox we lead with safety. To ensure we live this value with impact, a key focus of our strategy is to enhance the leadership capabilities of our workforce. In 2021, we launched a program in which approximately 100 of our leaders were trained in contemporary safety leadership practices. Further in 2022, an additional 350 supervisors and managers across all of our operating regions completed this hands-on leadership training. In 2023, we intend to provide such training to more of our regional leaders as well as continuing to educate the broader workforce.

In addition, our employees are further guided by our code of conduct and business ethics and we conduct annual global training to help them fully understand and comply with our code of conduct.

We also have a rigorous succession planning process with respect to key positions throughout the organization. We believe such process allows us to proactively develop the talent of the future and allows us to move with speed and agility when leadership changes are required. As part of the succession planning process, high potential leaders are identified and development plans are completed for each candidate.

Sustainability

Our business requires an unwavering focus on sustainable operating practices, and our commitment to sustainability supports our overall vision and strategy to be the world's leading vertically integrated TiO₂ producer. As such, we integrate sustainability into every aspect of our business—from our culture and our strategy to our operating practices. We believe sustainable operations enable us to better control costs and manage our environmental footprint. Sustainability also encompasses providing our employees with a safe, diverse workplace and offering them opportunities to grow and develop. Ultimately, safe, environmentally sustainable operations demonstrates our respect for our communities and supports our continued privilege to operate.

Our sustainability efforts are also focused on reducing Tronox's carbon footprint. In 2022 we updated our carbon reduction roadmap first disclosed in 2021 that details our plans for reducing carbon emissions in the short-, medium- and long-term. Our roadmap covers 100% of our operations and is based on a detailed analysis of our carbon footprint and ways to reduce it. The roadmap is supported by well-resourced projects and initiatives. The majority of our GHG emissions are generated from our TiO₂ slag furnaces in South Africa, synthetic rutile kiln in Western Australia, and TiO₂ pigment plants in the United States, United Kingdom, France, Brazil, China, Netherlands, Australia, and Saudi Arabia.

Based on actions taken in 2021 and 2022, we are now targeting a 35% reduction in emissions intensity by 2025 and a 50% reduction in emissions intensity by 2030. It is our long-term goal to achieve "net zero" carbon emissions by 2050.

In 2023, we received a Gold Rating by EcoVadis in recognition of our sustainability efforts. This Gold Rating places Tronox in the Top 5% of the 85,000 companies evaluated around the world by EcoVadis on their sustainability performance. The EcoVadis assessment focuses on four themes: the environment, labor and human rights, ethics, and sustainable procurement.

EcoVadis is a leading third-party independent assessment organization that evaluates companies' sustainability performance. Their methodology is based on international sustainability standards including the Global Reporting Initiative (GRI), United Nations Global Compact (UNGC) and ISO 26000.

Environmental, Health and Safety Authorizations

Mining

Our facilities and operations are subject to extensive general and industry-specific environmental, health and safety regulations in jurisdictions where we operate, but particularly 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

Each Australian state and territory has its own legislation regulating the exploration for and mining of minerals. Our key exploration and mining operations are regulated by the Mining Act 1978 (WA), the Mining Act 1992 (NSW) and their related regulations.

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 the development of certain of our Western Australian operations is the agreement authorized by the Mineral Sands (Cooljarloo) Mining and Processing Agreement Act 1988 (WA). This agreement concluded in March 2020 and Tronox's rights and obligations are now covered by the Western Australian Mining Act.

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 require chemical substances which are newly imported or manufactured in the EU to be registered before being placed on the market, assessed for human health or environmental risk and for registrations to be updated periodically such as when new information emerges relevant to human health or environmental risks associated with the production or use of the substance. For additional information on this topic, see section entitled “Risk Factors - Risks Relating to our Legal and Regulatory Environment - Our TiO₂ products are subject to increased regulatory scrutiny that may impede or inhibit widespread usage of TiO₂ and / or diminish the Company's ability to sustain or grow its business or may add significant costs of doing business.”

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 jurisdictions requiring such managing and reporting of GHGs, primarily the European Union and Australia. For additional information on this topic, see section entitled “Risk Factors – Risks Relating to our Legal and Regulatory Environment - ESG issues, including those related to climate change and sustainability, may subject us to additional costs and restrictions, including increased energy and raw material costs, which could have an adverse effect on our business, financial condition and results of operations, as well as damage our reputation.”

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 on Form 10-K unless expressly noted. We make available, free of charge, 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>. The content of the SEC's internet site is available for informational 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 on Form 10-K unless expressly noted.

Item 1A. Risk Factors

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 and 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 and 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 and results of operations.

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, thus, negatively impacting our financial results.

Our revenue and results of operations are significantly dependent on sales of TiO₂ products and zircon. Demand for these products historically have 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 TiO₂ products comes from manufacturers of paint and plastics. A significant portion of the demand for zircon comes from the construction and other industrial end markets. Our customers 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, with respect to the zircon market, we believe that China currently accounts for approximately 50% of the world's demand for zircon. As such, any prolonged downturn in China could have a material adverse effect on our business and financial results.

The price of our products, in particular, TiO₂, zircon, and pig iron, 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 TiO₂, zircon and pig iron have been volatile, and those markets are likely to remain volatile in the future. Prices for TiO₂, zircon and pig iron 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 particularly in the paint, plastics and construction industries;
- the level of production and exports of our products globally, including the impact of competitors increasing their capacity and exports;
- the level of production and cost of materials, such as chlorine, sulfuric acid and anthracite, used to produce our products, including rising prices of raw materials due to inflation;
- the cost of energy consumed in the production of TiO₂ and zircon, including the price of natural gas, electricity and pet coke;
- domestic and foreign governmental relations, tariffs or other trade disputes, regulations and taxes;
- political conditions or hostilities and unrest in regions where we manufacture and/or export our TiO₂, zircon and feedstock/other products; and
- major public health issues, such as COVID-19, which could cause, among other things, macroeconomic disruptions.

Pricing pressure with respect to our TiO₂ products, zircon and pig iron 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 TiO₂ industry is based on a number of factors such as price, product quality, and service. We face significant competition from major international and smaller regional competitors, especially producers in China. Chinese producers have significantly expanded their production capacity in recent years and have also commenced the commercial production of TiO₂ via chloride technology. In addition, Chinese producers have publicly announced their intention to continue to expand their TiO₂ production capacity, including via chloride technology. The risk of substitution from these Chinese producers by our customers could increase as these Chinese producers expand their use of chloride technology, improve the quality of their 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, 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 our customers could switch to our competitors' products in response to any number of developments including lower price offerings by our competitors for substantially the same products, new product development by competitors, increased commercial production of TiO₂ via chloride technology by Chinese producers, greater acceptance of TiO₂ produced via sulfate technology in end-market applications previously characterized by TiO₂ produced via chloride technology, or with respect to zircon customers, switching to lower priced substitute products. Our inability to develop, produce or market our products to compete effectively against our competitors 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 and 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. Fuel and energy linked to commodities, such as diesel, natural gas, heavy fuel oil and pet coke, and other consumables, such as chlorine, sulfuric acid, illuminating paraffin, electrodes, sulfur and anthracite, consumed in our TiO₂ manufacturing and mining operations form an important part of our TiO₂ 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 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. Moreover, the ongoing Russia and Ukraine conflict has resulted in, and may continue to result in, increased uncertainty with respect to the supply of energy and other energy-dependent commodities for our TiO₂ production facilities located in the European Union and the United Kingdom, as well as other raw materials, such as anthracite, for our slag furnaces located in South Africa. Increased costs of electricity and disruptions in the supply of electricity due to long-standing operational issues at the sole, state-owned energy supplier in the Republic of South Africa, Eskom, could increase the costs of production, or disrupt operations, at our mines and beneficiation operations in that country. Availability of such consumables could also be impacted by transportation capacity constraints or other interruptions. These fluctuations could negatively affect our operating margins, our results of operations or planned capital expenditures. As the costs of raw materials, utilities, transportation and similar costs rise,

our operating expenses will increase and could adversely affect our business, especially if we are unable to pass price increases relating to raw materials, utilities, transportation and similar costs through to our customers.

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

Historically, the demand for our products is subject to seasonal fluctuations. TiO₂ is widely used in paint and other coatings where demand increases prior to the painting season in the Northern Hemisphere (spring and summer). 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 TiO₂.

We are dependent on, and 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 or deploy highly skilled employees.

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 may cost us in terms of higher labor costs or reduced productivity. In addition, certain of our production facilities and mining operations are situated in remote locations which may make it more difficult to attract and retain the skilled workers required. As a result, we may not be able to attract, retain and deploy skilled and experienced employees. Should we lose any of our key personnel or fail to attract, retain and deploy key qualified personnel or other skilled employees, our business may be harmed and our operational results and financial condition could be affected.

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

Our business is exposed to, among other things, industrial accidents the occurrence of which could delay production, suspend operations, increase repair, maintenance or medical costs and, due to the vertical integration of our operations, 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 industrial accident, the relevant facility may not be restored to full operations within the anticipated timeframe, which could result in further business losses. Over our operating history, we have incurred incidents of this nature. For instance, in 2022, we experienced a fire at the mineral separation facility at our KZN operations in South Africa which impacted our financial results. If any of the equipment on which we depend were severely damaged or were destroyed by fire 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 and results of operations.

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

Our operations depend upon critical equipment that must be periodically maintained and upgraded in order to avoid suffering unanticipated breakdowns or failures. The occurrence of equipment failures or deterioration of assets could delay production, suspend operations, increase repair, maintenance or medical costs and, due to the vertical integration of our operations, could have an adverse effect on the productivity and results of operations of a particular manufacturing facility or on our business as a whole. 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 to manage our business including, but not limited to, 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, during the normal course of business, we have been the target of cyberattacks, including phishing or ransomware attacks, from time to time, and we expect to be the target of such cyberattacks in the future. For instance, the Cristal business we acquired in April 2019 was subject to a significant cybersecurity attack in 2017. 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 training and security measures designed to protect against cyberattacks, phishing, security breaches and misappropriation or corruption of our systems, intentional or unintentional disclosure of confidential information, 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 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 in accordance with established guidelines and standards. 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.

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, we may revise these estimates in the future as we become aware of new developments. To maintain TiO₂ 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 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 financial condition and results of operations could be adversely affected if we are unable to gauge the direction of commercial and technological progress in key end-use markets or if we fail to fund and successfully develop, manufacture and market products in such changing end-use markets.

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 TiO₂ or zircon content in consumer products which in turn could depress the demand and pricing for TiO₂ 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.

RISKS RELATING TO THE GLOBAL NATURE OF OUR BUSINESS

We are exposed to the risks of operating a global business.

We have operations in jurisdictions around the globe which subjects us 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 our ability to capitalize on opportunities;
- major public health issues, such as COVID-19, which could cause, and have caused, disruptions in our operations or workforce;
- war, political conditions, hostilities, including, but not limited to, the ongoing Russia and Ukraine conflict, 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, including as a result of climate-related events.

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 significant 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. Eskom has not been able to reliably provide electrical power and as a result “load-shedding” (planned and unplanned rolling power outages) is expected for the foreseeable future. In addition, in 2021, Eskom received a governmental order to reduce by one-third its operating capacity to limit its greenhouse gas emissions. Although Eskom is currently appealing the government order, there is no assurance that Eskom will be successful in its appeal. We have also experienced increased electricity prices and future price increases are expected to occur. Capacity reductions, load shedding, and/or electricity price increases could have a material adverse effect on our business, financial conditions and results of operations.

Our operations in South Africa are reliant on services provided by the State-owned, sole provider of rail transport, Transnet Freight Rail and ocean transport, Transnet National Port Authority (collectively “Transnet”). Furthermore, Transnet provides extensive dockside services at both the ports of Richards Bay and Saldanha Bay from where we export bulk quantities of TiO₂ feedstock to our pigment plants worldwide and pig iron. Like Eskom, Transnet faces chronic operational and financial challenges. In 2021, Port of Richards Bay, which is owned and operated by Transnet, was impacted by two separate events, including a significant fire, which damaged part of the Port’s infrastructure, causing increased shipment delays. Such shipment delays at the port of Richards Bay continued in 2022, and we believe such delays may continue in 2023 and beyond. 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.

In addition, our KZN Sands operations currently use approximately 340,000 gigajoules of Sasol gas, which is available only from Sasol Limited. As such, an interruption in the supply of Sasol gas could have a material adverse effect on our business, financial conditions and results of operations.

In addition, 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. Changes to water-use licenses could increase our costs of operations thereby affecting our operational results and financial condition.

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 and results of operations.

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

South Africa continues to undergo political, social and economic challenges. For example, in 2021, unprecedented and politically motivated civil unrest in South Africa resulted in significant damage to the national supply chains and logistics. The

primary area of unrest was near to our KZN operations. Changes to, or instability in, the economic, social or political environment in South Africa which cause civil unrest, shortages of production materials, interruptions to transportation networks, or labor unrest could result in production delays and production shortfalls, and materially impact our production and results of operations.

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 2019, 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. In the event that the land on which the Namakwa Sands and KZN Sands operations are situated areas become the subject of a land claim under any such proposed or future land expropriation bill, it may have a material adverse effect on our business, financial condition and results of operations.

The South African government'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.

Our South African operations have been affected by inflation in South Africa in recent years. Employment 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 and results of operations.

Our South African operations have entered into various collective agreements with organized labor regulating wages and working conditions at our mines and smelter operations. There have been periods when various stakeholders have been unable to agree on dispute resolution processes, leading to threats of disruptive industrial action disputes. 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.

In addition, although we believe that our relationships with our various local communities are good, the areas in which our South African operations are situated are the traditional homelands of various tribal groupings that are historically politically volatile. This volatility persists today and frequently results in violent, destructive behaviors. Increased volatility and any consequential civil unrest may result in production stoppages and/or the destruction of assets which comprise our South African operations, any of which could have a material adverse effect on our business, financial condition and results of operations.

Political and social instability, and unrest, and actual, or potential, armed conflicts in the Middle East region may affect the Company's results of operations and financial position.

Our operations in KSA have been affected in the past, and may be affected in the future, by political, social and economic conditions from time to time prevailing in, or affecting, KSA or the wider Middle East region, including by rocket attacks from armed rebel groups. For example, since 2011, a number of countries in the Middle East region have witnessed significant social unrest, including widespread public demonstrations, and, in certain cases, armed conflict, terrorist attacks, diplomatic disputes, foreign military intervention and a change of government. In addition, KSA faces a number of challenges arising mainly from the relatively high levels of unemployment among the Saudi youth population, requests for political and social changes, and the security threat posed by certain groups. Should KSA experience similar political and social unrest as found in other countries in the Middle East, the Saudi Arabian economy could be adversely affected, our TiO₂ plant located in Yanbu could be temporarily disrupted or materially adversely affected and our business and operating results could be materially adversely affected.

In addition, the Slagger, that is subject to the Option or Put (as defined elsewhere herein), is located in Jazan, KSA near the border between KSA and Yemen which has been subject to rocket attacks from armed rebel groups fighting the KSA military in Yemen. Further attacks could materially adversely affect our business and operating results.

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, Euros, Pound Sterling and Brazilian Real and then converted into U.S. dollars at the applicable exchange rate for inclusion in the financial statements. A significant portion of our costs are denominated in currencies other than the U.S. dollar. 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. 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.

RISKS RELATING TO OUR DEBT AND CAPITAL STRUCTURE

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 company level. 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 the payment of funds by our operating companies in the form of dividends or otherwise. The ability of our operating companies 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 many of other risks described in this section entitled “Risk Factors”.

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, 2022, our total principal amount of debt was approximately \$2.5 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 may 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.

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, for a variety of purposes, including (i) replacement of mines that are end of life, (ii) expansion or optimization of existing production facilities or mining operations, (iii) ongoing research and development activities, (iv) business development opportunities in rare earth or other critical minerals, and (v) general working capital needs. For instance, in 2020 we began the implementation of a multi-year global digital transformation, known as Project newTRON, that includes the acquisition and implementation of new operational and financial systems, technology and processes, including a global ERP system. The implementation of our digital transformation involves numerous risks, including (i) new information and operational technologies and systems not being properly designed, integrated, managed and implemented or a

delay in such implementation, (ii) diversion of management's attention away from normal daily business operations, (iii) significant or material weaknesses in our financial controls or delays in timely reporting our results of operations, and (iv) initial dependence on unfamiliar systems while training personnel to use new systems. Such risks could significantly increase the program's costs, cause us to fail to achieve the anticipated benefits from the program, and negatively impact our operations, including, our plant's system safety, functionality and effectiveness. Although we have taken, and will continue to take, significant steps to mitigate the potential negative impact of the implementation of such new digital systems, there can be no assurance that these procedures will be completely successful.

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 will be contributed together with \$322 million of indebtedness currently held by AMIC. Upon exercise of the Option or Put, there can be no assurance that we may assume this indebtedness and may need to obtain funding to repay it at maturity. In the event we require any additional financing, such 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.

RISKS RELATING TO OUR LEGAL AND REGULATORY ENVIRONMENT

Our South African mining rights are subject to onerous regulatory requirements imposed by legislation and the Department of Mineral Resources and Energy (the "DMRE"), the compliance with 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, certain of our operations are required to be partially owned by historically disadvantaged South Africans --- known as "empowerment" --- and comply with other provisions of applicable BEE legislation that relate to matters such as mandatory procurement and employment opportunities for the communities in which we operate. On March 1, 2019, a new set of BEE rules and regulations relevant to our operation came into effect known as "Mining Charter III". Under the "empowerment" rules of Mining Charter III, certain of our operations require 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 more stringent requirements applicable to all of our South African operations, including: the procurement of goods and services from BEE compliant entities; race, age and gender based employment quotas; and, workers' housing and living conditions. Uncertainty over the status of Mining Charter III arose when in September 2021, the South African High Court ruled that certain provisions of Mining Charter III were unconstitutional and that Mining Charter III cannot be considered binding legislation. Although the DMRE determined not to appeal such ruling, there is no assurance that all the provisions of Mining Charter III will take effect or that the DMRE as result of such ruling will not attempt to enforce the same or more onerous provisions through legislative amendments.

Prior to Mining Charter III, BEE in the South African mining sector was governed by Mining Charter II. Under Mining Charter II, our South African operations were "empowered" by a 26% ownership interest in two of our South African subsidiaries by Exxaro Resources Limited ("Exxaro") which prior to 2017 was greater than 50% owned by historically disadvantaged South Africans. We believe that under Mining Charter III the two South African subsidiaries in which Exxaro previously held 26% became permanently "empowered" --- so-called, "once empowered always empowered".

"Once empowered always empowered" means 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 for purposes of the retention of an existing mining right for the duration of that right. 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 DMRE. The South African High Court decided in the affirmative for the Minerals Council and such decision was subsequently confirmed on appeal. Thus, based on the High Court's ruling, the "once empowered always empowered" principle applies to our existing mining rights. In addition, the South African High Court in connection with its September 2021 decision with respect to the unconstitutionality of Mining Charter III also confirmed that "once empowered always empowered" applies to the renewal and transfer of mining rights. However, there is no assurance that DMRE may not enact new legislation that would undermine the court's ruling regarding the applicability of "once

empowered always empowered" to the renewal and transfer of mining rights. In the event that "once empowered always empowered" does not ultimately apply to the renewal or transfer of mining rights it could have a material adverse effect on our business, financial condition and 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.

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 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 negatively impact 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 relevant jurisdictional laws in which we operate, 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, including operating without the required permits, mining licenses or leases and/or mining rights. 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, waste handling and management, exchange control restrictions, environmental remediation, mineral rights, ownership of mining 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.

Our TiO₂ products are subject to increased regulatory scrutiny, that may impede or inhibit widespread usage of TiO₂ and / or diminish the Company's ability to sustain or grow its business or may add significant costs of doing business.

Current regulatory and societal demands for increased protection against products which may cause cancer, genetic mutations or other long-term health problems are resulting in increased pressure for more stringent regulation of our TiO₂ products. We expect these trends to continue and the ultimate cost of compliance could be material. In particular, changes to product safety regulations could limit the use of, and demand for, our TiO₂ products, require investment in new product development or the way we manufacture our existing products, and increase regulatory compliance expenditures for us and our suppliers.

For instance, in 2020, the European Commission adopted a regulation classifying certain forms of TiO₂ with a particular aerodynamic diameter as a Category 2 carcinogen by inhalation. However, in November 2022, the European Court of Justice annulled the European Commission's classification of TiO₂ as a carcinogen primarily on the basis that there was no evidence that TiO₂ may cause cancer when inhaled. As of the date hereof, the European Commission has not appealed such decision. In the event that the European Commission appeals the ruling and its ultimately successful, the classification of TiO₂ as a Category 2 Carcinogen could impact our business by inhibiting the marketing of products containing TiO₂ to consumers, and subject our manufacturing operations to new regulations that could increase costs. In addition, notwithstanding the European Court of Justice decision, the proposed Category 2 classification and labelling requirements 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. For instance, the Health and Safety Executive in the U.K. has published the U.K.'s mandatory classification and labelling list, which includes the classification of TiO₂ as a suspected carcinogen (in a powder form containing 1% or more of particles with aerodynamic diameter ≤ 10 µm). The classification became mandatory in the U.K. in October 2021.

In May 2021, the European Food Safety Authority (EFSA) announced new guidelines which concluded that a certain digestible form of TiO₂ known as E171 is no longer considered safe as a food additive due to uncertainty for genotoxicity. Though we do not manufacture E171, the EFSA guidelines indicate additional regulatory review of our TiO₂ products is likely which could result in more stringent qualifications and use-restriction being applied or to the introduction of further classifications. It is also possible that heightened regulatory scrutiny could lead to claims by consumers or those involved in the production of such products alleging adverse health impacts. In addition, there is no assurance that other materials which we add to our TiO₂ products could also be subject to increased regulation which could impact the cost of labelling or the sales of our products. For instance, certain of our plastic grades are used in food contact materials and in October 2022, the European Commission launched a public consultation aiming to revise the European Union regulations on food contact materials. While the outcome of such consultation remains uncertain, any additional regulatory requirements on the use of food contact materials ultimately imposed by the European Commission could have a material adverse effect on our business, financial condition and results of operations.

ESG issues, including those related to climate change and sustainability, may subject us to additional costs and restrictions, including increased energy and raw material costs, which could have an adverse effect on our business, financial condition and results of operations, as well as damage our reputation.

Climate change resulting from increased concentrations of carbon dioxide and other greenhouse gases in the atmosphere could present risks to our present and future operations from natural disasters and extreme weather conditions, such as flooding, hurricanes, earthquakes and wildfires. Such extreme weather conditions could pose physical risks to our facilities and disrupt the operation of our supply chain, increase operational costs and have a material adverse effect on our business and results of operations. In addition, if any of the equipment on which we depend were severely damaged or were destroyed by environmental hazards 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. For instance, in the fourth quarter of 2022, the region of New South Wales, Australia where our Ginkgo and Atlas Campaspe mining operations are located experienced historic flooding which has resulted in, among other things, a delay in the commissioning of our new Atlas Campaspe mine as well as prevented feedstock mined at such sites from being transported to our Australian pigment plants in a timely manner. Such flooding had an adverse effect on our business, financial condition and results of operations in 2022 and we believe will also have an impact to our 2023 financial results. Moreover, the impacts of climate change on global water resources may result in water scarcity, which could impact our ability to access sufficient quantities of water in certain locations and result in increased costs. For instance, we use significant amounts of water in our South Africa operations. 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 and results of operations.

The majority of our greenhouse gas emissions are generated from our TiO₂ slag furnaces in South Africa, synthetic rutile kiln in Australia, and TiO₂ pigment plants in the United States, United Kingdom, France, Brazil, China, Netherlands, Australia, and Saudi Arabia. Concerns about the relationship between greenhouse gases and global climate change, and an increased focus on carbon neutrality, may result in new or increased legal and regulatory requirements on both national and supranational levels, to monitor, regulate, control and tax emissions of carbon dioxide and other greenhouse gases. A number of governmental bodies have already introduced, or are contemplating, regulatory changes in response to climate change, including regulating greenhouse gas emissions. Any laws or regulations that are adopted to reduce emissions of greenhouse gases could, among other things, (i) cause an increase to our raw material costs, (ii) increase our costs to operate and maintain our facilities including potentially causing the operation or maintenance of certain sites to be uneconomical, and (iii) increase costs to administer and manage emissions programs.

In addition, companies across all industries are facing increasing scrutiny relating to their ESG policies. Increased focus and activism related to ESG may hinder the Company's access to capital, as investors may reconsider their capital investment as a result of their assessment of the Company's ESG practices. In particular, customers, investors and other stakeholders are increasingly focusing on environmental issues, including climate change, water use, and other sustainability concerns. Moreover, increased regulatory requirements, including in relation to various aspects of ESG including disclosure requirements, may result in increased compliance or input costs of energy, raw materials or compliance with emissions standards, which may cause disruptions in the manufacture of our products or an increase in operating costs. Any failure to achieve our ESG goals or a perception of our failure to act responsibly with respect to the environment or to effectively respond to new, or changes in, legal or regulatory requirements concerning environmental or other ESG matters, or increased operating or manufacturing costs due to increased regulation, could adversely affect our business, financial condition and results of operations, as well as our reputation.

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. Further, third parties may claim that we infringe on their intellectual property rights which could result in costly litigation.

Our success depends to a significant degree upon our ability to protect and preserve our patents and unpatented proprietary technology, operational knowledge and other trade secrets (collectively "intellectual property rights"). 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. 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.

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.

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. See Note 18 of notes to our consolidated financial statements, included elsewhere in this Form 10-K for further information regarding our commitments and contingencies.

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.

The vast 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. Moreover, many of our workforce outside the U.S. belong to unions and/or are represented by a collective bargaining agreement. As such, in such jurisdictions 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.

RISKS RELATING TO ACCOUNTING AND TAXATION

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 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.

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

Our ability to use net operating losses (“NOLs”) and Section 163(j) interest expense carryforwards generated by us could be substantially limited if we were to experience an “ownership change” as defined under Section 382 of the U.S. Internal Revenue Code of 1986, as amended (“the Code”). In general, an ownership change would occur if our “5-percent shareholders,” as defined under Section 382 of the Code and 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. Although we believe we have sufficient protection of our approximately \$4.3 billion of NOLs and/or approximately \$769 million 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 certain pre-ownership change losses and/or credits. Such a limitation could, for any given year, have the effect of increasing the amount of our U.S. federal and/or state 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 could be subject to changes in tax rates, adoption of new tax laws or additional tax liabilities.

We are subject to taxation in all of the jurisdictions in which we operate. 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 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.

Failure to meet some or all of our key financial and non-financial targets could negatively impact the value of our business and adversely affect our stock price.

From time to time, we may announce certain key financial and non-financial targets that are expected to serve as benchmarks for our performance for a given time period, such as, projections for our future revenue growth, Adjusted EBITDA, Adjusted diluted earnings per share and free cash flow. Our failure to meet one or more of these key financial targets may negatively impact our results of operations, stock price, and shareholder returns. The factors influencing our ability to meet these key financial targets include, but are not limited to, changes in the global economic environment relating to our TiO₂ products and zircon, changes in our competitive landscape, including our relationships with new or existing customers, our ability to introduce new products, applications, or technologies, our inability to complete strategic projects on budget or on schedule, our undertaking an acquisition, joint venture, or other strategic arrangement, and other factors described within this Item 1A – Risk Factors, many of which are beyond our control.

RISKS RELATING TO INVESTING IN OUR ORDINARY SHARES

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

As of December 31, 2022, Cristal Inorganic, an affiliate of Cristal owned approximately 24% of our outstanding ordinary shares. As such, Cristal Inorganic 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 may not always coincide with our interests or the interests of our other shareholders. Also, Cristal Inorganic may seek to cause us to take courses of action that, in their judgment, could enhance their 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 (the “Cristal Shareholders Agreement”) we entered into at the closing of the Cristal transaction with Cristal, as long as Cristal Inorganic and the three shareholders of Cristal (collectively, the “Cristal Shareholders”) collectively beneficially own at least 24,900,000 or more of our ordinary shares, they have the right to designate for nomination two directors of our board of directors (the “Board”). As long as the Cristal Shareholders collectively beneficially own at least 12,450,000 ordinary shares but less than 24,900,000 ordinary shares, they have the right to designate for nomination one director of the Board. The Cristal Shareholders Agreement also provides that as long as the Cristal Shareholders collectively beneficially own at least 12,450,000 ordinary shares they have certain preemptive rights. Also, pursuant to the Cristal Shareholders Agreement, we have filed a universal shelf registration statement which is currently effective and which would cover shares owned by Cristal.

As a result of these or other factors, including as a result of any 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.

English law and provisions in our articles of association 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.

Certain provisions of the U.K. Companies Act 2006 (the “Companies Act”) and our articles of association may have the effect of delaying or preventing a change in control of us or changes in our management. For example, our articles of association 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.

Although we do not anticipate 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.

The U.K. City Code on Takeovers and Mergers (the “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 (the “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 currently all of the members of our Board of Directors reside outside the United Kingdom, we do not anticipate that we will be subject to the Takeover Code. However, if at the time of a takeover offer, 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 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.

As a public limited company incorporated in England and Wales, certain capital structure decisions requires approval of our 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 specifying 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 obtained previous shareholder authority 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 obtained previous shareholder authority 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 obtained previous shareholder authority 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).

Transfers of our ordinary shares 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 our shares.

Except for ordinary shares received by a holder deemed to be an affiliate of us for purposes of U.S. securities laws, our ordinary shares have been 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, including to certificate shares, 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 our books. 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.

We have put arrangements in place such that 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.

Our articles of association provide that the courts of England and Wales have exclusive jurisdiction to determine any dispute brought by a shareholder in that shareholder's capacity as such and certain other matters.

Our articles of association provide that the courts of England and Wales 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 us or seeking relief on our behalf, against us 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 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 us or our directors, former directors, officers, employees or shareholders which may discourage lawsuits against us and our directors, former directors, officers, employees or shareholders.

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

We are incorporated under the laws of England and Wales and a substantial portion of our assets are located outside of the U.S. 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

None.

Item 2. Properties

Below are our primary offices and facilities at December 31, 2022. We believe our properties are in good operating condition, and are well maintained. Pursuant to separate financing agreements, substantially all 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:

<u>Location</u>	<u>Owned/Leased</u>	<u>Offices</u>
Stamford, Connecticut	Leased	263 Tresser Boulevard, Suite 1100
Stallingborough, United Kingdom	Owned	Laporte Road
Oklahoma City, Oklahoma	Owned	3301 NW 150 Street

Overview of Our Vertical Integration

Tronox is the world's leading vertically integrated manufacturer of TiO₂ pigment. We produce the majority of our internal TiO₂ pigment feedstock requirements internally at our mine and mineral processing facilities. Our supply chain consists of mining operations in South Africa and Australia, separation and upgrading facilities located near our mines where we separate and process raw ore and then "upgrade" the titanium content of the raw ore to produce specialized chloride TiO₂ feedstock materials (titanium slag and synthetic rutile) and nine TiO₂ pigment production facilities located on six continents. The internal TiO₂ feedstocks we produce include titanium slag, synthetic rutile, natural rutile, leucoxene, chloride ilmenite and sulfate ilmenite.

As part of our TiO₂ value chain, we explore, acquire, mine and process heavy mineral sands to produce Heavy Mineral Concentrate ("HMC") from which the Valuable Heavy Mineral (VHM) titanium and zircon products are made. HMC is produced from heavy mineral sands primarily through spiral gravity concentration at our mines. Mined material is transported to our nearby integrated mineral separation plants (MSP) to separate and concentrate VHMs by gravity, magnetic and electrostatic techniques. Multiple grades of titanium minerals and zircon may be produced from each MSP. The three titanium feedstocks which result from the MSP process (natural rutile, leucoxene and ilmenite) are each handled differently. Natural rutile and leucoxene are ordinarily shipped from the MSP to one of our TiO₂ pigment production facilities. Depending on the TiO₂ content of mined ilmenite, we either use it directly to produce TiO₂ pigment or we upgrade it to produce titanium slag at our two South African smelter operations and synthetic rutile (SR) at our Chandala metallurgical complex in Western Australia. Our internally sourced titanium mineral products provide a secure, long-term low-cost supply of high-grade feedstock for our TiO₂ pigment manufacturing facilities.

There is a high degree of substitutability among natural rutile, synthetic rutile, titanium slag, leucoxene and chloride ilmenite as titanium feedstocks for chloride pigment production. The commercial value of titanium feedstock is a function not only of TiO₂ content and supply and demand balances, but also particle size, trace element geochemistry, logistics and other factors. The global TiO₂ industry is a value-added supply chain, with final product prices for TiO₂ pigment, typically significantly higher than that of chloride or sulfate ilmenite, the backbone of the global titanium mineral supply. The revenue assumptions for titanium feedstocks we applied to determine our reserve estimates, as described below, are based on market intelligence gathered from internal and external experts, sales contracts and historic pricing. The economic assessment is done on a minerals only basis and no value of downstream upgrading is attributed to the minerals units.

In 2022, we produced concentrates of ilmenite, rutile, leucoxene, and zircon from five operations:

- Namakwa Sands, Western Cape, South Africa;
- KwaZulu-Natal (“KZN”) Sands, KwaZulu-Natal, South Africa;
- Northern Operations, Western Australia;
- Southern Operations, Western Australia; and
- Eastern Operations, Murray Basin, New South Wales, Australia.

Ilmenite from our Namakwa and KZN Sands mines in South Africa is converted to titanium slag at our smelters at Saldanha Bay, Western Cape and Empangeni, KwaZulu-Natal, respectively. Ilmenite from our Cooljarloo mine in Western Australia is converted to SR at our Chandala metallurgical complex which is most commonly used as feedstock to our TiO₂ pigment plants at Kwinana and Kemerton, both of which are south of Perth in Western Australia.

Mining Operations

Tronox owns and operates six mining and mineral processing operations, each including one or more heavy mineral sand (“HMS”) mines producing HMC which is separated into valuable co-products, primarily zircon, and TiO₂ feedstocks --- ilmenite, natural rutile or leucoxene --- in a dedicated mineral separation plant.

In South Africa, the Namakwa Sands operations include two open-pit mines at Brand-se-Baai, each with a dedicated primary gravity concentration plant and a secondary concentration plant (SCP) that processes the HMC from both primary plants. Products from the SCP are further processed to finished mineral products at a nearby mineral separation plant (MSP) in Koekenaap. Ilmenite product is further processed into titanium slag and pig iron at a two-furnace smelter at Saldanha, Western Cape, South Africa which is two hundred kilometers south of Koekenaap. The KZN operations have an open pit hydraulic mine at Fairbreeze with a primary gravity concentration plant, a mineral separation plant at nearby Empangeni alongside a two-furnace smelter complex, and export facilities at the port of Richards Bay.

In Australia, the Northern Operations consist of the Cooljarloo dredge mine and floating primary gravity concentration plant, and the Chandala metallurgical complex, consisting of a mineral separation plant and SR plant. The Southern Operations consist of a dry open pit mine and primary concentration at Wonnerup and a mineral separation plant at Bunbury.

The Eastern Operations in the Murray Basin of Australia includes one operating dredge mine at Ginkgo which is supplemented by a dry open pit mine at Crayfish, a dry open pit mine at Atlas Campaspe and a mineral separation plant at Broken Hill, NSW. The Snapper mine ceased production in April 2022 after 12 years of production. The Ginkgo and Crayfish mines are expected to be mined until early 2024. During 2022, commissioning of the Atlas Campaspe mine continued and we expect will ramp up to full production in early 2023. The Atlas Campaspe mine is abundant in natural rutile and high value zircon and will be a significant source of high-grade ilmenite suitable for direct use or upgraded feedstock production.



Figure 1 Showing global site and offices including locations with resources and reserves.

Pigment Operations

Our pigment production facilities utilize the titanium mineral feedstock from our mining and processing operations to produce TiO₂ pigment products. The following table lists our TiO₂ pigment production facilities and capacity (in metric tonnes per year), by location:

Facility	Production	TiO ₂ Capacity	Process
Hamilton, Mississippi, USA	TiO ₂	225,000	Chloride
Yanbu, Saudi Arabia	TiO ₂	200,000	Chloride
Stallingborough, England, United Kingdom	TiO ₂	165,000	Chloride
Kwinana, Western Australia	TiO ₂	150,000	Chloride
Kemerton, Western Australia	TiO ₂	110,000	Chloride
Botlek, the Netherlands	TiO ₂	90,000	Chloride
Salvador, Bahia, Brazil	TiO ₂	60,000	Sulphate
Fuzhou, Jiangxi Province, China	TiO ₂	46,000	Sulphate
Thann, Alsace, France	TiO ₂	32,000	Sulphate

Mineral Properties

Reporting of Reserves and Resources

U.S. registrants are required to report resources and reserves in accordance with the amendments finalized in February 2019 to Item 102 of Regulation S-K (Subpart 1300). These amendments were intended to modernize the disclosure requirements for properties owned or operated by mining companies to provide investors with a more comprehensive understanding of a registrant’s mining properties.

Our mineral resource and reserve estimates are based on extensive geological resource models modified by various mining and processing factors and assessed in a techno-economic model for commercial viability. This constitutes a Life-of-Mine-Plan

(LOMP) for each operation. Our LOMP and reserve estimates are optimized with respect to anticipated revenues and costs. Assumptions are developed from our extensive experience and include mining parameters, processing recoveries, operating costs, 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 ore boundaries based on economic assumptions. To satisfy the disclosure rules the nominal cut-off grades used to define resources are, generally: 0.3% zircon at Namakwa Sands; 1.5% ilmenite at KZN Sands; 1.0% Total Heavy Minerals (“THM”) at our Northern Operations, Western Australia, 3% THM at our Southern Operations, Western Australia, and 1% THM at our Eastern Operations, Murray Basin, Australia. Actual cut-off grades applied in estimates can vary according to numerous factors, such as mining method, overburden: ore ratios, and heavy mineral (“HM”) assemblage quality. For reserves where there is substantial asset investment post the minerals production stage, parameters that best utilize the whole value chain may take precedence over maximizing value from the minerals business unit, therefore impacting the optimal mining shell and effective cut-off grade.

Not all HMS deposits are alike. Our reserves, as set forth in the table below, have a higher confidence level because we have undertaken sufficient drilling density and validation. Resources present unconfirmed continuity and variability in grade, HM assemblage, or other characteristics, as well as the indeterminate impact of modifying factors, and hence are not classified as reserves.

Within the broad category of resources, inferred resources have a lower level of geological confidence than do indicated resources with measured resources being the highest confidence level from a geological perspective. Only indicated resources and measured resources can be converted to reserves with proven reserves having a higher level of economically exploitable confidence than probable reserves. The summary table of our reserves below have been determined to be economically-exploitable by individuals competent and qualified to act under the new disclosure requirements as “Qualified Persons”.

Mining and Mineral Tenure

S-K Subpart 1300 requires us to describe our rights to access and mine the minerals we report as 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 South African Department of Mineral Resources, the Western Australia Department of Mines, Industry Regulation and Safety and the New South Wales Department of Planning, Industry and Environment. All exploration and mining activities are subject to multiple levels of environmental regulatory review, including approvals of environmental plans and public comment periods as pre-conditions to granting of mineral tenure.

Mineral Tenure - South Africa

Our two South African mineral sand mining processing chains are operated by Namakwa Sands and KZN Sands, both indirect, wholly-owned subsidiaries of Tronox Holdings plc. The South African Department of Mineral Resources and Energy (“DMRE”) is the regulatory administrator of mineral rights in South Africa, subject to the provisions of the Mineral and Petroleum Resources Development Act (“MPRDA”), No. 28 of 2004, as amended in 2016. 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 and mining rights may only be granted by the DMRE. Prospecting rights are granted for a maximum period of five years and can be renewed once for an extension of up to three years. Prospecting rights may be revoked for non-compliance with the terms of the prospecting right.

Mining right applications require additional 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, subject to compliance with conditions established in the EMP and by the MPRDA. Environmental permitting and compliance are co-administered by the regional offices of DEA and Development Planning. All rights, licenses and permits for Namakwa Sands and KZN Sands are in good standing.

On the Western Cape of South Africa, Tronox holds mining rights over an area of 19,205 hectares (47,457 acres) and surface rights totaling 17,111 hectares (43,542 acres) at the active mining site near Brand-se-Baai, commonly referred to as our Namakwa Sands operation. On the Eastern coast of South Africa, Tronox controls mining and prospecting rights covering approximately 4,041 hectares (9,986 acres) at KZN, where surface access rights are either owned directly by KZN Sands or secured by agreements with Mondi Ltd. A further 4,790 hectares (11,836 acres) of prospecting rights are held by a direct, wholly-owned subsidiary of KZN Sands at the nearby Port Durnford and Waterloo project areas which we are currently in the process of converting into a mining right.

Mineral Tenure - Australia

Our Australian mineral properties are divided into the Northern and Southern Operations on the Swan Coastal Plain of Western Australia and the Eastern Operations in the Murray Basin of New South Wales and Victoria. Mining tenements in Australia are managed at the State or Territorial level. In Western Australia, Mining Leases, Exploration Licenses and Retention Licenses are granted and administered by the Western Australian Department of Mines, Industry Regulation and Safety, and in New South Wales by the NSW Department of Planning, Industry and Environment, under the authority of the Western Australian Mining Act 1978 and the New South Wales Mining Act 1992, respectively. Principal environmental authorities are the Western Australian Department of Water and Environmental Regulation and the NSW Environment Protection Authority.

At the Northern Operations in Western Australia, Tronox controls mining leases, exploration and other licenses and rights covering a total 50,838 hectares (125,623 acres). Mining and Public Environmental Review plans are approved for the Cooljarloo mine and approval to extend the environmental plans for Dongara were recently approved. Environmental Protection Agency approval of Cooljarloo West has also been approved. The main Cooljarloo deposit covers 9,744 hectares (24,078 acres). We hold 14 mining leases at the Dongara project. Three older mining leases are held at our Jurien property, the site of a former heavy minerals open pit mine operated by another party in the 1970's.

Tronox holds mining and exploration licenses totaling 533,500 hectares (1,318,307 acres) in the South Perth Basin and Murray Basin heavy mineral provinces of Australia.

The Southern Operations in the southwest of Western Australia comprises 29 mining leases, 3 exploration licenses, 3 retention licenses, 2 general purpose leases and 2 miscellaneous licenses totaling 9,100 hectares.

Tronox holds 5 mining leases, 16 exploration licenses and 2 retention licenses in our Eastern Operations in the Murray Basin of New South Wales, Victoria and South Australia. The tenements cover approximately 524,400 hectares (2,025 sq miles). Three mining leases west of Pooncarie, NSW cover approximately 6,720 hectares (16,605 acres) surrounding our active mines at Ginkgo, Crayfish and rehabilitation site at Snapper. One mining lease of 2,330 hectares is at the Atlas Campaspe mining project in NSW.

Mineral Sands - South Africa and Australia

HMS deposits are natural concentrations of granular minerals of high density (conventionally above about 2.85 gm/cm³). Titanium-rich HMS deposit source rocks are typically granitic and/or high-grade metamorphic crystalline rocks. The heavy mineral assemblage of a particular HMS deposit generally reflects the ilmenite, leucoxene, natural rutile and zircon contained in local and regional source rocks. Factors that influence the formation of HMS deposits include erosion of crystalline source rocks, fluvial transport to the coastline, longshore drift, coastal geomorphology, deposition of heavy minerals, and prolonged natural sorting of heavy minerals by water and wind, according to the density, size and shape of HM grains. Post-depositional geological processes that can affect the economic viability of a HMS deposit include in situ weathering, induration of the host sands, and natural preservation or destruction of the HMS deposit.

Not all heavy minerals have commercial value, and a distinction is made between the Total Heavy Minerals ("THM") and Valuable Heavy Minerals ("VHM"). Typical VHM assemblages include the titanium-iron oxide mineral, ilmenite (FeTiO₃); rutile, a premium TiO₂ feedstock mineral; leucoxene, a natural alteration product of weathered ilmenite; and zircon, a zirconium silicate (ZrSiO₄) valuable for its use in a diverse range of industrial and construction applications. Other HM of commercial value, such as garnet, staurolite, kyanite and monazite, may be recovered as by-products.

Of interest recently is the potential use of monazite, both in contained ore bodies and in stockpiled sources located near the mineral separation processes at Namakwa Sands. Monazite has increasing commercial value due to a high concentration of rare earth metals which can be separated by well-established methods. Rare earths are expected to remain in high demand as demand grows for electric vehicles, wind turbines, and consumer goods that require rare earth-containing permanent magnets. We currently do not know the metallurgical recovery potential for the monazite as our processes have historically focused on traditional value minerals. Given the increasing importance of monazite, we are evaluating new processes to better understand the grade and recoverability of monazite in our mining tenements.

TRONOX MINERAL SAND - 2022 AGGREGATE MINERAL PRODUCTION FOR THE PAST THREE YEARS (metric tonnes per year)

Product	2022	2021	2020
Rutile ⁽¹⁾	159,124	141,594	168,258
Ilmenite ⁽²⁾	1,156,099	1,190,981	1,188,051
Zircon ⁽³⁾	199,733	219,825	245,471

(1) includes natural rutile + leucoxene

(2) includes multiple grades of TiO₂ grades of ilmenite

(3) includes multiple grades of zircon

Namakwa Sands, Western Cape, South Africa

Our heavy mineral 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, Western Cape and KZN Sands, KwaZulu-Natal produce smelter products of titanium slag and pig iron from ilmenite, plus commercial grades of zircon and high-grade rutile + leucoxene concentrates.

Ore is excavated from two open-pit dry mines and delivered by trucks and conveyors to two primary wet concentration plants. Heavy Mineral Concentrate is separated into magnetic and non-magnetic fractions at a secondary concentration plant at the mine. The two fractions are further processed at a mineral separation plant 52 km south at Koekenaap. Ilmenite, rutile and zircon are transported by rail from Koekenaap 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 dedicated facilities at the Saldanha Bay deep-water port, approximately 150 km north of Cape Town.

The Namakwa Sands 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. Repetitive cycles of erosion from crystalline source rock, fluvial transport and prolonged reworking by water and wind formed the deposit. The Namakwa Sands heavy mineral assemblage is heterogeneous, creating challenges to efficient recovery of valuable heavy minerals.

KZN Sands, KwaZulu-Natal, South Africa

KZN Sands operates the open-cut Fairbreeze mine, just south of the coastal town of Mtunzini, the Central Processing Complex, 30 km west of Richards Bay, and bulk export facilities at the port of Richards Bay.

The Fairbreeze deposit is hosted by deeply weathered “Berea-type” sands which are mined using a hydraulic mining technique supported by track dozing. The hydraulic mining technique was pioneered for HMS mining at our nearby Hillendale mine, where rehabilitation is now complete. High-pressure water jets disaggregate the fine-grained sand into a slurry that flows by gravity to a central collection caisson and is pumped to a primary wet plant to produce HMC. This HMC is hauled by truck 45 km to the Empangeni CPC for separation into commercial zircon and rutile concentrates, and ilmenite feed for the adjacent two-furnace smelter. Except for local consumption of some pig iron, all saleable products are exported from Richards Bay, including high-grade titanium feedstocks for our TiO₂ pigment plants.

The Fairbreeze deposit is hosted by a complex of strandline/paleo-dune couplets, approximately two kilometers inland from the modern coastline, forming an elongate ridge extending 12 km south-southwesterly from the town of Mtunzini with a maximum width of approximately two kilometers. No overburden is present. Modern erosion has dissected the deposit into five discrete ore bodies 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.

Northern Operations, Western Australia

Our mineral properties of the coastal plain of Western Australia are located within two historically important heavy mineral provinces. Our combined Cooljarloo dredge mine and planned Cooljarloo West dredge mine, 170 km north of Perth, contain proven and probable reserves shown in the tables below.

Two dredges in a single pond feed an ore slurry to a floating gravity 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 SR, a high-TiO₂ feedstock for our Kwinana and other TiO₂ pigment plants

The mining of low-grade ore at Cooljarloo is supported 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. Upon exhaustion of Cooljarloo ore, the dredge mine will relocate to nearby Cooljarloo West, where reserves from three-ore bodies contain an estimated 2.6 million tonnes of in-place heavy minerals.

At Dongara, multiple studies, drilling, and dry-mining optimization over the past 15 years identified reserves of 68 million tonnes of ore at an average grade of 5.1% THM in five deposits, for which mining and environmental approvals have been secured. Tronox has chosen not to upgrade the studies to a current feasibility level and consequently has reported only resources for the Dongara project.

Heavy mineral deposits of our Northern Operations generally occur as stacked, elongate, NNW-trending bodies parallel to the modern coastline, bounded to the east by the Gingin Scarp. A swarm of HM deposits in the Cooljarloo district span an area of 40 km NNW by a width of over 5 km. Heavy minerals derived from the crystalline “basement” of the Yilgarn craton east of the scarp and Mesozoic sediments of the North Perth Basin west of the scarp are associated with marine still-stands on a wave-cut platform, as HM sands accumulated in shoreline, dunal and other coastal environments of a westward-regressing seacoast.

Southern Operations, Western Australia

We extract heavy minerals from the Wonnerup North open-cut HMS mine, 10 km east of Busselton, from which HMC is trucked to our MSP at Bunbury, adjacent to the Bunbury port. The Bunbury MSP also processes streams of non-magnetic zircon and rutile rich HM concentrates from our Broken Hill MSP in New South Wales.

Ilmenite-dominant heavy mineral deposits of the South Perth Basin occur as multiple, arcuate bands, parallel to the J-shaped Geographe Bay modern shoreline.

The Wonnerup North deposit is a shallow (~3m deep) windblown dunal deposit on the Capel paleo-shoreline, one of two strandlines, along with the Yoganup paleo shoreline, located 7 km and 15 km inland, respectively, from the modern Indian Ocean coast associated with most of the economic HMS deposits of the region.

Eastern Operations, Murray Basin, New South Wales, Australia

Our Eastern Operations are located in the Murray Basin, a 300,000-square-kilometer intra-cratonic sedimentary basin covering parts of Victoria, New South Wales, and South Australia. Our operating mines at Ginkgo and Crayfish are approximately 40 km west of Pooncarie, New South Wales. Overburden at our Ginkgo and Crayfish mines is removed by conventional mining methods, followed by dredge mining of ore. Dry mining at Crayfish, a small deposit adjacent to Ginkgo, started in September 2019, from which ore is hauled to the Ginkgo dredge pond. Mining at Snapper was completed in April 2022 following 12 years of continuous production. The Snapper site is currently undergoing mine closure and rehabilitation.

HMC from Ginkgo-Crayfish is hauled by trucks approximately 240 km to our MSP in Broken Hill, NSW. At current production rates, mining is expected to continue at Ginkgo and Crayfish until early 2024.

Construction at our two new open-cut dry mines at Atlas/Campaspe, 150km east of the current operations and 90 km north of Balranald, NSW and approximately 270 km southeast of Broken Hill was completed in early 2023. Starting with Atlas, which is expected to ramp up to full production by the third quarter of 2023, the new production will replace the production from the Snapper, Ginkgo and Crayfish mines. HMC produced on-site at Atlas and Campaspe by wet gravity separation will be delivered to the Broken Hill MSP via a combination of road and rail transport. Active exploration programs are ongoing in the Murray Basin heavy minerals province, where our exploration licenses cover nearly 5,100 square kilometers.

The Broken Hill MSP utilizes magnetic separation techniques to produce commercial concentrates of ilmenite and leucoxene, and a non-magnetic HM concentrate. The products are either railed approximately 430 km to the port of Adelaide, South Australia or railed directly from Broken Hill to Western Australia using the Trans Australian Railway. The non-magnetic concentrates are then shipped to the Bunbury MSP for further processing into final products.

Further description of each of our mining projects described above are included in our exhibit filings.

Heavy Mineral Reserves

All of our reserves are reported on the basis of our 100% ownership 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 appropriate resource estimates. Our residual resources are those areas of mineralized ground which have either had insufficient drilling to confidently define the shape, grade and recoverability of the valuable

minerals as well as not yet having been subjected to a detailed assessment of the impact of validated “modifying factors” on the revenue generating potential of a deposit.

For clarity, in the tables below, our reserves have been excised from the resources as they can be proven to be profitably mined and processed. The remaining deposit that exceeds cut-off grade, but have not yet been demonstrated to be profitable by virtue of either recoverable grade, operating cost or capital required to develop, are separately defined as resources.

The following tables summarize our reserves and resources as well as their contained in situ THM and HM assemblages as of December 31, 2022.

TRONOX MINERAL SANDS - 2022 RESERVES

MINE / DEPOSIT	Reserve Category	Material (million tonnes)	HM%	Mineral Assemblage (% of THM)			Change (+/-) from 2021 (%) ¹
				Ilmenite	Rutile and Leucoxene	Zircon	
Namakwa Sands Dry Mine - Western Cape RSA							
	Proven	136	7.4 %	37.6	8.7	9.0	
	Probable	551	5.4 %	53.8	11.2	11.4	
	Total Reserves	687	5.8 %	49.7	10.6	10.8	(2.3)
KZN Sands Hydraulic Mine KwaZulu-Natal RSA							
	Proven	198	5.6 %	61.7	7.4	7.6	
	Probable	11	3.7 %	51.8	5.0	7.0	
	Total Reserves	209	5.5 %	61.3	7.3	7.6	(4.1)
Cooljarloo – Dredge Mine - Western Australia							
	Proven	210	1.6 %	61.5	7.7	10.7	
	Probable	130	2.0 %	60.5	8.3	12.3	
	Total Reserves	340	1.8 %	61.1	8.0	11.4	(5.8)
Atlas-Campaspe Dry Mine - New South Wales Australia							
	Proven	110	6.3 %	60.7	11.8	12.5	
	Probable	—	— %	—	—	—	
	Total Reserves	110	6.3 %	60.7	11.8	12.5	2.6
Wonnerup Dry Mine - Western Australia							
	Proven	9	5.3 %	70.1	19.1	9.6	
	Probable	4	5.7 %	77.5	11.4	8.8	
	Total Reserves	13	5.4 %	72.6	16.5	9.4	(15.0)
Ginkgo-Crayfish Dredge/ Dry Mines - New South Wales Australia							
	Proven	26	1.9 %	51.5	16.3	12.7	
	Probable	—	—	—	—	—	
	Total Reserves	26	1.9 %	51.5	16.3	12.7	(28.8)
Total Reserves							
	Proven	689	4.7 %	54.0	9.1	9.5	
	Probable	696	4.7 %	54.4	10.9	11.4	
	Total Reserves	1,385	4.7%	54.2	10.0	10.5	(3.9)

¹ Changes are predominantly due to depletion as a result of mining offset by an increase related to our Atlas Campaspe mine and other reclassifications.

TRONOX MINERAL SANDS - 2022 RESOURCES

MINE / DEPOSIT	Resource Category	Material (million tonnes)	HM%	Mineral Assemblage (% of THM)			Change (+/-) from 2021 (%) ¹
				Ilmenite	Rutile and Leucoxene	Zircon	
Namakwa Sands Dry Mine - Western Cape RSA							
	Measured	104	8.0 %	30.2	5.9	6.9	
	Indicated	86	6.5 %	28.3	5.6	6.9	
	Measured + Indicated	190	7.3 %	29.3	5.8	6.9	
	Inferred	110	5.5 %	35.1	8.1	6.6	
	Total	300	6.7 %	31.4	6.6	6.7	(1.9)
KZN Sands Hydraulic Mine - KwaZulu-Natal RSA							
	Measured	48	4.2 %	64.3	8.1	7.7	
	Indicated	1	2.0 %	53.5	7.0	7.5	
	Measured + Indicated	49	4.1 %	64.1	8.1	7.6	
	Inferred	56	3.4 %	54.6	6.9	7.1	
	Total	105	3.7 %	59.1	7.4	7.3	(2.0)
Cooljarloo – Dredge Mine - Western Australia							
	Measured	10	1.6 %	59.3	7.7	9.8	
	Indicated	282	1.5 %	61.4	6.7	10.5	
	Measured + Indicated	292	1.5 %	61.3	6.8	10.4	
	Inferred	12	2.9 %	58.0	7.3	9.0	
	Total	304	1.6 %	61.1	6.8	10.4	3.9
Dongara Planned Dry Mine - Western Australia							
	Measured	109	4.1 %	50.2	9.0	10.8	
	Indicated	31	3.5 %	53.7	9.1	12.4	
	Measured + Indicated	140	3.9 %	52.0	9.1	11.6	
	Inferred	46	3.7 %	56.1	8.9	9.2	
	Total	186	3.9 %	52.1	9.0	10.7	4.2
Atlas-Campaspe Dry Mine - New South Wales Australia							
	Measured	27	2.5 %	58.8	10.9	11.7	
	Indicated	—	— %	—	—	—	
	Measured + Indicated	27	2.5 %	58.8	10.9	11.7	
	Inferred	83	3.1 %	60.1	5.8	13.1	
	Total	110	3.0 %	59.8	6.9	12.8	(3.2)
Port Durnford - KwaZulu-Natal RSA							
	Measured	143	4.5 %	67.6	6.0	9.3	
	Indicated	340	4.1 %	67.4	6.1	9.3	
	Measured + Indicated	483	4.2 %	67.5	6.1	9.3	
	Inferred	466	3.5 %	71.8	6.3	10.0	

Total	949	3.9 %	69.4	6.2	9.6	0.0
Wonnerup Dry Mine - Western Australia						
Measured	13	4.6 %	77.5	12.0	8.8	
Indicated	6	4.8 %	86.9	3.3	7.6	
Measured + Indicated	19	4.6 %	80.5	9.2	8.4	
Inferred	3	4.4 %	84.0	4.0	8.3	
Total	22	4.6 %	81.0	8.5	8.4	(6.4)
Ginkgo-Crayfish Dredge/ Dry Mines - New South Wales Australia						
Measured	78	1.3 %	47.9	18.2	12.4	
Indicated	—	— %	—	—	—	
Measured + Indicated	78	1.3 %	47.9	18.2	12.4	
Inferred	59	1.1 %	47.9	17.9	13.0	
Total	137	1.2 %	47.9	18.1	12.6	(1.0)
Kara/Cylinder - New South Wales Australia						
Measured	—	— %	—	—	—	
Indicated	165	4.4 %	49.4	12.9	12.0	
Measured + Indicated	165	4.4 %	49.4	12.9	12.0	
Inferred	26	2.8 %	54.4	24.4	14.2	
Total	191	4.1 %	49.8	13.9	12.2	(4.7)
Total Resources						
Measured	532	4.4 %	49.9	7.5	8.8	
Indicated	911	3.6 %	55.6	7.7	9.7	
Measured + Indicated	1,443	3.9 %	53.2	7.6	9.3	
Inferred	861	3.5 %	60.6	7.5	9.5	
Total	2,304	3.8 %	55.8	7.6	9.4	(0.2)

¹ Changes are predominantly due to depletion as a result of mining offset by increases at Cooljarloo and Dongara due to re-estimation.

Abbreviations, Definitions, and Notations

One metric tonne = 1.10231 short tons

Reserves — mineralized material inclusive of dilution, determined to be economically and legally exploitable as of December 31, 2022, classified as either Probable Reserves or Proven Reserves, based on level of confidence.

Resources – mineralized ground which has either had insufficient drilling to confidently define the shape, grade and recoverability of the valuable minerals as well as not yet having been subjected to a detailed assessment of the impact of validated modifying factors on the revenue generating potential of a deposit.

LOMP — Life-of-Mine-Plans (LOMPs) have been developed for each mine site by teams of Tronox professionals based on 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.

THM — total heavy minerals, densities >2.85 g/cm³ regardless of commercial value

VHM — valuable heavy minerals, including Ilmenite, Rutile, Leucoxene & zircon, reported as percentage of THM.

Minor computational discrepancies may be due to rounding.

Cooljarloo Dredge Mine reserves include Cooljarloo and Cooljarloo West

Key Assumptions — economic viability is determined by techno-economic modeling that integrates geological, analytical and geotechnical databases, mining parameters, metallurgical recoveries, known or forecast operating costs, cost of capital, and product sales prices at time of production. Historical sales prices by themselves are unreliable predictors of future prices, and our forecasts are based on our private contracts, internal and external market research.

Disclosures of mineral reserves traditionally include a cut-off grade, the grade in a mineral deposit below which material cannot be profitably mined and processed. However, economic exploitability is determined by many modifying factors other than grade, and most modern mining operations, including ours, use detailed computer models utilized by employees who possess the experience and technical expertise to identify what parts of a deposit are economically exploitable. As cut-off grades remain entrenched in the mining industry, the following nominal cut-off grades apply, with qualifications, to our five operations: 0.3% zircon at Namakwa Sands; 1.5% ilmenite at KZN Sands; 1.3% THM (approximately 1% VHM) at our Northern Operations, WA, 3% THM at our Southern Operations, WA, and 1% THM at our Eastern Operations, NSW.

Production forecasts of commercial-quality titanium mineral and zircon concentrates from reserves are taken from our Life-of-Mine Plans. Mining recoveries are typically close to 100%, but metallurgical recoveries in each concentration step can vary widely, as a function of ore and mineral characteristics. We apply recovery factors based on actual operating data.

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.

Item 3. Legal Proceedings

Information required by this item is incorporated herein by reference to the section captioned “Notes to Consolidated Financial Statements, Note 18 - Commitments and Contingencies” of this Form 10-K.

SEC regulations require us to disclose certain information about administrative or judicial proceedings to which a governmental authority is party arising under federal, state or local environmental provisions if we reasonably believe that such proceedings may result in monetary sanctions above a stated threshold. Pursuant to the SEC regulations, the Company uses a threshold of \$1 million or more for purposes of determining whether disclosure of any such proceedings is required.

Item 4. Mine Safety Disclosures

None.

PART II

Item 5. Market for Registrant’s Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities

Market for our Ordinary Shares

Our ordinary shares trade on the New York Stock Exchange under the symbol “TROX.”

Holders of Record

As of January 31, 2023, there were approximately 56 holders of record of ordinary shares. This does not include the shareholders that held shares of our ordinary 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.

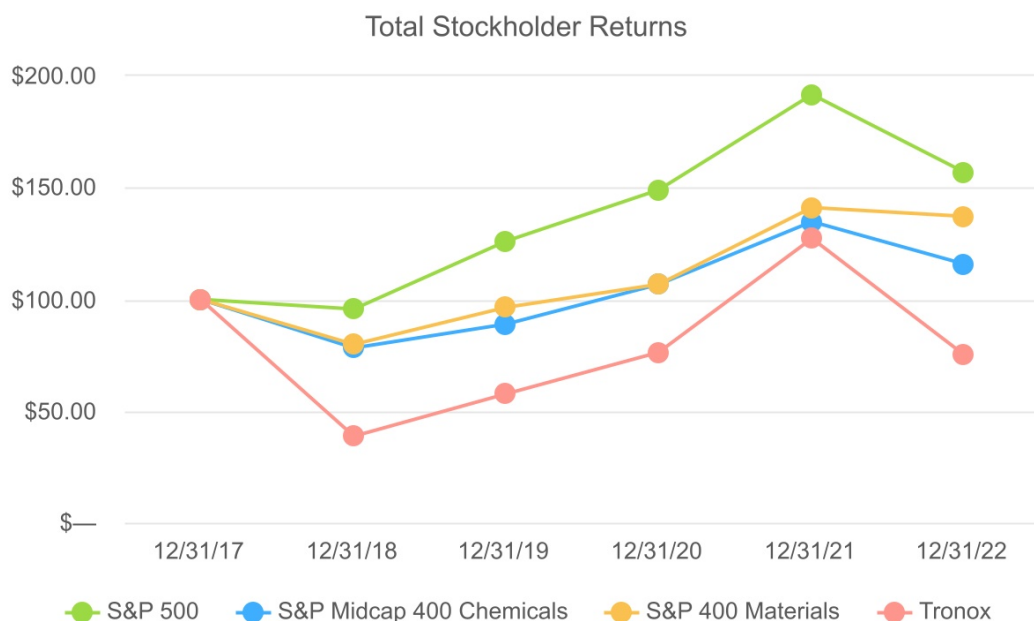
Issuer Purchases of Equity Securities

2022	Total Number of Shares Purchased	Weighted Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plan ⁽¹⁾	Maximum Approximate Dollar Value that May Yet Be Purchased Under the Plan
October 1 - October 31	—	\$ —	—	\$ 250,536,2
November 1 - November 30	—	—	—	250,536,2
December 1 - December 31	—	—	—	250,536,2
Total	—	\$ —	—	\$ 250,536,2

(1) On November 9, 2021, the Company announced that the Company’s Board of Directors has authorized the repurchase of up to \$300 million of the Company’s ordinary shares, par value \$0.01 per share (the “ordinary shares”), through February 2024. For details on share repurchases made during the year ended December 31, 2022, see “Note 19” of notes to consolidated financial statements. Under the authorization from our Board of Directors, we have approximately \$251 million available for additional repurchases through February 2024.

Stock Performance Graph

The following graph presents the five-year cumulative total stockholder returns for our ordinary shares compared with the Standard & Poor’s (“S&P”) 500, the S&P MidCap 400 Chemicals and the S&P 400 Materials indices.



The graph assumes that the values of our ordinary shares, the S&P 500, the S&P MidCap 400 Chemicals index, and the S&P 400 Materials index were each \$100 on December 31, 2017, and that all dividends were reinvested.

Item 6. Selected Financial Data

Not applicable.

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

The following discussion should be read in conjunction with Tronox Holdings plc'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

Tronox Holdings plc (referred to herein as "Tronox", "we", "us", or "our") operates titanium-bearing mineral sand mines and beneficiation operations in Australia and South Africa to produce feedstock materials that can be processed into TiO₂ for pigment, high purity titanium chemicals, including titanium tetrachloride, and Ultrafine© titanium dioxide used in certain specialty applications. Our strategy is to be vertically integrated and produce enough feedstock materials to be as self-sufficient as possible in the production of TiO₂ at our 9 pigment facilities located in the United States, Australia, Brazil, UK, France, the Netherlands, China and the Kingdom of Saudi Arabia ("KSA"). We believe that vertical integration is the best way to achieve our ultimate goal of delivering low cost, high-quality pigment to our coatings and other TiO₂ customers throughout the world. The mining, beneficiation and smelting of titanium bearing mineral sands creates meaningful quantities of zircon, pig iron and the rare-earth bearing mineral, monazite, which we also supply to customers around the world.

We are a public limited company listed on the New York Stock Exchange and are registered under the laws of England and Wales.

Business Environment

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

The first half of 2022 began with considerable momentum while the second half was characterized by a significant market pullback starting in China, followed by the rest of Asia Pacific, EMEA and the Americas. As a result of the swift market decline, fourth quarter revenue decreased 27% compared to the prior year, driven by lower TiO₂, zircon and pig iron sales volumes. For the fourth quarter of 2022 as compared to the fourth quarter of 2021, TiO₂ volumes decreased 34% partially offset by a 7% increase in average selling prices and an unfavorable 2% impact from exchange rates. Zircon sales volumes decreased 44% partially offset by a 20% increase in average selling prices. Revenue from other products decreased 12% from the fourth quarter 2021 to the fourth quarter of 2022 primarily due to lower pig iron volumes. Gross profit decreased for the fourth quarter of 2022 as compared to the fourth quarter of 2021 due to the unfavorable impact of sales volumes and product mix as well as higher production costs, commodity costs and increased freight rates. These unfavorable impacts were partially offset by an increase in average selling prices of TiO₂, zircon and pig iron, favorable impacts of foreign currency and favorable overhead absorption and cost savings.

Sequentially, revenue decreased 27% in the fourth quarter of 2022 compared to the third quarter of 2022 primarily as a result of volume declines of TiO₂ and zircon. TiO₂ volumes were impacted by continued global economic uncertainty and inventory destocking across the supply chain that resulted in a 28% sequential decline from the third quarter of 2022 to the fourth quarter of 2022. TiO₂ average selling prices also declined 1% in the fourth quarter of 2022 compared to the third quarter of 2022. Revenue from zircon sales decreased 29% sequentially from the third quarter of 2022 to the fourth quarter of 2022, as a 30% decrease in sales volumes was partially offset by 1% increase in average selling prices. Other products revenues decreased 15% sequentially from the third quarter of 2022 to the fourth quarter of 2022 mainly due to lower average selling prices and sales volumes of pig iron and other products. Gross profit decreased sequentially from the third quarter of 2022 to the fourth quarter of 2022 due to lower sales volumes of TiO₂, zircon and pig iron as well as higher production costs due to inflationary cost pressures, increased freight rates, the unfavorable impacts of average selling prices and costs associated with a fire at our mineral separation facility in South Africa and the ongoing historic flooding in Australia impacting the Ginkgo and Atlas Campaspe mining operations, partially offset by favorable exchange rates.

As of December 31, 2022, our total available liquidity was \$608 million, including \$164 million in cash and cash equivalents and \$444 million available under revolving credit agreements. As of December 31, 2022, our total debt was \$2.5 billion and net debt to trailing-twelve month Adjusted EBITDA was 2.8x. The Company also has no financial covenants on its term loans or bonds and only one springing financial covenant on its Cash Flow revolver facility, which we do not expect to be triggered based on our current scenario planning. Refer to Note 13 of notes to consolidated financial statements for further details.

Consolidated Results of Operations

Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021

	Year Ended December 31,		
	2022	2021	Variance
	(Millions of U.S. Dollars)		
Net sales	\$ 3,454	\$ 3,572	\$ (118)
Cost of goods sold	2,622	2,677	(55)
Gross profit	\$ 832	\$ 895	\$ (63)
Gross Margin	24.1 %	25.1 %	(1.0) pts
Selling, general and administrative expenses	289	318	(29)
Venator settlement	85	—	85
Income from operations	458	577	(119)
Interest expense	(125)	(157)	32
Interest income	9	7	2
Loss on extinguishment of debt	(21)	(65)	44
Other (expense) income, net	(13)	12	(25)
Income before income taxes	308	374	(66)
Income tax (provision) benefit	192	(71)	263
Net income	<u>\$ 500</u>	<u>\$ 303</u>	<u>\$ 197</u>
Effective tax rate	<u>(62)%</u>	<u>19 %</u>	<u>(81) pts</u>
EBITDA⁽¹⁾	<u>\$ 693</u>	<u>\$ 821</u>	<u>\$ (128)</u>
Adjusted EBITDA⁽¹⁾	<u>\$ 875</u>	<u>\$ 947</u>	<u>\$ (72)</u>
Adjusted EBITDA as % of Net Sales	<u>25.3 %</u>	<u>26.5 %</u>	<u>(1.2) pts</u>

(1) EBITDA and 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.

Net sales of \$3,454 million for the year ended December 31, 2022 decreased by 3% compared to \$3,572 million for the same period in 2021. Revenue decreased primarily due to lower TiO₂, zircon and pig iron sales volumes. Net sales by type of product for the years ended December 31, 2022 and 2021 were as follows:

The table below presents reported revenue by product:

(Millions of dollars, except percentages)	Year Ended December 31,		Variance	Percentage
	2022	2021		
TiO ₂	\$ 2,693	\$ 2,793	\$ (100)	(4)%
Zircon	438	478	(40)	(8)%
Other products	323	301	22	7 %
Total net sales	\$ 3,454	\$ 3,572	\$ (118)	(3)%

For the year ended December 31, 2022, TiO₂ revenue decreased \$100 million, or 4%, compared to the prior year due to a \$404 million decrease in sales volumes partially offset by an increase of \$391 million in average selling prices. Foreign currency negatively impacted TiO₂ revenue by \$86 million due primarily to the weakening of the Euro. Zircon revenues decreased \$40 million primarily due to a 36% decrease in sales volumes partially offset by a 28% increase in average selling prices. Other products revenue increased \$22 million primarily due to an increase in average selling prices of pig iron and other products partially offset by a decrease in sales volumes of pig iron.

Gross profit of \$832 million for the year ended December 31, 2022 was 24.1% of net sales compared to 25.1% of net sales for the same period in 2021. The decrease in gross margin is primarily due to:

- the unfavorable impact of 17 points due to product mix and higher production and commodity costs and increased freight rates which were offset by favorable overhead absorption and cost savings, partially offset by
- the favorable impact of approximately 13 points due to an increase in TiO₂, zircon and pig iron selling prices, and
- the net favorable impact of approximately 3 points due to changes in foreign exchange rates. This is primarily due to the South African Rand and Australian dollar given costs in these regions are primarily incurred in local currencies while revenues are tied to the U.S. dollar whereas within our European region both revenues and costs of goods sold are denominated in Euros and as such did not have a significant impact to gross margin.

Selling, general and administrative ("SG&A") expenses decreased \$29 million when comparing the year ended December 31, 2022 to the prior year. The SG&A expenses decrease was primarily driven by a \$30 million decrease in employee costs primarily due to lower incentive compensation and \$3 million of lower professional fees, partially offset by higher travel and entertainment expenses of \$6 million. The remaining net decrease was driven by individually immaterial amounts.

The outcome of the Venator settlement resulted in a \$85 million payment to Venator which includes \$10 million of interest accrued since May 13, 2019 (refer to Note 18 in notes to consolidated financial statements for further details).

Income from operations for the year ended December 31, 2022 of \$458 million, decreased by \$119 million or 21% compared to the same period in 2021 which is primarily attributable to the Venator settlement of \$85 million (discussed above) and the lower gross margin partially offset by the lower selling, general and administrative expenses.

Adjusted EBITDA as a percentage of net sales was 25.3% for the year ended December 31, 2022, a decrease of 1.2 points from 26.5% in the prior year. The lower gross profit partially offset by the lower SG&A expenses as discussed above were the primary drivers of the year-over-year decrease in Adjusted EBITDA percentage.

Interest expense for the year ended December 31, 2022 decreased \$32 million compared to the same period in 2021. The decrease is primarily due to the lower average debt outstanding balances and lower average interest rates on the 2022 Term Loan Facility as compared to the 6.5% Senior Secured Notes due 2025 given the refinancing transaction in April 2022 (refer to Note 13 of notes to consolidated financial statements for further details) and lower average debt outstanding balance on the Standard Bank Term Loan Facility.

Interest income for the year ended December 31, 2022 increased \$2 million compared to the same period in 2021 primarily due to an overall increase in interest rates on our cash investments period over period.

Loss on extinguishment of debt of \$21 million for the year ended December 31, 2022 is primarily comprised of an \$18 million call premium paid in relation to the redemption of the 6.5% Senior Secured Notes and related write-off of certain debt issuance costs associated with the issuance of a new term loan which closed in April 2022.

Other (expense) income, net for the year ended December 31, 2022 primarily consisted of an \$20 million pension settlement loss related to our U.S. Qualified Plan (refer to Note 21 in notes to consolidated financial statements) and \$3 million of net realized and unrealized foreign currency losses partially offset by the \$8 million associated with the monthly technical service fee relating to the Jazan slagger we receive from AMIC, and \$4 million of pension income primarily due to the expected return on plan assets offset by pension related interest costs and amortization of actuarial gain/losses.

We maintain full valuation allowances related to the total net deferred tax assets in Switzerland and the United Kingdom. The provisions for income taxes associated with these jurisdictions include no tax benefits with respect to losses incurred and tax expense only to the extent of current tax payments. Additionally, we have valuation allowances against other specific tax assets.

The effective tax rate was (62)% and 19% for the years ended December 31, 2022 and 2021, respectively. The large negative effective tax rate for the year ended December 31, 2022 is significantly influenced by the release of valuation allowances for deferred tax assets in Australia. The net impact is a \$300 million benefit to the income tax provision. Refer to Note 5 of notes to consolidated financial statements for further information. Additionally, the effective tax rates for the years ended December 31, 2022 and 2021 are influenced by a variety of factors, primarily income and losses in jurisdictions with valuation allowances, disallowable expenditures, prior year accruals, and our jurisdictional mix of income at tax rates different than the U.K. statutory rate.

Year Ended December 31, 2021 Compared to the Year Ended December 31, 2020

A discussion of our results of operations for the year ended December 31, 2021 versus December 31, 2020 is included in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Results of Operation”, included in our Annual Report on Form 10-K for the year ended December 31, 2021.

Other Comprehensive Income (Loss)

There was an other comprehensive loss of \$27 million for the year ended December 31, 2022 compared to other comprehensive loss of \$104 million for the year ended December 31, 2021. This decrease in comprehensive loss was primarily driven by unfavorable movements of foreign currency translation adjustments of \$79 million for the year ended December 31, 2022 as compared to unfavorable foreign currency translation adjustments of \$113 million in the prior year. In addition, we recognized net gains on derivative instruments of \$30 million in the year ended December 31, 2022 as compared to net losses on derivative instruments of \$11 million in the prior year. We also recognized \$22 million of pension and postretirement gains for the year ended December 31, 2022 as compared to \$20 million of pension and postretirement gains for the prior year.

A discussion of our comprehensive (loss) income for the year ended December 31, 2021 versus December 31, 2020 is included in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Other Comprehensive (Loss) Income”, included in our Annual Report on Form 10-K for the year ended December 31, 2021.

Liquidity and Capital Resources

During 2022, our liquidity decreased by \$69 million to \$608 million.

The table below presents our liquidity, including amounts available under our credit facilities, as of the following dates:

	December 31, 2022	December 31, 2021
Cash and cash equivalents	\$ 164	\$ 228
Available under the Cash Flow Revolver	300	329
Available under the Standard Credit Facility	59	63
Available under the Emirates Revolver	60	38
Available under the SABB Facility	19	19
Available under the Bank Itau Facility	6	—
Total	\$ 608	\$ 677

Historically, we have funded our operations and met our commitments through cash generated by operations, issuance of unsecured notes, bank financings and borrowings under lines of credit. In the next twelve months, we expect that our operations will provide sufficient cash for our operating expenses, capital expenditures, interest payments and debt repayments, however, if necessary, we have the ability to borrow under our debt and revolving credit agreements (see Note 13 of notes to consolidated financial statements). This is predicated on our achieving our forecast which could be negatively impacted by items outside of our control, including, among other things, macroeconomic conditions, inflationary pressures, political instability including the ongoing Russia and Ukraine conflict and any expansion of such conflict, and supply chain disruptions. If negative events occur in

the future, we may need to reduce our capital spend, cut back on operating costs, and other items within our control to maintain appropriate liquidity.

In January and February 2023, we drew down an aggregate amount of approximately \$118 million on several of our short-term facilities.

Working capital (calculated as current assets less current liabilities) was \$1.1 billion at December 31, 2022, compared to \$1.2 billion at December 31, 2021.

As of and for the year ended December 31, 2022, the non-guarantor subsidiaries of our Senior Notes due 2029 represented approximately 19% of our total consolidated liabilities, approximately 37% of our total consolidated assets, approximately 44% of our total consolidated net sales and approximately 48% of our Consolidated EBITDA (as such term is defined in the 2029 Indenture). In addition, as of December 31, 2022, our non-guarantor subsidiaries had \$744 million of total consolidated liabilities (including trade payables but excluding intercompany liabilities), all of which would have been structurally senior to the 2029 Notes. See Note 13 of notes to consolidated financial statements for additional information.

At December 31, 2022, we had outstanding letters of credit and bank guarantees of \$109 million. See Note 13 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, 2022, our credit rating with Moody's was Ba3 stable outlook, positively upgraded starting in the first quarter of 2022 from B1 stable outlook at December 31, 2021. As of December 31, 2022, our credit rating with Standard & Poor's was B positive outlook, positively upgraded starting in the first quarter of 2022 from B stable outlook at December 31, 2021. See Note 13 of notes to consolidated financial statements.

Cash and Cash Equivalents

We consider all investments with original maturities of three months or less to be cash equivalents. As of December 31, 2022, our cash and cash equivalents were invested in money market funds and we also receive earnings credits for some balances left in our bank operating accounts. 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, cash taxes, making pension contributions and making quarterly dividend payments. Going forward, we expect to continue to invest in our businesses through cost reduction initiatives, as well as growth and vertical integration-related capital expenditures including projects such as newTRON and various mine development projects, continued reductions in our debt, continued dividends and share repurchases.

Repatriation of Cash

At December 31, 2022, we held \$164 million in cash and cash equivalents in these respective jurisdictions: \$18 million in South Africa, \$40 million in Australia, \$39 million in Brazil, \$16 million in Saudi Arabia, \$29 million in China, and \$22 million in Europe. Our credit facilities limit transfers of funds from subsidiaries in the United States to certain foreign subsidiaries. In addition, at December 31, 2022, we held less than \$1 million of restricted cash which is in Australia related to performance bonds.

At December 31, 2022, Tronox Holdings plc had foreign subsidiaries with undistributed earnings. Although we would not be subject to income tax on these earnings, we have asserted that amounts in specific jurisdictions are indefinitely reinvested outside of the parent's taxing jurisdictions. These amounts could be subject to withholding tax if distributed, but the Company has made no provision for tax related to these undistributed earnings. The Company has removed its assertion that earnings in China are indefinitely reinvested, and the withholding tax accruals for potential repatriations from that jurisdiction are now reflected in the effective tax rate reconciliation in Note 5 to the consolidated financial statements.

Stock Repurchases

As previously announced, on November 9, 2021, the Company's Board of Directors authorized the repurchase of up to \$300 million of the Company's stock through February 2024. During the year ended December 31, 2022, we purchased a total of 2,843,789 shares on the open market at an average price of \$17.38 per share and at an aggregate cost of approximately \$50

million, including sales commissions, transfer taxes and fees. Upon repurchase of the shares by the Company, the shares were cancelled. Under the authorization from our Board of Directors, we have approximately \$251 million available for additional repurchases through February 2024.

Cash Dividends on Ordinary Shares

On February 22, 2023, the Board declared a quarterly dividend of \$0.125 per share to holders of our ordinary shares at the close of business on March 6, 2023, which will be paid on April 6, 2023.

Debt Obligations

2022 Term Loan Facility

On April 4, 2022, Tronox Finance LLC (the "Borrower"), the Borrower's indirect parent company, Tronox Holdings plc (the "Company"), certain of the Company's subsidiaries, the incremental term lender party thereto, and HSBC Bank USA National Association, as Administrative Agent and Collateral Agent, entered into Amendment No. 1 to the Amended and Restated First Lien Credit Agreement (the "Amendment"). The Amendment provides the Borrower with a new seven-year incremental term loan facility (the "2022 Term Loan Facility" and, the loans thereunder, the "2022 Incremental Term Loans") under its credit agreement in an aggregate initial principal amount of \$400 million.

The proceeds of the 2022 Incremental Term Loan were used on April 4, 2022, along with cash on hand, to redeem all of the outstanding 6.5% Senior Secured Notes due 2025 issued by Tronox Incorporated under the Indenture dated as of May 1, 2020 with Wilmington Trust, National Association, as Trustee and Collateral Agent and to pay transaction related costs and expenses. In connection with such redemption, all security interest and liens granted to Wilmington Trust, National Association, were automatically terminated and discharged.

As a result of this transaction, we recognized approximately \$21 million, including a call premium of \$18 million, in "Loss on Extinguishment of Debt" on the Consolidated Statement of Income for the year ended December 31, 2022.

Itaù Unibanco S.A. Credit Facility

On November 1, 2022, our Brazilian subsidiary entered into a working capital facility with Itaù Unibanco S.A. in Brazil for an amount up to 30 million BRL (approximately \$6 million at the December 31, 2022 exchange rate). There is no maturity date under this facility until written notice is given. The facility bears interest at the Bolsa do Basil reference rate on outstanding balances. There is no borrowings outstanding under this facility at December 31, 2022.

At December 31, 2022 and 2021, our long-term debt, net of unamortized discount and debt issuance costs was \$2.5 billion and \$2.6 billion, respectively.

At December 31, 2022 and 2021, our net debt (the excess of our debt over cash and cash equivalents) was \$2.4 billion and \$2.3 billion, respectively. See Note 13 of notes to consolidated financial statements.

Off-Balance Sheet Arrangements

On March 15, 2022, the Company entered into an accounts receivable securitization program ("Securitization Facility") with a financial institution, through our wholly-owned special purpose bankruptcy-remote subsidiary, Tronox Securitization LLC ("SPE"). The Securitization Facility permitted the SPE to sell accounts receivable up to \$75 million.

In November 2022, the Company amended the receivable purchase agreement to expand the program to include receivables generated by its wholly-owned Australian operating subsidiaries, Tronox Pigment Pty Ltd., Tronox Pigment Bunbury Ltd. and Tronox Mining Australia Ltd. which increased the facility limit to \$200 million and to extend the program term to November 2025.

See "Note 7 - Accounts Receivable Securitization Program" in notes to consolidated financial statements for further details regarding this off-balance sheet program.

Cash Flows

Years Ended December 31, 2022 and 2021

The following table presents cash flow for the periods indicated:

	Year Ended December 31,	
	2022	2021
(Millions of U.S. dollars)		
Net cash provided by operating activities	\$ 598	\$ 740
Net cash used in investing activities	(415)	(269)
Net cash (used in) provided by financing activities	(250)	(877)
Effect of exchange rate changes on cash	(1)	(10)
Net decrease in cash and cash equivalents	<u>\$ (68)</u>	<u>\$ (416)</u>

Cash Flows provided by Operating Activities — Cash provided by our operating activities is driven by net income adjusted for non-cash items and changes in working capital items. The following table summarizes our net cash provided by operating activities for 2022 and 2021:

	Year Ended December 31,	
	2022	2021
(Millions of U.S. dollars)		
Net income	\$ 500	\$ 303
Net adjustments to reconcile net income to net cash provided by operating activities	113	455
Income related cash generation	613	758
Net change in assets and liabilities	(15)	(18)
Net cash provided by our operating activities	<u>\$ 598</u>	<u>\$ 740</u>

Net cash provided by operating activities was \$598 million in 2022 as compared to \$740 million in 2021. The decrease of \$142 million period over period is primarily due to a \$145 million reduction in net income net of non-cash adjustments and a decrease of \$3 million use of cash for net assets and liabilities. The lower use of cash for working capital was primarily driven by a decrease in accounts receivable of \$233 million as a result of the Securitization Facility (see Note 7 in notes to consolidated financial statements) and a decrease in prepaids and other current assets of \$47 million in the current year, partially offset by increases in inventories of \$255 million and a use of cash for long-term other assets and liabilities of \$40 million.

Cash Flows used in Investing Activities — Net cash used in investing activities for the year ended December 31, 2022 was \$415 million as compared to \$269 million for the year ended December 31, 2021. The \$146 million increase in use of cash year over year is primarily driven by higher capital expenditures of \$428 million partially offset by \$13 million of proceeds from the sale of assets in the current year.

Cash Flows (used in) provided by Financing Activities — Net cash used in financing activities during the year ended December 31, 2022 was \$250 million as compared to cash used in financing activities of \$877 million for the year ended December 31, 2021. The current year is primarily comprised of repayments of long-term and short-term debt of \$629 million partially offset by proceeds from long-term debt and short-term debt of \$538 million. The current year was primarily comprised of the early redemption of the 6.5% Senior Secured Notes due 2025 of \$500 million and a related call premium paid of \$18 million, repayments of \$103 million on our Cash Flow Revolver and total mandatory repayments of approximately \$12 million on both our 2022 Term Loan Facility and South Africa Term Loan Facility. These repayments were offset by net proceeds from the new 2022 Term Loan Facility of \$396 million and proceeds from our Cash Flow Revolver of \$133 million. Additionally, during the current year, \$50 million of cash was used in the repurchase of the Company's stock as part of our previously announced share repurchase program as well as \$87 million of cash used to pay dividends during the year ended December 31, 2022 as compared to \$65 million in the same period of 2021.

Years Ended December 31, 2021 and 2020

A discussion of our cash flows for the year ended December 31, 2021 versus 2020 is included in Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations - Cash Flows", included in our Annual Report on Form 10-K for the year ended December 31, 2021.

Contractual Obligations

The following table sets forth information relating to our contractual obligations as of December 31, 2022:

	Total	Contractual Obligation Payments Due by Period ⁽³⁾			
		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) ⁽¹⁾	\$ 3,298	\$ 206	\$ 292	\$ 331	\$ 2,469
Purchase obligations ⁽²⁾	2,566	348	317	307	1,594
Operating leases	234	32	46	30	126
Pension and other post-retirement benefit obligations ⁽⁴⁾	233	31	49	47	106
Asset retirement obligations ⁽⁵⁾	448	16	33	49	350
Total	\$ 6,779	\$ 633	\$ 737	\$ 764	\$ 4,645

(1) We calculated the Term Loan Facility interest at a LIBOR plus a margin of 2.25%. See Note 13 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 2023. 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) Pension and other post-retirement benefit ("OPEB") obligations of \$233 million include estimates of pension plan contributions and expected future benefit payments for unfunded pension and OPEB plans. Pension plan contributions are forecasted for 2023 only. Expected future unfunded pension and OPEB benefit payments are forecasted only through 2032. Contribution and unfunded benefit payment estimates are based upon current valuation assumptions. Estimates of pension contributions after 2023 and unfunded benefit payments after 2032 are not included in the table because the timing of their resolution cannot be estimated. Refer to Note 21 in notes to consolidated financial statements for further discussion on our pension and OPEB plans.

(5) Asset retirement obligations are shown at the undiscounted and uninflated values.

Non-U.S. GAAP Financial Measures

EBITDA, Adjusted EBITDA, Adjusted net income attributable to Tronox and Diluted adjusted net income per share attributable to Tronox, 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, pension and postretirement costs, and realized and unrealized foreign currency remeasurement gains and losses. We define Adjusted net income attributable to Tronox as net income attributable to Tronox excluding the impact of nonrecurring items which are the Company believes are not indicative of its core operating results 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. We define Diluted adjusted net income per share attributable to Tronox as Diluted net income per share excluding the impact of nonrecurring items which are the Company believes are not indicative of its core operating results 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.

Management believes that EBITDA, Adjusted EBITDA, Adjusted net income attributable to Tronox and Diluted adjusted net income per share attributable to Tronox are 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, Adjusted EBITDA, Adjusted net income attributable to Tronox and Diluted adjusted net income per share attributable to Tronox differently than we do, EBITDA, Adjusted EBITDA, Adjusted net income attributable to Tronox and Diluted adjusted net income per share attributable to Tronox, 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; and
- provide a normalized view of our operating performance by excluding items that are either noncash or infrequently occurring.

These non-U.S. GAAP measures are 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.

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

	Year Ended December 31,		
	2022	2021	2020
Net income (U.S. GAAP)	500	303	995
Interest expense	125	157	189
Interest income	(9)	(7)	(8)
Income tax provision	(192)	71	(881)
Depreciation, depletion and amortization expense	269	297	304
EBITDA (non-U.S. GAAP)	693	821	599
Share-based compensation ^(a)	26	31	30
Transaction costs ^(b)	—	18	14
Restructuring ^(c)	—	—	3
Venator settlement ^(d)	85	—	—
Integration costs ^(e)	—	—	10
Loss on extinguishment of debt ^(f)	21	65	2
Foreign currency remeasurement ^(g)	3	(16)	(4)
Pension settlement and curtailment losses (gains) ^(h)	20	—	(2)
Insurance proceeds ⁽ⁱ⁾	—	—	(11)
Other items ^(j)	27	28	27
Adjusted EBITDA (non-U.S. GAAP)	<u>\$ 875</u>	<u>\$ 947</u>	<u>\$ 668</u>

- (a) Represents non-cash share-based compensation. See Note 20 of notes to consolidated financial statements.
- (b) 2021 amount represents the breakage fee and other costs associated with the termination of the TTI transaction which were primarily recorded in "Other (expense) income, net" in the Consolidated Statements of Income. 2020 amount represents transaction costs associated with the TTI acquisition which were recorded in "Selling, general and administrative expenses" in the Consolidated Statements of Income.
- (c) 2020 amount represents amounts for employee-related costs, including severance, which was recorded in "Restructuring" in the Consolidated Statements of Income.
- (d) Represents the breakage fee including interest associated with the Venator settlement which were recorded in "Venator settlement" in the Consolidated Statements of Income.
- (e) 2020 amount represents integration costs associated with the Cristal transaction after the acquisition which were recorded in "Selling, general and administrative expenses" in the Consolidated Statements of Income.
- (f) 2022 amount represents the loss in connection with the redemption of the 6.5% Senior Secured Notes and the issuance of a new loan which closed in April 2022. 2021 amount represents the loss in connection with the following: 1) termination of its Wells Fargo Revolver, 2) amendment and restatement of its term loan facility including the new revolving credit facility, 3) termination of its Senior Notes due 2026 and its Senior Notes due 2025, 4) issuance of its Senior Notes due 2029 and 5) several voluntary prepayments made on the Term Loan Facility. See Note 13 of notes to consolidated financial statements. 2020 amount represents the loss in connection with a voluntary prepayment on the prior term loan facility in the US.
- (g) Represents realized and unrealized gains and losses associated with foreign currency remeasurement related to third-party and intercompany receivables and liabilities denominated in a currency other than the functional currency of the entity holding them, which are included in "Other (expense) income, net" in the Consolidated Statements of Income.
- (h) 2022 amount represents a non-cash pension settlement loss due to the settling of low-dollar valued amounts in our U.S. Qualified Plan. 2020 amount represents a curtailment gain due to the freezing of plan benefits partially offset by pension settlements.

- (i) 2020 amount represents reimbursement from claims related to the Ginkgo concentrator failure we inherited as a part of the Cristal transaction.
- (j) Includes noncash pension and postretirement costs, accretion expense, severance expense, and other items included in “Selling general and administrative expenses” and “Cost of goods sold” in the Consolidated Statements of Income.

The following table reconciles Net income attributable to Tronox to Adjusted net income attributable to Tronox for the periods presented:

	Year Ended December 31,		
	2022	2021	2020
Net income attributable to Tronox Holdings plc (U.S. GAAP)	\$ 497	\$ 286	\$ 96
Transaction costs ^(a)	—	18	1
Venator settlement ^(b)	85	—	—
Restructuring ^(c)	—	—	—
Integration costs ^(d)	—	—	1
Loss on extinguishment of debt ^(e)	21	57	—
Pension settlement and curtailment losses (gains) ^(f)	15	—	(
Insurance proceeds ^(g)	—	—	(1
Other ^(h)	(3)	12	—
Withholding tax accrued ⁽ⁱ⁾	4	—	—
Tax valuation allowance ^(j)	(301)	(8)	(90
Brazilian tax credits ^(k)	—	(3)	—
Income tax expense - deferred tax assets ^(l)	(7)	—	(
Adjusted net income attributable to Tronox Holdings plc (non-U.S. GAAP) (1)(2)	<u>\$ 311</u>	<u>\$ 362</u>	<u>\$ 8</u>
Diluted net income per share (U.S. GAAP)	\$ 3.16	\$ 1.81	\$ 6.6
Transaction costs, per share	—	0.11	0.1
Venator settlement, per share	0.54	—	—
Restructuring, per share	—	—	0.0
Integration costs, per share	—	—	0.0
Loss on extinguishment of debt, per share	0.13	0.36	0.0
Pension settlement and curtailment losses (gains), per share	0.09	—	(0.0
Insurance proceeds, per share	—	—	(0.0
Other, per share	(0.02)	0.08	0.0
Withholding tax accrued	0.03	—	—
Tax valuation allowance, per share	(1.92)	(0.05)	(6.2
Brazilian tax credits, per share	—	(0.02)	—
Income tax expense - deferred tax assets, per share	(0.04)	—	(0.0
Diluted adjusted net income per share attributable to Tronox Holdings plc (non-U.S. GAAP)	<u>\$ 1.98</u>	<u>\$ 2.29</u>	<u>\$ 0.5</u>
Weighted average shares outstanding, diluted (in thousands)	157,110	157,945	144,90

- (a) Represents breakage fee and other costs associated with termination of TTI Transaction which were primarily recorded in "Other income (expense)" in the Consolidated Statements of Income.
 - (b) Represents the breakage fee including interest associated with the Venator settlement which were recorded in "Venator settlement" in the Consolidated Statements of Income.
 - (c) Represents amounts for employee-related costs, including severance, net of tax which was recorded in "Restructuring" in the Consolidated Statements of Income.
 - (d) Represents integration costs associated with the Cristal acquisition after the acquisition which were recorded in "Selling, general and administrative expenses" in the Consolidated Statements of Income, net of tax.
 - (e) 2022 amount represents the loss in connection with the redemption of the 6.5% Senior Secured Notes and the issuance of a new term loan which closed in April 2022. 20 amount represents the loss in connection with the following: 1) termination of its Wells Fargo Revolver, 2) amendment and restatement of its term loan facility including the new revolving credit facility, 3) termination of its Senior Notes due 2026 and its Senior Notes due 2025, 4) issuance of its Senior Notes due 2029, and 5) certain discretionary prepayments made primarily on our term loan in the US. 2020 amount represents a voluntary prepayment made on the prior term loan facility in the US.
 - (f) 2022 amount represents a non-cash pension settlement loss due to the settling of low-dollar valued amounts in our U.S. Qualified Plan. 2020 amount represents a curtailment gain due to the freezing of plan benefits partially offset by pension settlements.
 - (g) Represents reimbursement from claims related to the Ginkgo concentration failure we inherited as a part of the Cristal Transaction.
 - (h) Represents other activity not representative of the ongoing operations of the Company.
 - (i) Represents potential withholding tax due to the Chinese government for historic distributable income generated.
 - (j) 2022 amount represents the reversal of the tax valuation allowance associated with unlimited lived deferred tax assets primarily within our Australian jurisdictions. 2021 amount represents the reversal of the tax valuation allowance associated with unlimited live deferred tax assets within our Saudi Arabia jurisdiction. 2020 amount represents the reversal of tax valuation allowances associated with unlimited lived deferred tax assets within our US and Brazilian jurisdictions, partially offset by the establishment of full tax valuation allowances against the deferred tax assets within our Saudi Arabia and UK jurisdictions.
 - (k) Represents a portion of Brazilian tax credits realized during 2021 generated from operations prior to the Cristal acquisition.
 - (l) Represents a charge to tax expense for the impact on deferred tax assets from a change in tax rates in a foreign tax jurisdiction.
- (1) Only the loss on extinguishment of debt and pension settlement loss amounts and certain other items have been tax impacted. No income tax impacts have been given to other items as they were recorded in jurisdictions with full valuation allowances.
- (2) Diluted adjusted net income per share attributable to Tronox Holdings plc was calculated from exact, not rounded Adjusted net income attributable to Tronox Holdings plc and share information.

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.

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. Because AROs represent financial obligations to be settled in the future, uncertainties exist in estimating the timing and amount of the associated costs to be incurred. 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. Management believes these estimates and assumptions are reasonable; however, they are inherently uncertain. Refer to Notes 17 to the consolidated financial statements for a summary of the estimates and assumptions utilized. At December 31, 2022, AROs were \$161 million of which the long-term portion of \$153 million is recorded in "Asset retirement obligations" and the short-term portion of \$8 million is recorded in "Accrued liabilities" in the Consolidated Balance Sheet.

Environmental Matters

Liabilities for environmental matters are recognized when remedial efforts are probable and the costs can be reasonably estimated. Such liabilities are based on our best estimate of the undiscounted future costs required to complete the remedial work. The recorded liabilities are adjusted periodically as remediation efforts progress or as additional technical, regulatory or legal

information becomes available. Given the uncertainties regarding the status of laws, regulations, enforcement policies, the impact of other potentially responsible parties, technology and information related to individual sites, we do not believe it is possible to develop an estimate of the range or reasonably possible environmental loss in excess of our recorded liabilities. At December 31, 2022, environmental liabilities (both short term and long term) were \$54 million.

For further discussion, see Environmental Matters included elsewhere in this section entitled, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Notes 2 and 18 to the consolidated financial statements.

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 of 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 Notes 2 and 5 to the consolidated financial statements for additional information.

Contingencies

From time to time, we may be subject to lawsuits, investigations and disputes (some of which involve substantial amounts claimed) arising out of the conduct of our business, including matters relating to commercial transactions, prior acquisitions and divestitures including our acquisition of Cristal, employee benefit plans, intellectual property, and environmental, health and safety matters. We recognize a liability for any contingency that is probable of occurrence and reasonably estimable. We continually assess the likelihood of adverse judgments or outcomes in these matters, as well as potential ranges of possible losses (taking into consideration any insurance recoveries), based on a careful analysis of each matter with the assistance of outside legal counsel and, if applicable, other experts. Such contingencies are significant and the accounting requires considerable management judgments in analyzing each matter to assess the likely outcome and the need for establishing appropriate liabilities and providing adequate disclosures.

Refer to Notes 2 and 18 to the consolidated financial statements for additional information.

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 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.

Pension and Postretirement Benefits

We provide pension benefits for qualifying employees in the United States and internationally, with the largest in the United Kingdom. Because pension benefits represent financial obligations that will ultimately be settled in the future with employees who meet eligibility requirements, uncertainties exist in estimating the timing and amount of future payments, and significant estimates are required to calculate pension expense and liabilities relating to these plans. The company utilizes the services of independent actuaries, whose models are used to help facilitate these calculations. Several key assumptions are used in actuarial models to calculate pension expense and liability amounts recorded in the financial statements; the most significant variables in the models are the expected rate of return on plan assets, the discount rate, and the expected rate of compensation increase. Management believes the assumptions used in the actuarial calculations are reasonable, reflect the company's experience and expectations for the future and are within accepted practices in each of the respective geographic locations in which it operates. However, actual results in any given year often differ from actuarial assumptions due to economic events and different rates of retirement, mortality, and turnover. Refer to Notes 2 and 21 to the consolidated financial statements for a summary of the plan assumptions and additional information on our pension arrangements.

Expected Return on Plan Assets — In forming the assumption of the 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 the 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 allocation, historical asset-class returns, and an assessment of expected future performance using asset-class risk factors. A 100 basis point change in these expected long-term rates of return, with all other variables held constant, would change our pension expense by approximately \$3 million.

Discount Rate — The discount rates selected for estimation of the actuarial present value of the benefit obligations are determined based on the prevailing market rate for high-quality, fixed-income debt instruments with maturities corresponding to the expected timing of benefit payments as of the annual measurement date for each of the various plans. These rates change from year to year based on market conditions that affect corporate bond yields. A 100 basis points change in discount rates, with all other variables held constant, would have a less than \$1 million impact to our pension expense. A 100 basis points reduction in discount rates would increase the PBO by approximately \$29 million whereas a 100 basis point increase in discount rates would have a favorable impact to the PBO of approximately \$33 million.

Rates of Compensation Increase - We determine these rates based on review of the underlying long-term salary increase trend characteristic of the local labor markets and historical experience, as well as comparison to peer companies. A 100 basis points change in the expected rate of compensation increase, with all other variables held constant, would change our pension expense by approximately \$1 million. A 100 basis points reduction in rate of compensation would have a favorable impact of \$4 million whereas a 100 basis point increase in rate of compensation would have an unfavorable impact of approximately \$5 million.

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.

Refer to Item 3. Legal Proceedings for further information.

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 TiO₂ 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 TiO₂, the high level of industry concentration has the potential to impact our overall 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 2022, 2021 and 2020 our ten largest third-party customers represented 30%, 28%, and 32%, respectively, of our consolidated net sales. During 2022, 2021, and 2020, no single 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 Term Loan Facility, 2022 Term Loan Facility, Standard Bank Term Loan Facility, Cash Flow Revolver, Standard Bank Revolver, Emirates Revolver and SABB Credit Facility balances. Using a sensitivity analysis as of December 31, 2022, a hypothetical 1% increase in interest rates would result in a net decrease to pre-tax income of approximately \$6 million on an annualized basis. This is due to the fact that earnings on our interest earning financial assets of \$38 million at December 31, 2022 would increase by the full 1%, offsetting the impact of a 1% increase in interest expense on our floating rate debt of \$696 million.

During 2019, we entered into interest-rate swap agreements for a portion of our Prior Term Loan Facility, which effectively convert the variable rate to a fixed rate for a portion of the loan. The agreements expire in September 2024. The Company's objectives in using the interest-rate swap agreements are to add stability to interest expense and to manage its exposure to interest rate movements. There was no impact associated with the Term Loan Facility as the hedge remained highly effective.

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 Income 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. A significant portion of our Adjusted EBITDA is derived from jurisdictions that are subject to currency risk with Australia, Europe and South Africa representing the largest

contributors. 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, Brazil, China, South Africa, the Netherlands, France and the United Kingdom. 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, the Australian Dollar, the Euro and the Pound Sterling 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.

We periodically enter into foreign currency contracts used to hedge non-functional currency sales for our South African subsidiaries and forecasted non-functional currency cost of goods sold for our Australian subsidiaries. These foreign currency contracts are designated as cash flow hedges. Changes to the fair value of these foreign currency contracts are recorded as a component of other comprehensive income (loss) to the extent such contracts are effective, and are recognized in net sales or costs of goods sold in the period in which the forecasted transaction affects earnings or the transactions are no longer probable of occurring.

As of December 31, 2022, we had no outstanding amounts to reduce the exposure of our Australian subsidiaries’ cost of sales to fluctuations in currency rates or to reduce the exposure of our South African subsidiaries’ third party sales to fluctuations in currency rates. At December 31, 2022, there was an unrealized net loss of \$4 million recorded in "Accumulated other comprehensive loss" on the Consolidated Balance Sheet, which is expected to be recognized in earnings over the next twelve months. At December 31, 2021, there was an unrealized net gain of \$15 million recorded in "Accumulated other comprehensive loss" on the Consolidated Balance Sheet.

We enter into foreign currency contracts to reduce exposure of our subsidiaries’ balance sheet accounts not denominated in our subsidiaries’ functional currency to fluctuations in foreign currency exchange rates. For accounting purposes, these foreign currency contracts are not considered hedges. The change in fair value associated with these contracts is recorded in “Other (expense) income, net” within the Consolidated Statement of Income 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, 2022, there was (i) 1.2 billion South African Rand (or approximately \$68 million at the December 31, 2022 exchange rate), (ii) 197 million Australian dollars (or approximately \$135 million at the December 31, 2022 exchange rate), (iii) 20 million Pound Sterling (or approximately \$24 million at the December 31, 2022 exchange rate and (iv) 44 million Euro (or approximately \$48 million at the December 31, 2022 exchange rate) of notional amount of outstanding foreign currency contracts.

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 Holdings plc

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Tronox Holdings plc and its subsidiaries (the “Company”) as of December 31, 2022 and 2021, and the related consolidated statements of income, of comprehensive income, of shareholders' equity and of cash flows for each of the three years in the period ended December 31, 2022, 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, 2022, 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, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 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, 2022, 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.

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.

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Accounts Receivable Securitization Program

As described in Note 7 to the consolidated financial statements, in March 2022, the Company entered into an accounts receivable securitization program with a financial institution to sell accounts receivables generated by its wholly owned U.S. operating subsidiary. In November 2022, the Company amended the receivable purchase agreement to expand the program to include receivables generated by its wholly owned Australian operating subsidiaries. For the year ended December 31, 2022, the Company sold to the purchaser accounts receivable in exchange for a total aggregated amount of \$147 million of cash proceeds, and recorded \$24 million within accounts payable as of December 31, 2022 for the amount that is still due to the purchaser as a result of a periodic decrease in accounts receivable sold to the purchaser, which was paid in January 2023. Additionally, as of December 31, 2022, the Company retained approximately \$69 million of unsold receivables which were pledged as collateral for the sold receivables. As these transactions represent a true sale, the Company derecognized the sold receivables as of December 31, 2022 and classified the cash proceeds as a source of cash provided by operating activities.

The principal considerations for our determination that performing procedures relating to the accounts receivable securitization program is a critical audit matter are (i) the significant judgment by management when evaluating whether the sold receivables met the definition of a true sale in accordance with U.S. GAAP; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating the audit evidence obtained relating to the evaluation of the appropriateness of the true sale conclusion and classification of the true sale within the financial statements; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's evaluation as to whether the sold receivables met the definition of a true sale. These procedures also included, among others (i) obtaining and reviewing the third-party true sale opinions and securitization agreements; (ii) confirming, on a sample basis, the outstanding sold receivable as of December 31, 2022 with the third-party customer of the Company to validate that a bona fide receivable existed upon the sale of the receivable to the purchaser; (iii) confirming the outstanding principal balance as of December 31, 2022 with the purchaser; (iv) evaluating the appropriateness of the classification of the sold and unsold receivables in the financial statements; and (v) testing the completeness and accuracy of data provided by management. Professionals with specialized skill and knowledge were used to assist in evaluating whether the sold receivables met the definition of a true sale under U.S. GAAP and evaluating the appropriateness of the classification of the true sale in the financial statements.

/s/ PricewaterhouseCoopers LLP
Stamford, Connecticut
February 22, 2023

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

TRONOX HOLDINGS PLC
CONSOLIDATED STATEMENTS OF INCOME
(Millions of U.S. dollars, except share and per share data)

	Year Ended December 31,		
	2022	2021	2020
Net sales	\$ 3,454	\$ 3,572	\$ 2,758
Cost of goods sold	2,622	2,677	2,137
Gross profit	832	895	621
Selling, general and administrative expenses	289	318	347
Venator settlement	85	—	—
Restructuring	—	—	3
Income from operations	458	577	271
Interest expense	(125)	(157)	(189)
Interest income	9	7	8
Loss on extinguishment of debt	(21)	(65)	(2)
Other (expense) income, net	(13)	12	26
Income before income taxes	308	374	114
Income tax benefit (provision)	192	(71)	881
Net income	500	303	995
Net income attributable to noncontrolling interest	3	17	26
Net income attributable to Tronox Holdings plc	\$ 497	\$ 286	\$ 969
Earnings per share:			
Basic	\$ 3.21	\$ 1.88	\$ 6.76
Diluted	\$ 3.16	\$ 1.81	\$ 6.69
Weighted average shares outstanding, basic (in thousands)	154,867	152,056	143,355
Weighted average shares outstanding, diluted (in thousands)	157,110	157,945	144,906

See notes to consolidated financial statements.

TRONOX HOLDINGS PLC
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Millions of U.S. dollars)

	Year Ended December 31,		
	2022	2021	2020
Net income	\$ 500	\$ 303	\$ 995
Other comprehensive income (loss):			
Foreign currency translation adjustments	(79)	(113)	(4)
Pension and postretirement plans (See Note 21):			
Actuarial gains (losses), net of tax expense of \$4, tax expense of \$6 and tax benefit of \$5 in 2022, 2021 and 2020, respectively	5	16	(20)
Amortization of unrecognized actuarial losses, net of tax benefit of \$2 in 2022, \$2 in 2021 and less than \$1 in 2020	2	4	4
Settlement loss reclassified from accumulated other comprehensive loss to the Consolidated Statements of Income, net of tax benefit of \$5 in 2022 and nil for both 2021 and 2020	15	—	—
Total pension and postretirement gains (losses)	22	20	(16)
Realized (gains) losses on derivative instruments reclassified from accumulated other comprehensive loss to the Consolidated Statements of Income (net of tax expense of \$1 and \$1 in 2022 and 2021, respectively and net of tax benefit of \$2 in 2020.	(23)	(32)	4
Unrealized gains (losses) on derivative financial instruments, (net of tax expense of \$5, tax expense of \$1 and tax benefit of \$5 in 2022, 2021, 2020, respectively; See Note 14)	53	21	(4)
Other comprehensive loss	(27)	(104)	(20)
Total comprehensive income	\$ 473	\$ 199	\$ 975
Comprehensive income (loss) attributable to noncontrolling interest:			
Net income	3	17	26
Foreign currency translation adjustments	3	(10)	(16)
Comprehensive income attributable to noncontrolling interest	6	7	10
Comprehensive income attributable to Tronox Holdings plc	\$ 467	\$ 192	\$ 965

See notes to consolidated financial statements.

TRONOX HOLDINGS PLC
CONSOLIDATED BALANCE SHEETS
(Millions of U.S. dollars, except share and per share data)

	December 31,	
	2022	2021
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 164	\$ 228
Restricted cash	—	4
Accounts receivable (net of allowance of \$4 in 2022 and \$4 in 2021)	377	631
Inventories, net	1,278	1,048
Prepaid and other assets	135	132
Income taxes receivable	6	6
Total current assets	1,960	2,049
Noncurrent Assets		
Property, plant and equipment, net	1,830	1,710
Mineral leaseholds, net	701	747
Intangible assets, net	250	217
Lease right of use assets, net	136	85
Deferred tax assets	1,233	985
Other long-term assets	196	194
Total assets	\$ 6,306	\$ 5,987
LIABILITIES AND EQUITY		
Current Liabilities		
Accounts payable	\$ 486	\$ 438
Accrued liabilities	252	328
Short-term lease liabilities	20	26
Short-term debt	50	—
Long-term debt due within one year	24	18
Income taxes payable	18	12
Total current liabilities	850	822
Noncurrent Liabilities		
Long-term debt, net	2,464	2,558
Pension and postretirement healthcare benefits	89	116
Asset retirement obligations	153	139
Environmental liabilities	51	66
Long-term lease liabilities	110	55
Deferred tax liabilities	153	157
Other long-term liabilities	33	32
Total liabilities	3,903	3,945
Commitments and Contingencies - Note 18		
Shareholders' Equity		
Tronox Holdings plc ordinary shares, par value \$0.01 — 154,496,923 shares issued and outstanding at December 31, 2022 and 153,934,677 shares issued and outstanding at December 31, 2021	2	2
Capital in excess of par value	2,043	2,067
Retained Earnings	1,080	663
Accumulated other comprehensive loss	(768)	(738)
Total Tronox Holdings plc shareholders' equity	2,357	1,994
Noncontrolling interest	46	48
Total equity	2,403	2,042
Total liabilities and equity	\$ 6,306	\$ 5,987

See notes to consolidated financial statements.

TRONOX HOLDINGS PLC
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Millions of U.S. dollars)

	Year Ended December 31,		
	2022	2021	2020
Cash Flows from Operating Activities:			
Net income	500	303	995
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation, depletion and amortization	269	297	304
Deferred income taxes	(261)	15	(899)
Share-based compensation expense	26	31	30
Amortization of deferred debt issuance costs and discount on debt	8	11	10
Loss on extinguishment of debt	21	65	2
Other non-cash affecting net income	50	36	65
Changes in assets and liabilities:			
Decrease (increase) in accounts receivable, net	233	(108)	(49)
(Increase) decrease in inventories, net	(255)	53	(21)
Decrease (increase) in prepaid and other assets	47	53	(29)
(Decrease) increase in accounts payable and accrued liabilities	(5)	53	17
Net changes in income tax payables and receivables	5	9	(2)
Changes in other non-current assets and liabilities	(40)	(78)	(68)
Cash provided by operating activities	598	740	355
Cash Flows from Investing Activities:			
Capital expenditures	(428)	(272)	(195)
Insurance proceeds	—	1	1
Loans	—	—	(36)
Proceeds from the sale of assets	13	2	1
Cash used in investing activities	(415)	(269)	(229)
Cash Flows from Financing Activities:			
Repayments of short-term debt	(113)	—	(13)
Repayments of long-term debt	(516)	(3,212)	(233)
Proceeds from short-term debt	142	—	13
Proceeds from long-term debt	396	2,472	500
Repurchase of common stock	(50)	—	—
Debt issuance costs	(4)	(37)	(10)
Call premium paid	(18)	(40)	—
Dividends paid	(87)	(65)	(40)
Restricted stock and performance-based shares settled in cash for taxes	—	(3)	(3)
Proceeds from the exercise of stock options	—	8	—
Cash (used in) provided by financing activities	(250)	(877)	214
Effects of exchange rate changes on cash and cash equivalents and restricted cash	(1)	(10)	(3)
Net (decrease) increase in cash and cash equivalents and restricted cash	(68)	(416)	337
Cash and cash equivalents and restricted cash at beginning of period	232	648	311
Cash and cash equivalents and restricted cash at end of period	\$ 164	\$ 232	\$ 648
Supplemental cash flow information:			
Interest paid, net	\$ 114	\$ 138	\$ 159
Income taxes paid	\$ 60	\$ 47	\$ 17

See notes to consolidated financial statements.

TRONOX HOLDINGS PC
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
(Millions of U.S. dollars)

	Tronox Holdings plc Ordinary Shares (in thousands)	Tronox Holdings plc Ordinary Shares (amount)	Capital in Excess of par Value	(Accumulated Deficit) Retained Earnings	Accumulated Other Comprehensive Loss	Total Tronox Limited Shareholders' Equity	Non- controlling Interest	Total Equity
Balance at January 1, 2020	141,900	\$ 1	\$ 1,846	\$ (493)	\$ (606)	\$ 748	\$ 168	\$ 916
Net income	—	—	—	969	—	969	26	995
Other comprehensive loss	—	—	—	—	(4)	(4)	(16)	(20)
Shares-based compensation	2,032	—	30	—	—	30	—	30
Shares cancelled	(375)	—	(3)	—	—	(3)	—	(3)
Measurement period adjustment related to Cristal acquisition	—	—	—	—	—	—	(3)	(3)
Minority interest dividend	—	—	—	—	—	—	(2)	(2)
Ordinary share dividends (\$0.28 per share)	—	—	—	(42)	—	(42)	—	(42)
Balance at December 31, 2020	143,557	\$ 1	\$ 1,873	\$ 434	\$ (610)	\$ 1,698	\$ 173	\$ 1,871
Net income	—	—	—	286	—	286	17	303
Other comprehensive loss	—	—	—	—	(94)	(94)	(10)	(104)
Shares-based compensation	2,844	—	31	—	—	31	—	31
Shares cancelled	(137)	—	(3)	—	—	(3)	—	(3)
Options exercised	425	—	8	—	—	8	—	8
Acquisition of noncontrolling interest	7,246	1	158	—	(34)	125	(125)	—
Ordinary share dividends (\$0.36 per share)	—	—	—	(57)	—	(57)	(7)	(64)
Balance at December 31, 2021	153,935	\$ 2	\$ 2,067	\$ 663	\$ (738)	\$ 1,994	\$ 48	\$ 2,042
Net income	—	—	—	497	—	497	3	500
Other comprehensive loss	—	—	—	—	(30)	(30)	3	(27)
Shares-based compensation	3,420	—	26	—	—	26	—	26
Shares cancelled	(28)	—	—	—	—	—	—	—
Options exercised	14	—	—	—	—	—	—	—
Shares repurchased and cancelled	(2,844)	—	(50)	—	—	(50)	—	(50)
Noncontrolling interest dividend	—	—	—	—	—	—	(8)	(8)
Ordinary share dividends (\$0.50 per share)	—	—	—	(80)	—	(80)	—	(80)
Balance at December 31, 2022	154,497	\$ 2	\$ 2,043	\$ 1,080	\$ (768)	\$ 2,357	\$ 46	\$ 2,403

See notes to consolidated financial statements.

TRONOX HOLDINGS PLC
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

Tronox Holdings plc (referred to herein as "Tronox", the "Company", "we", "us", or "our") operates titanium-bearing mineral sand mines and beneficiation operations in Australia and South Africa to produce feedstock materials that can be processed into TiO₂ for pigment, high purity titanium chemicals, including titanium tetrachloride, and Ultrafine© titanium dioxide used in certain specialty applications. Our strategy is to be vertically integrated and produce enough feedstock materials to be as self-sufficient as possible in the production of TiO₂ at our 9 pigment facilities located in the United States, Australia, Brazil, UK, France, the Netherlands, China and the Kingdom of Saudi Arabia ("KSA"). We believe that vertical integration is the best way to achieve our ultimate goal of delivering low cost, high-quality pigment to our coatings and other TiO₂ customers throughout the world. The mining, beneficiation and smelting of titanium bearing mineral sands creates meaningful quantities of zircon, pig iron and the rare-earth bearing mineral, monazite, which we also supply to customers around the world.

We are a public limited company listed on the New York Stock Exchange and are registered under the laws of England and Wales.

Basis of Presentation

We are considered a domestic company in the United Kingdom and, as such, are required to comply with filing requirements in the United Kingdom. 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.

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.

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 our reporting currency for our consolidated financial statements in U.S. GAAP. 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 (expense) income, net" in the Consolidated Statements of Income. When a 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.

Translation adjustments on intercompany foreign currency receivables and payables 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 Income. Accruals are made for sales returns, rebates and other allowances, which are recorded in "Net sales" in the Consolidated Statements of Income and are based on our historical experience and current business conditions. Additionally, we have elected the practical expedient to

exclude sales taxes and similar taxes that we collect from customers on behalf of government authorities from the revenue transaction price. See Note 3.

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 Income comprised of salaries, building costs, utilities, administrative expenses, third party research, and allocations of corporate costs, were \$12 million, \$13 million, and \$12 million during 2022, 2021, and 2020, respectively, and were expensed as incurred.

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.

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 of 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 5.

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 20), 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 and options. The options are included in the calculation of diluted earnings per ordinary share utilizing the treasury stock method. See Note 6.

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.

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, 2022, we had restricted cash of less than \$1 million which was in Australia related to outstanding performance bonds. At December 31, 2021, we had restricted cash of \$4 million comprised of \$3 million in Australia related to outstanding performance bonds and \$1 million in Saudi Arabia related to vendor supply agreement guarantees.

Accounts Receivable, net of allowance for credit losses

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 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 8.

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 Income. See Note 9.

We capitalize costs associated with our asset retirement obligations which are generally included in machinery and equipment. See Note 17.

We capitalize interest costs on major projects that require an extended period of time to complete. See Note 13.

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 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 10.

Intangible assets are stated at cost less accumulated amortization and are amortized on a straight-line basis over their estimated useful lives, which generally range from 3 to 20 years. See Note 11.

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.

Leases

We determine if a contract is or contains a lease at inception of the contract. Our leases are primarily operating leases. Leased assets primarily include office buildings, rail cars and motor vehicles, forklifts, and other machinery and equipment. Our leases primarily have fixed lease payments, with real estate leases typically requiring additional payments for real estate taxes and occupancy-related costs. Certain of our leases also have variable lease payments. Variable lease payments that depend on an index or a rate (such as the Consumer Price Index) are included in our initial measurement of the lease right of use assets and lease liabilities. Variable lease payments that are not index or rate based (such as variable payments based on our performance or use of the leased assets) are recorded as expenses when incurred and excluded from the measurement of right of use assets and lease liabilities. Our leases typically have initial lease terms ranging from 1 to 25 years. Some of our lease agreements include options to renew, extend or early terminate the leases. Lease term is the non-cancellable period of a lease, adjusted by the period covered by an option to extend or terminate the lease if we are reasonably certain to exercise (or not exercise) that option. Our operating leases typically do not contain purchase options we expect to exercise, residual value guarantees or other material covenants.

Operating leases are recorded under "Lease right of use assets", "Short-term lease liabilities", and "Long-term lease liabilities" on the Consolidated Balance Sheets. Finance leases are recorded under "Property, plant and equipment net", "Long-term debt due within one year", and "Long-term debt" on the Consolidated Balance Sheets. Operating lease right of use ("ROU") assets and lease liabilities are initially recorded at the present value of the future minimum lease payments over the lease term at the commencement date. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at the lease commencement date in determining the present value of future payments. Lease payments for the initial measurement of lease ROU assets and lease liabilities include fixed payments and variable payments that depend on an index or a rate. Variable lease payments that are not index or rate based are recorded as expenses when incurred. Operating lease ROU assets are amortized on a straight-line basis over the period of the lease. Finance lease ROU assets are amortized on a straight-line basis over the shorter of their estimated useful lives of leased asset and the lease terms. See Note 16.

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 Income. 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 Income. See Note 13.

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 Income. See Note 17.

Environmental Remediation and Other Contingencies

We record an undiscounted liability when any of the following occur: 1) a claim or assessment has been asserted, 2) a litigation has commenced, or 3) based on available information, it is probable that a claim or an assessment will be asserted or a litigation will commence; and in addition, the outcome is expected to be unfavorable to us and the associated costs can be reasonably estimated. See Note 18.

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.

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 20.

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 Sheets. 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 Income. Net periodic cost is recorded in cost of goods sold and selling, general and administrative expenses in the Consolidated Statement of Income 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 (loss) in the Consolidated Statement of Comprehensive Income. 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 Income 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.

Recently Issued Accounting Pronouncements

In March 2020, the FASB issued ASU 2020-04, "Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform Financial Reporting". This amendment is elective in nature. Amongst other aspects, this standard provides for practical expedients and exceptions to current accounting standards that reference a rate which is expected to be dissolved (e.g., London Interbank Offered Rate "LIBOR") as it relates to hedge accounting, contract modifications and other transactions that reference this rate, subject to meeting certain criteria. The standard is effective for all entities as of March 12, 2020 through December 31, 2022. In December 2022, the FASB issued ASU 2022-06, which defers the sunset date of ASC 848, Reference Rate Reform, from December 31, 2022 to December 31, 2024. ASU 2022-06 is effective immediately for all entities.

We have conducted an internal assessment to identify items that would be impacted as a result of the dissolution of LIBOR. Based upon this assessment, we have determined that this change will be most impactful to our intercompany debt agreements and interest rate swap agreements. Upon conversion of these benchmark rates, we intend to elect the practical expedients allowed under this standard which is expected to result in an immaterial impact to the financial statements.

3. Revenue

Nature of Contracts and Performance Obligations

We primarily generate revenue from selling TiO₂ pigment products 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 Income.

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 Income. 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 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, 2022, and December 31, 2021, 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. When a customer has poor credit worthiness, we may receive advance payment 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, 2022 and December 31, 2021 were less than \$1 million and \$2 million, respectively. Contract liability balances were reported as "Accrued liabilities" in the Consolidated Balance Sheets. All material contract liabilities as of December 31, 2021 and 2020 were recognized as revenue in "Net sales" in the Consolidated Statements of Income during the first quarter of 2022 and first quarter of 2021, respectively.

Disaggregation of Revenue

We operate under one operating and reportable segment, Tronox. See Note 23 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:

	Year Ended December 31,		
	2022	2021	2020
North America	\$ 790	\$ 743	\$ 716
South and Central America	264	252	181
Europe, Middle-East and Africa	1,335	1,398	1,013
Asia Pacific	1,065	1,179	848
Total net sales	\$ 3,454	\$ 3,572	\$ 2,758

The 2020 amounts by geographic area in table above have been corrected for an increase and decrease of \$78 million to Asia Pacific and North America, respectively, as well as an increase and decrease of \$134 million to Europe, Middle-East and Africa and South and Central America, respectively.

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

	Year Ended December 31,		
	2022	2021	2020
TiO ₂	\$ 2,693	\$ 2,793	\$ 2,176
Zircon	438	478	283
Other products	323	301	299
Total net sales	\$ 3,454	\$ 3,572	\$ 2,758

Other products mainly include pig iron, TiCl₄ and other mining products. The nature, amount, timing and uncertainty of revenue and cash flows typically do not differ significantly among different products.

4. Other (Expense) Income, Net

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

	Year Ended December 31,		
	2022	2021	2020
Net realized and unrealized foreign currency gains (losses)	\$ (3)	\$ 16	\$ 4
Pension and postretirement benefit interest cost, expected return on assets and amortization of actuarial losses	4	5	1
Pension and postretirement benefit settlement and curtailment (losses) gains ⁽¹⁾	(20)	—	2
Insurance proceeds ⁽²⁾	—	—	11
Breakage fee ⁽³⁾	—	(18)	—
AMIC technical service support fee (Note 22)	8	8	5
Other, net	(2)	1	3
Total	\$ (13)	\$ 12	\$ 26

(1) 2022 amount is a settlement loss related to our U.S. Qualified Plan. 2020 amount is a curtailment gain related to our former U.S. Pension Plan (acquired as part of the Cristal transaction). See Note 21.

(2) 2020 amount represents reimbursement from claims related to the Ginkgo concentrator failure we inherited as a part of the Cristal Transaction.

(3) 2021 amount represents the breakage fee associated with the termination of the TTI acquisition.

5. 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) before income taxes is comprised of the following:

	Year Ended December 31,		
	2022	2021	2020
United Kingdom	\$ (130)	\$ (16)	\$ (12)
International	438	390	126
Income before income taxes	\$ 308	\$ 374	\$ 114

The income tax (provision) benefit is summarized below:

	Year Ended December 31,		
	2022	2021	2020
United Kingdom:			
Current	\$ —	\$ (1)	\$ (1)
Deferred	—	—	(10)
International:			
Current	(69)	(55)	(17)
Deferred	261	(15)	909
Income tax benefit (provision)	\$ 192	\$ (71)	\$ 881

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 Income.

	Year Ended December 31,		
	2022	2021	2020
Statutory tax rate	19 %	19 %	19 %
Increases (decreases) resulting from:			
Tax rate differences	9	7	10
Disallowable expenditures	8	2	17
Valuation allowances	(100)	(27)	(849)
Corporate reorganization	—	17	(96)
Tax rate changes	(3)	2	(8)
State and local taxes	1	1	5
Prior year accruals	—	(2)	131
Branch taxation	—	—	—
Withholding taxes	2	2	—
Tax credits	—	(2)	(2)
Expiration of net operating loss	2	—	—
Other, net	—	—	—
Effective tax rate	<u>(62)%</u>	<u>19 %</u>	<u>(773)%</u>

Tronox Holdings plc is a U.K. public limited company and the parent company for the business group. The statutory tax rate in the U.K. at December 31, 2022, 2021 and 2020 was 19%.

The effective tax rates in 2022, 2021 and 2020 are all influenced by a variety of factors, primarily income and losses in jurisdictions with valuation allowances, changes in tax rates, disallowable expenditures, prior year accruals, and rates different than the United Kingdom statutory rate. The valuation allowances in each year were impacted by items other than income and losses as follows: 2022 was impacted by the significant release of valuation allowances in Australia, 2021 was impacted by the release of a valuation allowance in Saudi Arabia and the liquidation of an inactive Dutch subsidiary with a valuation allowance against its worthless net operating losses, and 2020 was impacted by the release of valuation allowances in Brazil and the U.S. and the recording of valuation allowances in Saudi Arabia and the U.K. Additional factors of significance in the above table are as follows: 1) the disallowance expenditures amount for 2022 includes the Venator settlement, 2) the Corporate reorganization amount for 2021 includes the liquidation of the inactive Dutch subsidiary and the write-off of its net operating losses, 3) the Corporate reorganization amounts for 2021 and 2020 include the restructuring of our Australian entities, and 4) the Prior year accrual amount for 2020 includes the amendment of prior year Australian tax returns in resolution of a tax audit. Each of these additional factors were fully offset by valuation allowances.

The Company reached an agreement with the Australian Tax Office ("ATO") during the year ended December 31, 2020 for the tax years 2016 through 2019 related to the companies operating in Australia acquired in the Cristal transaction, which were under examination by the ATO. Cash tax payments to be made pursuant to this agreement are not reflected in the above table due to the indemnification clause of the Cristal Transaction purchase contract. As part of the agreement, \$79 million in deferred tax assets related to Australian NOLs were lost. The change to deferred taxes was fully offset by a valuation allowance and results in no impact to the consolidated provision. The NOL adjustment from the ATO agreement is reflected in the "Prior year accruals" line of the effective tax rate table.

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 2020. During 2020, tax law changes fully repealed the future Netherlands rate reduction, and this benefit is also reflected in the "Tax rate changes" line.

Net deferred tax assets (liabilities) at December 31, 2022 and 2021 were comprised of the following:

	December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss and other carryforwards	\$ 1,739	\$ 1,720
Property, plant and equipment, net	200	220
Reserves for environmental remediation and restoration	47	43
Obligations for pension and other employee benefits	46	58
Investments	4	4
Grantor trusts	621	636
Inventories, net	6	8
Interest	190	214
Lease liabilities	48	23
Other accrued liabilities	2	3
Foreign exchange	1	9
Other	5	7
Total deferred tax assets	2,909	2,945
Valuation allowance associated with deferred tax assets	(1,527)	(1,841)
Net deferred tax assets	1,382	1,104
Deferred tax liabilities:		
Inventories, net	(3)	(5)
Property, plant and equipment, net	(228)	(216)
Intangible assets, net	(15)	(22)
Lease assets	(38)	(24)
Foreign exchange	(4)	(1)
Other	(14)	(8)
Total deferred tax liabilities	(302)	(276)
Net deferred tax asset	\$ 1,080	\$ 828
Balance sheet classifications:		
Deferred tax assets — long-term	\$ 1,233	\$ 985
Deferred tax liabilities — long-term	\$ (153)	\$ (157)
Net deferred tax asset	\$ 1,080	\$ 828

The net deferred tax assets 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. As the grantor trusts continue to spend funds received from the litigation and earn income from the investment of those funds, the U.S. net operating loss will increase or decrease.

The 2021 amounts included within the Property, plant and equipment, net and Valuation allowance associated with deferred tax asset captions in the table above have each been corrected for an increase of \$113 million to gross up historical amounts.

There was a decrease to our valuation allowance of \$314 million during 2022 and a decrease of \$98 million in 2021. The table below sets forth the changes, by jurisdiction:

	December 31,	
	2022	2021
United Kingdom	\$ 13	\$ (1)
United States	(5)	(19)
Australia	(314)	(43)
The Netherlands	—	(24)
Saudi Arabia	—	(11)
Brazil	—	—
Switzerland	(8)	—
Belgium	—	—
Total (decrease) increase in valuation allowances	\$ (314)	\$ (98)

During the year ended December 31, 2022, we determined that sufficient positive evidence existed to reverse a portion of the valuation allowance attributable to the Australian deferred tax assets which we now believe the Company will be able to utilize in

future years. This reversal resulted in a non-cash deferred tax benefit of \$300 million. Our analysis considered all positive and negative evidence, including (i) three years of cumulative income of our Australian subsidiaries, (ii) our continuing and improved profitability over the last twelve months, (iii) estimates of continued profitability based on updated to our latest forecasts, (iv) changes in the factors that drove losses in the past, and (v) an evaluation of specific deferred tax assets for limitations under certain Australian tax provisions. Based on this analysis, we concluded that it is more likely than not that our Australian subsidiaries will be able to utilize all of their deferred tax assets except for those which are classified as Capital Gains Tax (CGT) assets. These CGT assets represent losses which can only be utilized against CGT gains, and because the Company has no foreseeable source of CGT gains, we will continue to carry an Australian valuation allowance with a current estimated value of \$471 million.

During the year ended December 31, 2021, the Company liquidated an inactive Dutch subsidiary with a valuation allowance against its worthless net operating losses, and because of improved operations, the Company reversed the valuation allowance in Saudi Arabia which had been established during the year December 31, 2020.

During the year ended December 31, 2020, we determined sufficient positive evidence existed to reverse a portion of the valuation allowance attributable to the deferred tax assets associated with our operations in the U.S. This reversal resulted in a non-cash deferred tax benefit of \$909 million. Our analysis considered all positive and negative evidence and concluded that it was more likely than not that our U.S. subsidiaries will be able to utilize all of their deferred tax assets with an indefinite life. A portion of the U.S. deferred tax assets are attributable to NOLs incurred in prior years which are subject to expiration in future years. Our analysis did not support that these limited-life NOLs would be utilized before their expiration, and it is against these deferred tax assets in the U.S. that the Company continues to carry a valuation allowance with a current estimated value of \$1,021 million.

During the year ended December 31, 2020, we also determined sufficient positive evidence existed to reverse the valuation allowance attributable to the deferred tax assets associated with our operations in Brazil. This reversal resulted in a non-cash deferred tax benefit of \$8 million. Our analysis considered all positive and negative evidence, the most significant of which was the continuing and improved profitability of the Brazilian company subsequent to its acquisition in 2019 and estimates of continued profitability based on updates to our latest forecasts. Based on this analysis, we concluded that it is more likely than not that our Brazilian subsidiary will be able to utilize all of its deferred tax assets.

During the year ended December 31, 2020, we established a valuation allowance against the net deferred tax assets in the United Kingdom. The addition of this valuation allowance resulted in a non-cash deferred tax provision of \$10 million. Forecasted changes to intercompany interest is recent negative evidence now impacting our analysis.

At December 31, 2022, the table above reflects full valuation allowances related to the total net deferred tax assets in Switzerland and the United Kingdom, as we cannot objectively assert that these deferred tax assets are more likely than not to be realized. Future provisions for income taxes will include no tax benefits with respect to losses incurred and tax expense only to the extent of current tax payments until the valuation allowances are eliminated. Additionally, we have valuation allowances against specific tax assets in Australia, South Africa and the U.S.

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 Switzerland and the United Kingdom relates to cumulative book losses. The most significant evidential matter for Australia and South Africa relates to capital losses and assets that cannot be depleted or depreciated for tax purposes.

The deferred tax assets generated by tax loss carryforwards in Switzerland and the United Kingdom have been fully offset by valuation allowances. In the United States, the deferred tax assets generated by tax loss carryforwards are partially offset by a valuation allowance to the extent they are subject to expiration. The expiration of these carryforwards at December 31, 2022 is

shown below. The Australian, Saudi Arabian, French, Brazilian and United Kingdom tax loss carryforwards do not expire.

	2023	2024	2025	2026	2027	2028 - 2040	Unlimited	Total Tax Loss Carryforwards
United Kingdom	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ (97)	\$ (97)
Australia	—	—	—	—	—	—	(436)	(436)
The Netherlands	—	—	—	—	—	—	(83)	(83)
France	—	—	—	—	—	—	(180)	(180)
Saudi Arabia	—	—	—	—	—	—	(6)	(6)
Switzerland	(80)	—	—	—	—	—	—	(80)
China	—	—	—	—	(5)	—	—	(5)
Brazil	—	—	—	—	—	—	(10)	(10)
U.S. Federal	—	—	—	—	—	(3,959)	(334)	(4,293)
U.S. State	(14)	(12)	(40)	(75)	(27)	(4,060)	(19)	(4,247)
Total tax loss carryforwards	\$ (94)	\$ (12)	\$ (40)	\$ (75)	\$ (32)	\$ (8,019)	\$ (1,165)	\$ (9,437)

At December 31, 2022, Tronox Holdings plc had foreign subsidiaries with undistributed earnings. Although we would not be subject to income tax on these earnings, amounts totaling \$454 million are in specific jurisdictions which we assert are indefinitely reinvested outside of the parents' taxing jurisdictions. These amounts could be subject to withholding tax if distributed, but the Company has made no provision for tax related to these undistributed earnings. The Company has removed its assertion that earnings in China are indefinitely reinvested, and the withholding tax accruals for potential repatriations from that jurisdiction are now reflected in the effective tax rate reconciliation above.

The noncurrent liabilities section of our Consolidated Balance Sheet does not reflect any reserves for uncertain tax positions for either 2022 or 2021.

Our Chinese returns are closed through 2018. Our U.K. and Brazilian returns are closed through 2016. Our Australian, South African, and U.S. returns are closed through 2018. Our Netherlands and French returns are closed through 2019.

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.

6. Income Per Share

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

	Year Ended December 31,		
	2022	2021	2020
Numerator – Basic and Diluted:			
Net income	\$ 500	\$ 303	\$ 995
Less: Net income attributable to noncontrolling interest	3	17	26
Net income available to ordinary shares	<u>\$ 497</u>	<u>\$ 286</u>	<u>\$ 969</u>
Denominator – Basic and Diluted:			
Weighted-average ordinary shares, basic (in thousands)	<u>154,867</u>	<u>152,056</u>	<u>143,355</u>
Weighted-average ordinary shares, diluted (in thousands)	<u>157,110</u>	<u>157,945</u>	<u>144,906</u>
Net income per Ordinary Share:			
Basic net income per ordinary share	\$ 3.21	\$ 1.88	\$ 6.76
Diluted net income per ordinary share	<u>\$ 3.16</u>	<u>\$ 1.81</u>	<u>\$ 6.69</u>

Net income per ordinary share amounts were calculated from exact, unrounded net income and share information. Anti-dilutive shares not recognized in the diluted net income per share calculation for the years ended December 31, 2022, 2021 and 2020 were as follows:

	Shares		
	2022	2021	2020
Options	515,092	414,296	1,201,891
Restricted share units	1,590,086	—	1,054,994

7. Accounts Receivable Securitization Program

On March 15, 2022, the Company entered into an accounts receivable securitization program (“Securitization Facility”) with a financial institution (“Purchaser”), through our wholly-owned special purpose bankruptcy-remote subsidiary Tronox Securitization LLC (“SPE”). The purpose of this program is to enhance the Company’s financial flexibility by providing additional liquidity. The Securitization Facility permitted the SPE to sell accounts receivable up to \$75 million (the “Facility Limit”). Under the Securitization Facility, our wholly-owned U.S. operating subsidiary, Tronox LLC (“Originator”), sells its entire accounts receivable on a periodic basis to the SPE. The SPE in turn sells undivided interests in the receivables that meet certain eligibility criteria, pursuant to the terms of a receivable purchase agreement, to the Purchaser in exchange for cash, not to exceed the Facility Limit. The SPE retains the remaining receivables as unsold receivables which are pledged as a collateral for the sold receivables to which the purchaser is granted a first priority security interest.

Following the sale of the receivables by the Originator to the SPE, the receivables are legally isolated from Tronox and its affiliated entities, and upon the subsequent sale and transfer of the receivables from the SPE to the administrative agent, effective control of the receivables is passed to the purchaser, which has all rights, including the right to pledge or sell the receivables. Any new receivables that are not sold to the purchaser by the SPE are added to the unsold receivables held as collateral.

During March 2022, the Company sold accounts receivable having an aggregate face value of \$75 million to the Purchaser in exchange for cash proceeds of \$75 million.

In November 2022, the Company amended the receivable purchase agreement to expand the program to include receivables generated by its wholly-owned Australian operating subsidiaries, Tronox Pigment Pty Ltd., Tronox Pigment Bunbury Ltd. and Tronox Mining Australia Ltd. which increased the Facility Limit to \$200 million and extended the program term to November 2025. Following this amendment, we sold additional accounts receivable in exchange for net cash proceeds of \$72 million, for a total aggregate amount of \$147 million for the combined program.

For the year ended December 31, 2022, the Company sold to the Purchaser accounts receivable a total of \$123 million which resulted in the Company recording \$24 million within "Accounts Payable" on the Consolidated Balance Sheet at December 31, 2022 as this amount is due to the Purchaser as a result of a periodic decrease in accounts receivable sold to the Purchaser, which was paid in January 2023.

At December 31, 2022, we retained approximately \$69 million of unsold receivables which we pledged as collateral for the sold receivables. As this transaction represents a true sale, we derecognized the sold receivables from our Consolidated Balance Sheet as of December 31, 2022 and classified the cash proceeds as source of cash provided by operating activities in our Consolidated Statement of Cash Flows.

8. Inventories, net

Inventories, net consisted of the following:

	December 31,	
	2022	2021
Raw materials	\$ 261	\$ 265
Work-in-process	125	117
Finished goods, net	641	461
Materials and supplies, net	251	205
Inventories, net	<u>\$ 1,278</u>	<u>\$ 1,048</u>

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, 2022 and 2021, inventory obsolescence reserves were \$42 million and \$43 million, respectively. At December 31, 2022 and December 31, 2021, reserves for lower of cost and net realizable value were \$27 million and \$11 million, respectively.

9. Property, Plant and Equipment

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

	December 31,	
	2022	2021
Land and land improvements	\$ 226	\$ 188
Buildings	390	365
Machinery and equipment	2,330	2,234
Construction-in-progress	370	263
Other	62	73
Subtotal	3,378	3,123
Less: accumulated depreciation	(1,548)	(1,413)
Property, plant and equipment, net	<u>\$ 1,830</u>	<u>\$ 1,710</u>

Substantially all the Property, plant and equipment, net is pledged as collateral for our debt. See Note 13.

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 Income:

	Year Ended December 31,		
	2022	2021	2020
Cost of goods sold	\$ 205	\$ 222	\$ 233
Selling, general and administrative expenses	4	5	5
Total	<u>\$ 209</u>	<u>\$ 227</u>	<u>\$ 238</u>

10. Mineral Leaseholds, net

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

	December 31,	
	2022	2021
Mineral leaseholds	\$ 1,282	\$ 1,306
Less accumulated depletion	(581)	(559)
Mineral leaseholds, net	<u>\$ 701</u>	<u>\$ 747</u>

Depletion expense related to mineral leaseholds during 2022, 2021, and 2020 was \$29 million, \$37 million, and \$33 million, respectively, and was recorded in "Cost of goods sold" in the Consolidated Statements of Income.

11. Intangible Assets, net

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

	December 31, 2022			December 31, 2021		
	Gross Cost	Accumulated Amortization	Net Carrying Amount	Gross Cost	Accumulated Amortization	Net Carrying Amount
Customer relationships	\$ 291	\$ (231)	\$ 60	\$ 291	\$ (211)	\$ 80
TiO ₂ technology	93	(37)	56	93	(31)	62
Internal-use software and other	179	(45)	134	120	(45)	75
Intangible assets, net	<u>\$ 563</u>	<u>\$ (313)</u>	<u>\$ 250</u>	<u>\$ 504</u>	<u>\$ (287)</u>	<u>\$ 217</u>

As of December 31, 2022 and 2021, internal-use software included approximately \$106 million and \$68 million, respectively, of capitalized software costs which are not being amortized as the software is not ready for its intended use.

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 Income:

	Year Ended December 31,		
	2022	2021	2020
Cost of goods sold	\$ 2	\$ 2	\$ 2
Selling, general and administrative expenses	29	31	31
Total	<u>\$ 31</u>	<u>\$ 33</u>	<u>\$ 33</u>

Estimated future amortization expense related to intangible assets is \$28 million for 2023, \$36 million for 2024, \$39 million for 2025, \$21 million for 2026, \$19 million for 2027 and \$107 million thereafter.

12. Balance Sheet and Cash Flows Supplemental Information

Accrued liabilities consisted of the following:

	December 31,	
	2022	2021
Employee-related costs and benefits	\$ 107	\$ 155
Related party payables	15	1
Interest	15	20
Sales rebates	37	36
Taxes other than income taxes	13	18
Asset retirement obligations	8	10
Interest rate swaps	—	25
Other accrued liabilities	57	63
Accrued liabilities	<u>\$ 252</u>	<u>\$ 328</u>

Additional supplemental cash flow information for the year ended and as of December 31, 2022, 2021 and 2020 is as follows:

	Year Ended December 31,		
	2022	2021	2020
Supplemental non cash information:			
Operating activities - reduction of Hawkins Point environmental obligation	\$ 12	\$ —	\$ —
Operating activities - MGT sales made to AMIC	\$ 3	\$ 4	\$ —
Operating activities - Interest expense on MGT loan	\$ 1	\$ 1	\$ —
Investing activities - sale of Hawkins Point land	\$ 12	\$ —	\$ —
Investing activities - Acquisition of MGT assets	\$ —	\$ —	\$ 36
Financing activities - debt assumed in the acquisition of MGT assets	\$ —	\$ —	\$ 36
Financing activities - Acquisition of noncontrolling interest	\$ —	\$ 125	\$ —
Financing activities - Repayment of MGT loan	\$ 3	\$ 3	\$ —
Financing activities - Initial commercial insurance premium financing agreement	\$ 21	\$ —	\$ —
	December 31,		
	2022	2021	2020
Capital expenditures acquired but not yet paid	\$ 72	\$ 75	\$ 37

13. Debt

Long-term Debt

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

	Original Principal	Annual Interest Rate	Maturity Date	December 31, 2022	December 31, 2021
Term Loan Facility, net of unamortized discount ⁽¹⁾	\$ 1,300	Variable	3/11/2028	\$ 898	\$ 897
2022 Term Loan Facility, net of unamortized discount ⁽¹⁾	400	Variable	4/4/2029	393	—
Senior Notes due 2029	1,075	4.63 %	3/15/2029	1,075	1,075
6.5% Senior Secured Notes due 2025	500	6.50 %	5/1/2025	—	500
Standard Bank Term Loan Facility ⁽¹⁾	98	Variable	11/11/2026	77	92
Australian Government Loan, net of unamortized discount	N/A	N/A	12/31/2036	1	1
MGT Loan ⁽²⁾	36	Variable	Variable	30	33
Finance leases				47	14
Long-term debt				2,521	2,612
Less: Long-term debt due within one year				(24)	(18)
Debt issuance costs				(33)	(36)
Long-term debt, net				\$ 2,464	\$ 2,558

⁽¹⁾The average effective interest rate, including impacts of our interest rate swap, for the Term Loan Facility was 4.8% and 5.1% for the year ended December 31, 2022 and 2021, respectively. The average effective interest rate on the Standard Bank Term Loan Facility was 7.2% and 7.3% for the year ended December 31, 2022 and 2021, respectively. The average effective interest rate on the 2022 Term Loan Facility was 5.8% for the year ended December 31, 2022.

⁽²⁾The MGT loan is a related party debt facility. Average effective interest rate on the MGT loan was 4.4% and 3.1% during the year ended December 31, 2022 and 2021, respectively. Refer below for further details.

At December 31, 2022, the scheduled maturities of our long-term debt were as follows:

	Total Borrowings
2023	20
2024	21
2025	22
2026	63
2027	6
Thereafter	2,397
Total	2,529
Remaining accretion associated with the Term Loan Facility and the 2022 Term Loan Facility	(8)
Total borrowings	2,521

Long-term Debt

Prior Term Loan Facility, Term Loan Facility, Cash Flow Revolver and 2022 Term Loan Facility

On September 22, 2017, we entered into a senior secured first lien term loan facility (the “Prior 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 Prior Term Loan Facility consisted of a U.S. dollar term facility in an aggregate principal amount of \$2.15 billion (the “Term Loans”) with our subsidiary, Tronox Finance LLC (“Tronox Finance”) as the borrower. The Prior Term Loan Facility bore interest at the “Applicable Rate” defined by reference to a grid-pricing matrix that relates to our First Lien Net Leverage Ratio and was issued net of an original issue discount of \$11 million.

On September 22, 2017, we entered into a global senior secured asset-based syndicated revolving credit facility with Wells Fargo Bank, N.A. (the “Wells Fargo Revolver”). The Wells Fargo Revolver which initially provided us with up to \$550 million of revolving credit lines, with an \$85 million sublimit for letters of credit, and had a maturity date of September 22, 2022. Our availability of revolving credit loans and letters of credit was subject to a borrowing base. Borrowings bore 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 was 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.

The Wells Fargo Revolver was terminated during the year ended December 31, 2021 as a result of the Cash Flow Revolver (defined below).

In December 2020, the Company made a voluntary prepayment of \$200 million on the Prior Term Loan Facility. As a result of the voluntary prepayment, we recorded \$2 million in “Loss on extinguishment of debt” within the Consolidated Statement of Income for the year ended December 31, 2020. No prepayment penalties were required as a result of this principal prepayment.

On March 11, 2021, Tronox Finance LLC entered into an amendment and restatement of its Prior Term Loan Facility pursuant to which, among other thing, we amended and restated the Prior Term Loan Facility with a new amended and restated first lien credit agreement dated as of September 22, 2017 (as amended through and including March 11, 2021) with a syndicate of lenders and HSBC Bank USA, National Association, as administrative agent and collateral agent. The new amended and restated first lien credit agreement provides the Company with (a) a new seven-year term loan facility (“Term Loan Facility”) in an aggregate principal amount of \$1.3 billion and (b) new five-year cash flow revolving facility (the “Cash Flow Revolver”) providing initial revolving commitments of \$350 million and a sublimit of \$125 million for letters of credit. The maturity date on the Term Loan Facility and the Cash Flow Revolver is March 11, 2028 and March 11, 2026, respectively.

The Term Loan Facility shall bear interest at either the base rate or an adjusted LIBOR rate, in each case plus an applicable margin. The applicable margin in respect of the Term Loan Facility is either 1.50% or 1.25%, for base rate loans, or 2.50% or 2.25%, for adjusted LIBOR rate loans, in each case determined based on, initially the passage of time, and thereafter upon the Company’s first lien net leverage ratio at the applicable time. Interest is payable on the Term Loan Facility on the last business of each March, June, September and December. Based on our first lien net leverage ratio, the applicable margin under the Term Loan Facility as of December 31, 2022 was LIBOR plus a margin of 2.25%. The Cash Flow Revolver shall bear interest at either the base rate or adjusted LIBOR rate, in each case plus an applicable margin. The applicable margin in respect of the Cash Flow Revolver is either 1.25%, 1.00% or 0.75% for base rate loans, or 2.25%, 2.00% or 1.75%, for adjusted LIBOR Rate Loans, in each case determined based on, initially the passage of time, and thereafter upon the Company’s first lien net leverage ratio at the applicable time. The Term Loan Facility requires the Borrower to pay customary agency fees.

In connection with entering into the Term Loan Facility, the Company terminated all remaining commitments and repaid all obligations under its Prior Term Loan Facility and Wells Fargo Revolver. Additionally, we repaid \$313 million of the principal under the Prior Term Loan Facility with cash on hand.

Commencing June 30, 2021, the Cash Flow Revolver contains a springing financial covenant when a loan amount is drawn exceeding 35% of the Cash Flow Revolver. In this instance, the first lien net leverage ratio shall not exceed 4.75x at quarter end testing period.

As a result of this transaction in accordance with ASC 470, we recognized approximately \$4 million in "Loss on Extinguishment of Debt" recorded in the Consolidated Statement of Income for the year ended December 31, 2021.

Additionally, during the year ended December 31, 2021, the Company made several voluntary prepayments totaling \$398 million on the Term Loan Facility. As a result, we recognized approximately \$9 million in "Loss on Extinguishment of Debt" recorded in the Consolidated Statement of Income for the year ended December 31, 2021.

During the year ended December 31, 2022, we drew down \$133 million on our Cash Flow Revolver and repaid \$103 million as of December 31, 2022. As of December 31, 2022, there was \$30 million outstanding revolving credit loans (recorded within "Short-term debt" on the Consolidated Balance Sheet) under the Cash Flow Revolver and \$20 million of issued and undrawn letters of credit under the Cash Flow Revolver. Additionally, in connection with the sale of the Hawkins Point Plant (refer to Note 18 - *Commitments & Contingencies* for further details), in December 2022, a \$50 million undrawn letter of credit was issued as a bi-lateral, stand-alone arrangement. Debt issuance costs associated with the Cash Flow Revolver of \$2 million were included in "Other long-term assets" in the Consolidated Balance Sheets at December 31, 2022 and are being amortized over the life of the Cash Flow Revolver. The average effective interest rate on the Cash Flow Revolver was 5.1% for the year ended December 31, 2022.

On April 4, 2022, Tronox Finance LLC (the "Borrower"), the Borrower's indirect parent company, Tronox Holdings plc (the "Company"), certain of the Company's subsidiaries, the incremental term lender party thereto, and HSBC Bank USA, National Association, as Administrative Agent and Collateral Agent, entered into Amendment No. 1 to the Amended and Restated First Lien Credit Agreement (the "Amendment"). The Amendment provides the Borrower with a new seven-year incremental term loan facility (the "2022 Term Loan Facility" and, the loans thereunder, the "2022 Incremental Term Loans") under its credit agreement in an aggregate initial principal amount of \$400 million.

The obligations of the Borrower under the 2022 Term Loan Facility are guaranteed and secured by the same guarantees and liens under the existing credit agreement of the Term Loan Facility (as discussed above). The 2022 Incremental Term Loans are a separate class of loans under the credit agreement, and if the Borrower elects to make an optional prepayment under the credit agreement or is required to make a mandatory prepayment under the credit agreement, the Borrower, may, in each case, select which class or classes of loans to prepay.

The 2022 Incremental Term Loans will amortize in equal quarterly installments in an aggregate annual amount equal to 1.0% of the original principal amount of the 2022 Incremental Term Loans commencing with the second full fiscal quarter after the effective date of the 2022 Incremental Term Loan Facility. The final maturity of the 2022 Incremental Term Loans will occur on the seventh anniversary of the effective date of the 2022 Incremental Term Loan Facility. The 2022 Incremental Term Loan Facility permits amendments thereto whereby individual lenders may extend the maturity date of their outstanding loans upon the Borrower's request without the consent of any other lender, so long as certain conditions are met.

The 2022 Incremental Term Loans shall bear interest, at the Borrower's option, at either the base or the SOFR rate, in each case plus an applicable margin. The applicable margin in respect of the 2022 Incremental Loans is 2.25% per annum, for base rate loans, or 3.25% per annum, for SOFR rate loans. The 2022 Incremental Term Loans have an interest rate floor of 0.50%. As of December 31, 2022, the applicable margin under the 2022 Term Loan Facility was 3.25%.

The 2022 Incremental Term Loan Facility contains the same negative covenants applicable to the term loans outstanding under the Existing Credit Agreement immediately prior to the effectiveness of the Amendment, which covenants, subject to certain limitations, thresholds and exceptions, limit the Company and its restricted subsidiaries to (among other restrictions): incur

indebtedness; grant liens; pay dividends and make subsidiary and certain other distributions; sell assets; make investments; enter into transactions with affiliates; and make certain modifications to material documents (including organizational documents).

The proceeds of the 2022 Incremental Term Loans were used on April 4, 2022, along with cash on hand, to redeem all outstanding 6.5% Senior Secured Notes due 2025 issued by Tronox Incorporated under the Indenture dated as of May 1, 2020 with Wilmington Trust, National Association, as Trustee and Collateral Agent and to pay transaction related costs and expenses.

As a result of this transaction, we recognized approximately \$21 million, including a call premium of \$18 million, in "Loss on extinguishment of debt" on the Consolidated Statement of Income for the year ended December 31, 2022.

As of December 31, 2022, the total outstanding principal balance is \$397 million, of which \$4 million is recorded within "Current portion of long-term debt" on the Consolidated Balance Sheet.

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 provided among other things, that the Senior Notes due 2025 were senior unsecured obligations of Tronox Finance plc and were guaranteed on a senior and unsecured basis by us and certain of our other subsidiaries. The Senior Notes due 2025 were not registered under the Securities Act, and were not offered or sold in the U.S. absent registration or an applicable exemption from registration requirements. Interest was 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, limited, 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 included certain limitations on our non-guarantor subsidiaries incurring indebtedness. During the year ended December 31, 2021, we paid the outstanding balance of \$450 million on the Senior Notes due 2025 as a result of the issuance of the Senior Notes due 2029 as defined and discussed below.

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 provided, among other things, that the Senior Notes due 2026 were senior unsecured obligations of Tronox Incorporated and were guaranteed on a senior and unsecured basis by us and certain of our other subsidiaries. The Senior Notes due 2026 were not registered under the Securities Act and were not offered or sold in the U.S. absent registration or an applicable exemption from registration requirements. Interest was 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, limited, 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 included 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. During the year ended December 31, 2021, we paid the outstanding balance of \$615 million on the Senior Notes due 2026 as a result of the issuance of the Senior Notes due 2029 as defined and discussed below.

Senior Notes due 2029

On March 15, 2021, Tronox Incorporated closed an offering of \$1,075 million aggregate principal amount of its 4.625% senior notes due 2029 (the "Senior Notes due 2029"). The notes were offered at par and issued under an indenture dated as of March 15, 2021 among the Company and certain of the Company's restricted subsidiaries as guarantors and Wilmington Trust, National Association. The Senior Notes due 2029 provide, among other thing, that the Senior Notes due 2029 are guaranteed by the Company and certain of the Company's restricted subsidiaries, subject to certain exceptions. The Senior Notes due 2029 and related guarantees are the senior obligations of the Company and the guarantors. The Senior Notes due 2029 have not been registered under the Securities Act, or any state securities laws, and may not be offered or sold in the United States absent registration requirements. The terms of the indenture, among other things, limit, in certain circumstances, the ability of the Company and its restricted subsidiaries to: incur secured indebtedness, incur indebtedness at a non-guarantor subsidiary, engage in certain sale-leaseback transactions and merge, consolidate or sell substantially all of their assets. Interest is payable on the Senior Notes due 2029 on March 15 and September 15 of each year beginning on September 15, 2021 until their maturity date of March 15, 2029.

During the year ended December 31, 2021, the Company repaid the outstanding principal balance of \$615 million and \$450 million on its Senior Notes due 2026 and its Senior Notes due 2025, respectively. As a result of this transaction, we recorded \$52 million of debt extinguishment costs, including call premiums of \$21 million and \$19 million on the Senior Notes

due 2026 and Senior Notes due 2025, respectively, in "Loss on Extinguishment of Debt" on the Consolidated Statement of Income for the year ended December 31, 2021.

6.5% Senior Secured Notes due 2025

On May 1, 2020, Tronox Incorporated, a wholly-owned indirect subsidiary of the Company, issued 6.5% senior secured notes due 2025 for an aggregate principal amount of \$500 million (the "6.5% Senior Secured Notes due 2025"), which were issued under an indenture dated May 1, 2020. A portion of the proceeds of this debt offering was utilized to repay the \$200 million of the Company's outstanding borrowings under its Wells Fargo, Standard Bank, and Emirates revolvers which were originally borrowed during the first quarter of 2020. During the year ended December 31, 2022, we paid the outstanding balance of \$500 million on the 6.5% Senior Secured Notes due 2025 utilizing the proceeds of the 2022 Term Loan Facility (discussed above), along with cash on hand. In connection with such redemption, all security interests and liens granted to Wilmington Trust, National Association, as Trustee and Collateral Agent, were automatically terminated and discharged.

Prior Standard Bank Term Loan Facility

On March 25, 2019, our South African subsidiaries, Tronox KZN Sands Proprietary Limited and Tronox Mineral Sands Proprietary Limited, entered into the Prior Standard Bank Term Loan Facility with a maturity date of March 25, 2024. The Term Loan Facility consisted of (i) an aggregate principal amount of R2.6 billion ("Amortizing Loan", approximately \$153 million at the December 31, 2022 exchange rate), the principal of which was to be paid back at 5 percent per quarter over the five year term of the loan, and (ii) an aggregate principal amount of R600 million ("Bullet Loan"), the principal of which was to be paid back at the maturity date of the Prior Standard Bank Term Loan Facility. During the third quarter of 2019, we repaid the outstanding balance on the Bullet Loan.

The Amortizing Loan bore interest at JIBAR plus 260 basis points when net leverage of the South African subsidiaries was less than 1.5 and JIBAR plus 285 points when net leverage was greater than 1.5.

During the year ended December 31, 2021, we made several voluntary prepayments totaling R1,040 million (approximately \$69 million) on the Prior Standard Bank Term Loan Facility. No prepayment penalties were required as a result of this principal prepayment. Additionally, during the year ended December 31, 2021, we repaid the remaining outstanding balance of R390 million (approximately \$26 million) of the Prior Standard Bank Term Loan Facility and entered into an amendment and restatement with Standard Bank as is discussed below.

Standard Bank Term Loan Facility and Revolving Credit Facility

On October 1, 2021, Tronox Minerals Sands Proprietary Limited, a wholly-owned subsidiary of the Company, entered into an amendment and restatement of a new credit facility with Standard Bank. The new credit facility provides the Company with (a) a new five-year term loan facility in an aggregate principal amount of R1.5 billion (approximately \$98 million) (the "Standard Bank Term Loan Facility") and (b) a new three-year revolving credit facility (the "Standard Bank Revolving Credit Facility") providing initial revolving commitments of R1.0 billion (approximately \$59 million at the December 31, 2022 exchange rate). The maturity date on the Standard Bank Term Loan Facility and the Standard Bank Revolving Credit Facility is November 11, 2026 and October 1, 2024, respectively. The Standard Bank Term Loan Facility has a delayed draw feature up to thirty business days from the effective date of the executed credit agreement. Mandatory capital repayments of R37.5 million (approximately \$2 million at the December 31, 2022 exchange rate) are scheduled quarterly with the first mandatory repayment starting in December 2021.

Both the Standard Bank Term Loan Facility and the Standard Bank Revolving Credit Facility shall bear interest at an adjusted JIBAR rate plus an applicable margin. The applicable margin on the Standard Bank Term Loan Facility is 2.35%. The applicable margin on the Standard Bank Revolving Credit Facility is based upon average credit utilization during any interest period. If the revolving credit facility utilization is less than 33%, less than 66% but greater than 33%, or greater than 66%, the applicable margin is 2.10%, 2.25%, and 2.40%, respectively. The Standard Bank Revolving Credit Facility requires the borrower to pay customary agency fees. Interest is payable on the Standard Bank Term Loan Facility on each of March 31, June 30, September 30 and December 31, and the final maturity date pursuant to the agreement. Interest is payable on the Standard Bank Revolving Credit Facility on the last day of the applicable interest period pursuant to the agreement.

Pursuant to the credit agreement, on November 11, 2021, the Company drew down the total outstanding principal balance of R1.5 billion (approximately \$98 million) on the Standard Bank Term Loan Facility. As of December 31, 2022, the total outstanding principal balance is R1.3 billion (approximately \$77 million at the December 31, 2022 exchange rate), of which R150 million (approximately \$9 million at the December 31, 2022 exchange rate) is recorded within "Current portion of long-term debt" on the Consolidated Balance Sheet.

Tikon Loan

We maintained a working capital debt agreement in China (“Tikon Loan”) that matured in May of 2021. The Tikon Loan bore interest based on an official lending basis rate per annum as announced and published by the People’s Bank of China plus a 7% premium. During the year ended December 31, 2021, we repaid the remaining outstanding principal balance of CNY 111 million (approximately \$17 million). No prepayment penalties were required as a result of these principal prepayments.

Australian Government Loan

We maintain an interest-free loan with the Australian government (“Australian Government Loan”) that is subject to renewal every 5 years and is contingent on renewal of our Australind site leases with final maturity in December 2036. The loan balance due upon maturity is AUD 6 million (approximately \$4 million at the December 31, 2022 exchange rate). At December 31, 2022, the discounted value on the Australian Government Loan was approximately AUD 2 million (approximately \$1 million at the December 31, 2022 exchange rate).

MGT Loan

On December 17, 2020, we completed our agreement with Cristal to acquire certain assets co-located at our Yanbu facility which produce metal grade TiCl₄ (“MGT”) in exchange for a \$36 million note payable. Repayment of the note payable is based on a fixed U.S. dollar per metric ton quantity of MGT delivered by us to Advanced Metal Industries Cluster and Toho Titanium Metal Co. Ltd (ATTM) over time and therefore the ultimate maturity date is variable in nature. If ATTM fails to purchase MGT from us under certain contractually agreed upon conditions, then at our election we may terminate the MGT supply agreement with ATTM and will no longer owe any amount under the loan agreement with Cristal. We currently estimate the ultimate maturity to be between approximately five to six years, subject to actual future MGT production levels. The interest rate is based on the Saudi Arabian Interbank Offered Rate (“SAIBOR”) plus a premium. As of December 31, 2022, the outstanding balance of the note payable was \$30 million, of which \$7 million is expected to be paid within the next twelve months (recorded within “Long-term debt due within one year” on our Consolidated Balance Sheet). Refer to Note 22 for further information on the MGT transaction.

Short-term Debt

Cash Flow Revolver

For a description of the Cash Flow Revolver, see details above under “*Prior Term Loan Facility, Term Loan Facility, Cash Flow Revolver and 2022 Term Loan Facility*”.

Standard Bank Revolving Credit Facility

For a description of the Standard Bank Revolving Credit Facility, see details above under “*Standard Bank Term Loan Facility and Revolving Credit Facility*”.

Emirates Revolver

We maintain a revolving credit facility with Emirates NBD PJSC. In March 2022, the Company entered into an amendment to extend the maturity date of the Emirates Revolver from March 31, 2022 to March 31, 2023. Under the Emirates Revolver, we have the ability to borrow up to approximately \$60 million. The revolver is secured by inventory and trade receivables of Tronox Pigment UK Ltd. Under the terms of the revolver, for U.S. dollar borrowings the interest rate is LIBOR plus 2.25% while the interest rate for Euro borrowings is Euribor plus 2.25%. There were no borrowings outstanding under this revolver at December 31, 2022.

SABB Credit Facility

On October 16, 2019, our KSA subsidiary entered into a short-term working capital facility with the Saudi British Bank (“SABB Facility”) for an amount up to SAR 70 million (approximately \$19 million). The SABB Facility bears interest at the Saudi Inter Bank Offered Rate plus 180 basis points on outstanding balances. In March 2020, the Company borrowed SAR 50 million (or approximately \$13 million) under the SABB Facility and subsequently repaid the outstanding balances. There is no borrowing outstanding under this facility at December 31, 2022. In December 2022, the Company extended the maturity date of the SABB Credit Facility from November 30, 2022 to November 30, 2023.

Itaù Unibanco S.A. Credit Facility

On November 1, 2022, our Brazilian subsidiary entered into a working capital facility with Itaú Unibanco S.A. in Brazil for an amount up to 30 million BRL (approximately \$6 million at the December 31, 2022 exchange rate). There is no maturity date under this facility until written notice is given. The facility bears interest at the Bolsa do Basil reference rate on outstanding balances. There is no borrowings outstanding under this facility at December 31, 2022.

In January and February 2023, we drew down an aggregate amount of approximately \$118 million on several of our short-term facilities.

Insurance premium financing

In August 2022, the Company entered into a \$21 million insurance premium financing agreement with a third-party financing company. The balance will be repaid in monthly installments over 10 months at a 5% fixed annual interest rate. As of December 31, 2022, the financing balance was \$10 million and is recorded in "Short-term debt" in the Consolidated Balance Sheet.

Debt Covenants

At December 31, 2022, we are in compliance with all financial covenants in our debt facilities.

Interest and Debt Expense, Net

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

	Year Ended December 31,		
	2022	2021	2020
Interest on debt	\$ 132	\$ 148	\$ 174
Amortization of deferred debt issuance costs and discounts on debt	8	11	10
Capitalized interest	(17)	(7)	(2)
Interest on capital leases and letters of credit and commitments	2	5	7
Total interest and debt expense, net	<u>\$ 125</u>	<u>\$ 157</u>	<u>\$ 189</u>

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 Cash Flow Revolver. At December 31, 2022 and December 31, 2021, we had deferred debt issuance costs of \$2 million and \$2 million, respectively, related to the Cash Flow Revolver, which is recorded in "Other long-term assets" in the Consolidated Balance Sheets. At December 31, 2022 and December 31, 2021, we had debt discount of \$8 million and \$5 million, respectively, and debt issuance costs of \$33 million and \$36 million, respectively, primarily related to our term loans and senior notes, which were recorded as a direct reduction of the carrying value of the long-term debt in the Consolidated Balance Sheets.

14. Derivative Financial Instruments

Derivatives recorded on the Consolidated Balance Sheet:

The following table is a summary of the fair value of derivatives outstanding at December 31, 2022 and 2021:

	Fair Value			
	December 31, 2022		December 31, 2021	
	Assets(a)	Accrued Liabilities	Assets(a)	Accrued Liabilities
Derivatives Designated as Cash Flow Hedges				
Currency Contracts	\$ —	\$ —	\$ 3	\$ 1
Interest Rate Swaps	\$ 30	\$ —	\$ —	\$ 25
Natural Gas Hedges	\$ 1	\$ 2	\$ 1	\$ —
Total Hedges	\$ 31	\$ 2	\$ 4	\$ 26
Derivatives Not Designated as Cash Flow Hedges				
Currency Contracts	\$ 1	\$ —	\$ —	\$ —
Total Derivatives	\$ 32	\$ 2	\$ 4	\$ 26

(a) At December 31, 2022 and 2021, current assets of \$32 million and \$4 million, respectively, are recorded in prepaid and other current assets on the Consolidated Balance Sheet.

Derivatives' Impact on the Consolidated Statement of Income

The following table summarizes the impact of the Company's derivatives on the Consolidated Statement of Income:

	Amount of Pre-Tax Gain (Loss) Recognized in Earnings								
	Year Ended December 31, 2022			Year Ended December 31, 2021			Year Ended December 31, 2020		
	Revenue	Cost of Goods Sold	Other (Expense) Income, net	Revenue	Cost of Goods Sold	Other (Expense) Income, net	Revenue	Cost of Goods Sold	Other (Expense) Income, net
Derivatives Not Designated as Hedging Instruments									
Currency Contracts	\$ —	\$ —	\$ 1	\$ —	\$ —	\$ 1	\$ —	\$ —	\$ 4
Derivatives Designated as Hedging Instruments									
Currency Contracts	\$ 4	\$ 13	\$ —	\$ (3)	\$ 35	\$ —	\$ (7)	\$ 3	\$ —
Natural Gas	\$ —	\$ 5	\$ —	\$ —	\$ 3	\$ —	\$ —	\$ (1)	\$ —
Total Derivatives	\$ 4	\$ 18	\$ 1	\$ (3)	\$ 38	\$ 1	\$ (7)	\$ 2	\$ 4

Interest Rate Risk

During the second quarter of 2019, we entered into interest-rate swap agreements with an aggregate notional value of \$750 million representing a portion of our Term Loan Facility, which effectively converts the variable rate to a fixed rate for that portion of the loan. The agreements expire in September 2024. The Company's objectives in using the interest-rate swap agreements are to add stability to interest expense and to manage its exposure to interest rate movements. These interest rate swaps have been designated as cash flow hedges and involve the receipt of variable amounts from a counterparty in exchange for the Company making fixed-rate payments over the life of the agreements without exchange of the underlying notional amount. There was no impact associated with the New Term Loan Facility as the hedge remained highly effective.

Fair value gains or losses on these cash flow hedges are recorded in other comprehensive (loss) income and are subsequently reclassified into interest expense in the same periods during which the hedged transactions affect earnings. For the year ended December 31, 2022, 2021 and 2020, the amounts recorded in interest expense related to the interest-rate swap agreements were \$4 million, \$16 million and \$10 million, respectively. At December 31, 2022 and December 31, 2021, the net unrealized gain was \$30 million and the unrealized loss was \$25 million, respectively, and was recorded in "Accumulated other comprehensive loss" on the Consolidated Balance Sheet.

Foreign Currency Risk

From time to time, we enter into foreign currency contracts used to hedge forecasted third party non-functional currency sales for our South African subsidiaries and forecasted non-functional currency cost of goods sold for our Australian subsidiaries. These foreign currency contracts are designated as cash flow hedges. Changes to the fair value of these foreign currency contracts are recorded as a component of other comprehensive (loss) income, if these contracts remain highly effective, and are recognized in net sales or costs of goods sold in the period in which the forecasted transaction affects earnings or are recognized in other (expense) income, net when the transactions are no longer probable of occurring.

As of December 31, 2022, we had no outstanding amounts to reduce the exposure of our Australian subsidiaries' cost of sales to fluctuations in currency rates or to reduce the exposure of our South African subsidiaries' third party sales to fluctuations in currency rates. At December 31, 2022, there was an unrealized net loss of \$4 million recorded in "Accumulated other comprehensive loss" on the Consolidated Balance Sheet, which is expected to be recognized in earnings over the next twelve months. At December 31, 2021, there was an unrealized net gain of \$15 million recorded in "Accumulated other comprehensive loss" on the Consolidated Balance Sheet.

We enter into foreign currency contracts to reduce exposure of our subsidiaries' balance sheet accounts not denominated in our subsidiaries' functional currency to fluctuations in foreign currency exchange rates. For accounting purposes, these foreign currency contracts are not considered hedges. The change in fair value associated with these contracts is recorded in "Other (expense) income, net" within the Consolidated Statement of Income 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, 2022, there was (i) 1.2 billion South African Rand (or approximately \$68 million at the December 31, 2022 exchange rate), (ii) 197 million Australian dollars (or approximately \$135 million at the December 31, 2022 exchange rate), (iii) 20 million Pound Sterling (or approximately \$24 million at the December 31, 2022 exchange rate and (iv) 44 million Euro (or approximately \$48 million at the December 31, 2022 exchange rate) of notional amount of outstanding foreign currency contracts.

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 and derivative contracts at both December 31, 2022 and December 31, 2021:

	December 31, 2022		December 31, 2021	
	Asset	Liability	Asset	Liability
Term Loan Facility	\$ —	\$ 876	\$ —	\$ 895
2022 Term Loan Facility	—	388	—	—
Standard Bank Term Loan Facility	—	77	—	92
Senior Notes due 2029	—	893	—	1,071
6.5% Senior Secured Notes due 2025	—	—	—	526
Australian Government Loan	—	1	—	1
MGT Loan	—	30	—	33
Interest rate swaps	30	—	—	25
Natural gas hedges	1	2	1	—
Foreign currency contracts	1	—	3	1

We determined the fair value of the Term Loan Facility, the 2022 Term Loan Facility, the Senior Notes due 2029, and the 6.5% Senior Secured Notes due 2025 using quoted market prices, which under the fair value hierarchy is a Level 1 input. We determined the fair value of the Standard Bank Term Loan Facility utilizing transactions in the listed markets for similar liabilities, which under the fair value hierarchy is a Level 2 input. The fair value of the Australian Government Loan and MGT Loan is based on the contracted amount which is a Level 2 input.

We determined the fair value of the foreign currency contracts and interest rate swaps 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 and interest rate swaps is a Level 2 input.

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. Leases

Lease expense for the year ended December 31, 2022, 2021 and 2020 was comprised of the following:

	Year Ended December 31,		
	2022	2021	2020
Operating lease expense	\$ 39	\$ 47	\$ 4
Finance lease expense:			
Amortization of right-of-use assets	4	1	\$
Interest on lease liabilities	4	2	\$
Short term lease expense	35	30	\$
Variable lease expense	14	23	\$
Total lease expense	<u>\$ 96</u>	<u>\$ 103</u>	<u>\$ 9</u>

The table below summarizes lease expense for the year ended December 31, 2022, 2021 and 2020 recorded in the specific line items in our Consolidated Statements of Income:

	Year Ended December 31,		
	2022	2021	2020
Cost of goods sold	\$ 92	\$ 98	\$ 91
Selling, general and administrative expenses	4	5	8
Total	<u>\$ 96</u>	<u>\$ 103</u>	<u>\$ 99</u>

The weighted-average remaining lease term in years and weighted-average discount rates at December 31, 2022 and 2021 were as follows:

	December 31, 2022	December 31, 2021
Weighted-average remaining lease term:		
Operating leases	11.6	8.7
Finance leases	8.8	8.8
Weighted-average discount rate:		
Operating leases	10.8 %	7.4 %
Finance leases	12.2 %	14.1 %

The maturity analysis for operating leases and finance leases at December 31, 2022 were as follows:

	Operating Leases	Finance Leases
2023	32	10
2024	27	9
2025	19	8
2026	16	8
2027	14	8
Thereafter	126	33
Total lease payments	234	76
Less: imputed interest	(103)	(29)
Present value of lease payments	<u>\$ 131</u>	<u>\$ 47</u>

Additional information relating to cash flows and ROU assets for the year ended December 31, 2022, 2021 and 2020 is as follows:

	December 31, 2022		December 31, 2021		December 31, 2020	
Cash paid for amounts included in the measurement of lease liabilities:						
Operating cash flows used for operating leases	\$	39	\$	51	\$	55
Operating cash flows used for finance leases	\$	4	\$	2	\$	2
Financing cash flows used for finance leases	\$	3	\$	1	\$	1

Additional information relating to ROU assets for the year ended December 31, 2022 and 2021 is as follows:

	Year Ended December 31,			
	2022		2021	
ROU assets obtained in exchange for lease obligations:				
Operating leases obtained in the normal course of business	\$	83	\$	49
Finance leases obtained in the normal course of business	\$	37	\$	2

17. 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:

	Year Ended December 31,			
	2022		2021	
Balance, January 1	\$	149	\$	166
Additions		3		5
Accretion expense		12		12
Remeasurement/translation		(7)		(9)
Changes in estimates, including cost and timing of cash flows		7		(15)
Settlements/payments		(3)		(10)
Other acquisition and divestiture related		—		—
Balance, December 31	\$	161	\$	149
	December 31,			
	2022		2021	
Asset retirement obligations were classified as follows:				
Current portion included in "Accrued liabilities"	\$	8	\$	10
Noncurrent portion included in "Asset retirement obligations"		153		139
Asset retirement obligations	\$	161	\$	149

We used the following assumptions in determining asset retirement obligations at December 31, 2022: inflation rates between 1.5% - 4.3% per year; credit adjusted risk-free interest rates between 5.8% -20.6%; the life of mines between 1-24 years and the useful life of assets between 6-31 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, 2022 and 2021, the environmental rehabilitation trust assets were \$12 million and \$12 million, respectively, which were recorded in "Other long-term assets" in the Consolidated Balance Sheets.

18. Commitments and Contingencies

Purchase and Capital Commitments—At December 31, 2022, purchase commitments were \$348 million for 2023, \$168 million for 2024, \$149 million for 2025, \$152 million for 2026, \$155 million for 2027, and \$1,594 million thereafter.

Letters of Credit—At December 31, 2022, we had outstanding letters of credit and bank guarantees of \$109 million, of which \$70 million were letters of credit and \$39 million were bank guarantees. Amounts for performance bonds were not material.

Environmental Matters— It is our policy to record appropriate liabilities for environmental matters when remedial efforts are probable and the costs can be reasonably estimated. Such liabilities are based on our best estimate of the undiscounted future costs required to complete the remedial work. The recorded liabilities are adjusted periodically as remediation efforts progress or as additional technical, regulatory or legal information becomes available. Given the uncertainties regarding the status of laws, regulations, enforcement policies, the impact of other potentially responsible parties, technology and information related to individual sites, we do not believe it is possible to develop an estimate of the range of reasonably possible environmental loss in excess of our recorded liabilities. We expect to fund expenditures for these matters from operating cash flows. The timing of cash expenditures depends principally on the timing of remedial investigations and feasibility studies, regulatory approval of cleanup projects, remedial techniques to be utilized and agreements with other parties. Included in these environmental matters are the following:

Hawkins Point Plant. Residual waste mud, known as Batch Attack Mud, and a spent sulfuric waste stream were deposited in an onsite repository (the "Batch Attack Lagoon") at a former TiO₂ manufacturing site, Hawkins Point Plant in Baltimore, Maryland, operated by Cristal USA, Inc. from 1954 until 2011. We assumed responsibility for remediation of the Hawkins Point Plant when we acquired the TiO₂ business of Cristal in April 2019. On December 21, 2022, we sold the Hawkins Point Plant to the Maryland Port Administration ("MPA"), a state agency controlled by the Maryland Department of Transportation. Pursuant to the terms of the transaction, MPA became the lead party in developing and implementing appropriate measures to address, treat, control, and mitigate the environmental conditions at the property under the regulatory oversight of the Maryland Department of the Environment ("MPE"). Under MPA ownership, the Hawkins Point Plant will be utilized for storage and beneficial reuse of dredged material from the Port of Baltimore. In exchange for transferring ownership of the site to MPA, Tronox has agreed to make scheduled, annual payments to MPA which together with scheduled, annual contributions from MPA will be used to remediate the property. The sale of the property to MPA did not have a material impact to the Consolidated Statement of Income. As of December 31, 2022, we have a provision of \$42 million included in "Environmental liabilities" in our Consolidated Balance Sheet for the Hawkins Point Plant consistent with the accounting policy described above.

Other Matters— We are subject to a number of other lawsuits, investigations and disputes (some of which involve substantial amounts claimed) arising out of the conduct of our business, including matters relating to commercial transactions, prior acquisitions and divestitures, including our acquisition of Cristal, employee benefit plans, intellectual property, and environmental, health and safety matters. We recognize a liability for any contingency that is probable of occurrence and reasonably estimable. We continually assess the likelihood of adverse judgments of outcomes in these matters, as well as potential ranges of possible losses (taking into consideration any insurance recoveries), based on a careful analysis of each matter with the assistance of outside legal counsel and, if applicable, other experts. Included in these other matters is the following:

Venator Materials plc v. Tronox Limited. In May 2019, Venator Materials plc (“Venator”) filed an action in the Superior Court of the State of Delaware alleging among other things that we owed Venator a \$75 million “Break Fee” pursuant to the terms of a preliminary agreement dated July 14, 2018 (the “Exclusivity Agreement”). The Exclusivity Agreement required, among other things, Tronox and Venator to use their respective best efforts to negotiate a definitive agreement to sell the entirety of the National Titanium Dioxide Company Limited’s (“Cristal’s”) North American operations to Venator if a divestiture of all or a substantial part of these operations were required to secure the approval of the Federal Trade Commission for us to complete our acquisition of Cristal’s TiO₂ business. In June 2019, we denied Venator’s claims and counterclaimed against Venator seeking to recover \$400 million in damages from Venator that we suffered as a result of Venator’s breaches of the Exclusivity Agreement. Specifically, we alleged, among other things, that Venator’s failure to use best efforts constituted a material breach of the Exclusivity Agreement and directly resulted in and caused us to sell Cristal’s North American operations to an alternative buyer for \$701 million, \$400 million less than the price Venator had agreed to in the Exclusivity Agreement. On April 6, 2022, the Judge presiding over the case in the Superior Court of the State of Delaware delivered a directed verdict in favor of Venator without allowing the jury to deliberate. The Company determined not to appeal the Judge’s verdict, and as such, on April 18, 2022, the Company and Venator entered into a settlement agreement whereby the Company paid \$85 million, inclusive of interest, on April 25, 2022. As a result, we recorded the charge within “Venator settlement” on the Consolidated Statement of Income for the year ended December 31, 2022.

Western Australia Stamp Duty Matter. In May 2018, we lodged a pre-transaction determination request for a stamp duty exemption with the Western Australia Office of State Revenue (the “WA OSR”) in connection with our re-domicile transaction (the “Re-Domicile Transaction”) which was subsequently granted by the WA OSR in June 2018 on a preliminary basis. Immediately following the consummation of the Re-Domicile Transaction, we filed a confirmation request for the stamp duty exemption with the WA OSR. Following this confirmation request, we exchanged numerous communications with the WA OSR addressing questions raised and stating our position. In July 2021, the WA OSR informed us that they have reviewed their technical position on the applicability of the stamp duty exemption and have determined that such an exemption is disallowed. On April 8, 2022, the Company lodged an appeal of the WA OSR’s decision with the Western Australia State Administrative Tribunal. The Tribunal hearing is currently expected to take place in the second half of 2023. While the Company believes it complied with the rules relevant to obtaining an exemption from stamp duties in connection with the Re-Domicile Transaction, if an unfavorable ruling is received from the Western Australia State Administrative Tribunal and Tronox is not able to successfully appeal such ruling, the stamp duty payable on the Re-Domicile Transaction could result in a material change to our financial statement.

19. Accumulated Other Comprehensive Loss Attributable to Tronox Holdings plc and Other Equity Items

The tables below present changes in accumulated other comprehensive loss by component for 2022, 2021 and 2020.

	Cumulative Translation Adjustment	Pension Liability Adjustment	Unrealized Gains (losses) on Derivatives	Total
Balance, January 1, 2020	\$ (503)	\$ (104)	\$ 1	\$ (606)
Other comprehensive income (loss)	12	(20)	(4)	(12)
Amounts reclassified from accumulated other comprehensive loss	—	4	4	8
Balance, December 31, 2020	(491)	(120)	1	(610)
Other comprehensive (loss) income	(103)	16	21	(66)
Acquisition of noncontrolling interest	(34)	—	—	(34)
Amounts reclassified from accumulated other comprehensive loss	—	4	(32)	(28)
Balance, December 31, 2021	\$ (628)	\$ (100)	\$ (10)	\$ (738)
Other comprehensive (loss) income	(82)	5	53	(24)
Amounts reclassified from accumulated other comprehensive loss	—	17	(23)	(6)
Balance, December 31, 2022	\$ (710)	\$ (78)	\$ 20	\$ (768)

Repurchase of Common Stock

On November 9, 2021, the Company’s Board of Directors authorized the repurchase of up to \$300 million of the Company’s stock through February 2024. During the year ended December 31, 2022, we purchased a total of 2,843,789 shares on the open

market at an average price of \$17.38 per share and at an aggregate cost of approximately \$50 million, including sales commissions, transfer taxes and fees. Upon repurchase of the shares by the Company, the shares were cancelled. Under the authorization from our Board of Directors, we have approximately \$251 million available for additional repurchases through February 2024.

20. Share-based Compensation

Share-based compensation expense consisted of the following:

	Year Ended December 31,		
	2022	2021	2020
Total share-based compensation expense from restricted share units	\$ 26	\$ 31	\$ 30

The stock compensation expense for the year ended December 31, 2021 is inclusive of a \$3 million true up of expense due to the 2020 and 2021 performance grants as well as the acceleration of \$2 million of stock compensation expense associated with the retirement agreement entered into with the former CEO on March 18, 2021.

Tronox Holdings plc Amended and Restated Management Equity Incentive Plan

On March 27, 2019, in connection with the Re-domicile Transaction, Tronox Holdings plc assumed the management equity incentive plan previously adopted by Tronox Limited, which plan was renamed the Tronox Holdings plc Amended and Restated Management Equity Incentive Plan. The amendments to the plan were made to provide, among other things, for the appropriate substitution of Tronox Holdings in place of Tronox Limited and to ensure the compliance with the laws of England and Wales law in place of Australian law. The MEIP 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 Board of Directors (the "Board") in its discretion deems appropriate, including any combination of the above. The maximum number of shares which were initially subjected to awards (inclusive of incentive options) was 20,781,225 ordinary shares and was increased by 8,000,000 on the affirmative vote of our shareholders on June 24, 2020.

Restricted Share Units ("RSUs")

On an annual basis, the Company grants RSUs which have time and/or performance conditions. Both the time-based awards and the performance-based awards are classified as equity awards.

2022 Grants - The Company granted both time-based and performance-based awards to certain members of management and to members of the Board. A total of 582,136 of time-based awards were granted to management which will vest ratably over a three-year period ending March 5, 2025. A total of 68,296 of time-based awards were granted to members of the Board of which will vest in May 2023. A total of 533,416 of performance-based awards were granted, of which 266,708 of the awards vest based on a relative Total Shareholder Return ("TSR") calculation and 266,708 of the awards vest based on certain performance metrics of the Company. The non-TSR performance-based awards vest on March 5, 2025 based on the achievement against the target average company performance of three separate performance periods, commencing on January 1 of each 2022, 2023, and 2024 and ending on December 31 of each 2022, 2023 and 2024, for which, for each performance period, the performance metric is an average annual return on invested capital (ROIC) improvement versus 2021 ROIC. Similar to the Company's historical TSR awards granted in prior years, the TSR awards vest based on the Company's three-year TSR versus the peer group performance levels. Given these terms, the TSR metric is considered a market condition for which we used a Monte Carlo simulation to determine the weighted average grant date fair value of \$34.41.

Similar TSR awards were granted during 2021 and 2020 with grant date fair values of \$29.07 and \$10.00, respectively, which were calculated utilizing a Monte Carlo simulation. The following weighted-average assumptions were utilized to value the grants in 2022, 2021 and 2020:

	2022	2021	2020
Dividend yield	3.22 %	1.56 %	2.13 %
Expected historical volatility	68.00 %	71.10 %	58.30 %
Risk free interest rate	3.06 %	0.17 %	1.42 %
Expected life (in years)	3	3	3

The following table presents a summary of activity for RSUs for 2022:

	Number of Shares	Weighted Average Grant Date Fair Value
Outstanding, January 1, 2022	5,114,945	\$ 13.12
Granted	2,313,346	19.47
Vested	(3,428,058)	12.92
Forfeited	(209,829)	18.72
Outstanding, December 31, 2022	<u>3,790,404</u>	<u>\$ 17.01</u>
Expected to vest, December 31, 2022	<u>3,005,712</u>	<u>\$ 14.26</u>

The 2019 performance-based RSUs vested above target in 2022 and resulted in 1,115,249 additional RSU shares being granted and vested immediately. At December 31, 2022, there was \$27 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 1.6 years. The weighted-average grant-date fair value of RSUs granted during 2022, 2021 and 2020 was \$19.47 per unit, \$20.91 per unit, and \$8.89 per unit, respectively. The total fair value of RSUs that vested during 2022, 2021 and 2020 was \$44 million, \$41 million and \$30 million, respectively.

Options

We did not issue any options during 2022, 2021 and 2020 and all our options outstanding are fully vested at December 31, 2022. The following table presents a summary of option activity for 2022:

	Number of Options	Weighted Average Exercise Price	Weighted Average Contractual Life (years)	Intrinsic Value
Outstanding, January 1, 2022	756,327	\$ 22.13	1.3	\$ 2
Exercised	(13,881)	19.59		
Forfeited	(3,842)	20.30		
Expired	(223,512)	25.95		
Outstanding and Exercisable, December 31, 2022	<u>515,092</u>	<u>\$ 20.55</u>	<u>0.62</u>	<u>\$ —</u>

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. During 2022 and 2021, there were 13,881 and 424,832 options exercised, respectively, with a total intrinsic value of less than \$1 million and \$2 million, respectively. We issue new shares upon the exercise of options. During 2022 and 2021, we received less than \$1 million and \$8 million, respectively, in cash for the exercise of stock options. There were no options exercised during 2020 and consequently there was no related intrinsic value. At December 31, 2022, 2021 and 2020, there was no unrecognized compensation expense related to options.

21. Pension and Other Postretirement Healthcare Benefits

The following provides information regarding our U.S. and foreign plans:

U.S. Plans

Pension and Postretirement Healthcare Plans— Tronox has one main U.S. defined benefit plan: the U.S. Qualified Plan. Prior to December 2020, the Company also had the U.S. Pension Plan (which was acquired as part of the Cristal acquisition). In December 2020, the U.S. Pension Plan was frozen and merged into the U.S. Qualified Plan. The U.S. Qualified Plan is a funded noncontributory qualified benefit plan which is 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. In October 2022, the Company entered into an irrevocable arrangement with an insurance provider to settle certain lower dollar valued accounts within its frozen U.S. Qualified Plan to reduce PBGC premiums. As a result of this arrangement, the Company recorded a non-cash pension settlement charge of approximately \$20 million during the fourth quarter of 2022. We also maintain one postretirement healthcare plan - the U.S. retiree welfare plan.

International Plans

Pension Plans — Tronox has international defined benefit commitments primarily in the United Kingdom ("U.K. DB Scheme") and Saudi Arabia. The U.K. DB Scheme is a funded qualified defined benefit plan in the United Kingdom, which is frozen with no additional benefits accruing to the participants. Benefits under the U.K. DB Scheme are generally calculated based on years of credit service and final compensation when benefits ceased to accrue as defined under the plan provisions. We also maintain a Saudi Arabia Cristal End of Service Benefit plan which provides end of service benefits to qualifying participants. End of service benefits are based on years of service and the reasons for which a participant's services to the Company are terminated.

Multiemployer Pension Plan - In prior periods, we maintained a defined benefit plan in the Netherlands (the "Netherlands Plan") to provide defined pension benefits to qualifying employees of Tronox Pigments (Holland) B.V. and its related companies. During 2014, the Netherlands Plan was replaced with a multiemployer plan, the Netherlands Contribution Plan (the "CDC Plan") effective January 1, 2015. 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 20.4% of the participants' pensionable salaries into a pooled fund administered by the industry-wide 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, 2022. The CDC disclosures provided herein are based on the fund's 2021 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, 2021. 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, 2022, 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 Fund	EIN/Pension Plan Number	Pension Protection Act Zone Status		FIP/RP Pending/Implemented	Tronox Contributions		Surcharge Imposed	Expiration date of Collective-Bargaining Agreement
		2022	2021		2022	2021		
PGB	NA	N/A	Green	No	\$ 5	\$ 5	No	12/31/2024

On the basis of the information available in the CDC Plan 2021 annual report, our contribution does not constitute more than 5 percent of the total contribution to the plan by all participants. During 2022, the fund did not impose any surcharge on us.

Postretirement Healthcare Plans — We also maintain postretirement healthcare plans in South Africa (the "South African Plan") and Brazil (the "Brazil Medical Plan"). The South African Plan provides medical and dental benefits to certain South African employees, retired employees and their registered dependents. 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. The Brazil Medical Plan provides post-employment medical benefits to employees who contributed to the medical plan while employed. Retirees receiving a benefit under the plan are required to pay a contribution that varies based on the coverage level elected.

Pension and Postretirement Benefit Costs / Obligations

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. and international pension plans and other post-retirement benefit plans ("OPEB") as of and for the years ended December 31, 2022 and 2021. The benefit obligations and plan assets associated with our principal benefit plans are measured on December 31.

	Pensions				Other Post Retirement Benefit Plans			
	December 31				December 31			
	2022		2021		2022		2021	
	US	International	US	International	US	International	US	International
Change in benefit obligations:								
Benefit obligation, beginning of year	\$ 369	\$ 234	\$ 399	\$ 252	\$ 2	\$ 16	\$ 2	\$ 2
Service cost	—	4	—	4	—	1	—	—
Interest cost	10	4	10	4	—	2	—	—
Net actuarial (gains) losses	(77)	(61)	(10)	(10)	(1)	(1)	—	—
Curtailments	—	—	—	—	—	—	—	—
Settlements	(81)	—	—	—	—	—	—	—
Plan amendments ⁽¹⁾	—	—	—	—	—	—	—	—
Foreign currency rate changes	—	(17)	—	(2)	—	—	—	—
Benefits paid	(22)	(10)	(30)	(14)	—	(1)	—	—
Benefit obligation, end of year ⁽²⁾	199	154	369	234	1	17	2	2
Change in plan assets:								
Fair value of plan assets, beginning of year	337	183	344	195	—	—	—	—
Actual return on plan assets	(63)	(53)	23	(3)	—	—	—	—
Employer contributions	—	4	—	6	—	1	—	—
Benefits paid	(22)	(10)	(30)	(14)	—	(1)	—	—
Foreign currency rate changes	—	(18)	—	(1)	—	—	—	—
Settlements	(72)	—	—	—	—	—	—	—
Fair value of plan assets, end of year	180	106	337	183	—	—	—	—
Net underfunded status of plans	\$ (19)	\$ (48)	\$ (32)	\$ (51)	\$ (1)	\$ (17)	\$ (2)	\$ (1)
<i>Classification of amounts recognized in the Consolidated Balance Sheets:</i>								
Other long-term assets	\$ —	\$ 10	\$ —	\$ 20	\$ —	\$ —	\$ —	\$ —
Accrued liabilities	—	(6)	—	(4)	—	—	(1)	—
Pension and postretirement healthcare benefits	(19)	(52)	(32)	(67)	(1)	(17)	(1)	(1)
Total liabilities	(19)	(58)	(32)	(71)	(1)	(17)	(2)	(1)
Accumulated other comprehensive (income) loss	55	4	81	10	—	2	—	—
Total	\$ 36	\$ (44)	\$ 49	\$ (41)	\$ (1)	\$ (15)	\$ (2)	\$ (1)

(1) Relates to a plan amendment entered into during 2021 related to the Brazil Medical Plan.

(2) Since the benefits under the U.S Qualified Plan and the U.K. DB Scheme are frozen, the projected benefit obligation and accumulated benefit obligation are the same.

Contributions

At a minimum, Tronox contributes to its pension plans to comply with local regulatory requirements (e.g., ERISA in the United States). Discretionary contributions in excess of the local minimum requirements are made based on many factors, including long-term projections of the plans' funded status, the economic environment, potential risk of overfunding, pension insurance costs and alternative uses of the cash. Changes to these factors can impact the timing of discretionary contributions from year to year. Pension contributions for its US and international plans were approximately \$6 million in 2022 and are currently expected to be approximately \$8 million in 2023.

The following table provides information for pension plans where the accumulated benefit obligation exceeds the fair value of the plan assets:

	Pensions	
	2022	
	US	International
Projected benefit obligation (PBO)	\$ 199	\$ 58
Accumulated benefit obligation (ABO)	\$ 199	\$ 39
Fair value of plan assets	\$ 180	\$ —

Expected Benefit Payments — The following table shows the expected cash benefit payments for the next five years and in the aggregate for the years 2028 through 2032:

	2023	2024	2025	2026	2027	2028-2032
Pensions - US	\$ 25	\$ 21	\$ 19	\$ 19	\$ 18	\$ 8
Pensions - International	\$ 12	\$ 10	\$ 10	\$ 10	\$ 10	\$ 4
Other Post Retirement Benefit Plans - US	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Other Post Retirement Benefit Plans - International	\$ —	\$ —	\$ 1	\$ 1	\$ 1	\$ —

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 Income for 2022, 2021, and 2020:

	Pensions			Other Postretirement Benefit Plans		
	Year Ended December 31,			Year Ended December 31,		
	2022	2021	2020	2022	2021	2020
Net periodic cost:						
Service cost	\$ 5	\$ 4	\$ 5	\$ —	\$ 1	\$ —
Interest cost ⁽¹⁾	14	14	17	2	2	—
Expected return on plan assets ⁽¹⁾	(24)	(26)	(22)	—	—	—
Net amortization of actuarial loss ⁽¹⁾	4	5	4	—	1	—
Settlement losses (gains) ⁽¹⁾	20	—	—	—	—	—
Curtailement (gains) ⁽¹⁾	—	—	(2)	—	—	—
Total net periodic cost	\$ 19	\$ (3)	\$ 2	\$ 2	\$ 4	\$ —

(1) Recorded in Other (expense) income, net in the Consolidated Statement of Income.

Assumptions —

The following weighted average assumptions were used to determine net periodic cost:

	Pension					
	2022		2021		2020	
	US	International	US	International	US	International
Discount rate	2.97 %	1.91 %	2.60 %	1.47 %	3.39 %	1.98 %
Expected return on plan assets	6.80 %	2.50 %	6.70 %	2.50 %	6.03 %	2.50 %

	OPEB					
	2022		2021		2020	
	US	International	US	International	US	International
Discount rate	2.83 %	10.29 %	2.59 %	10.19 %	3.36 %	8.72 %
Expected return on plan assets	N/A	N/A	N/A	N/A	N/A	N/A

The following weighted average assumptions were used in estimating the actuarial present value of benefit obligations:

	Pensions					
	2022		2021		2020	
	US	International	US	International	US	International
Discount rate	5.70 %	4.70 %	2.97 %	1.87 %	2.60 %	1.45 %
Rate of compensation increase	N/A	4.72 %	N/A	4.68 %	3.00 %	4.65 %

	OPEB					
	2022		2021		2020	
	US	International	US	International	US	International
Discount rate	5.62 %	11.10 %	2.83 %	10.33 %	2.59 %	9.51 %
Rate of compensation increase	N/A	N/A	N/A	N/A	N/A	N/A

For the U.S. Qualified Plan, at both December 31, 2022 and December 31, 2021, the mortality assumption was determined using the Society of Actuaries' the generational projection scale (i.e. MP-2021) and base table (i.e. Pri-2012).

Expected Return on Plan Assets — In forming the assumption of the U.S. and international 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 Company's pension 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 allocation, historical asset-class returns, and an assessment of expected future performance using asset-class risk factors.

Discount Rate — The 2022 and 2021 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 BVAL scores of 6 or greater.

Plan Assets — The investments of the U.S. and International pension plans are managed to meet the future expected benefit liabilities of the plan over the long term by investing in diversified portfolios consistent with prudent diversification and historical and expected capital market returns. Tronox's U.S. and international pension plans' weighted-average asset allocations at December 31, 2022 and 2021, and the target asset allocation ranges, by major asset category, are as follows:

December 31,

	2022				2021			
	US		International		US		International	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Equity securities	49 %	46 %	— %	— %	49 %	49 %	— %	— %
Debt securities	46	46	37	37	46	48	43	43
Real estate	1	—	—	—	1	—	—	—
Other	4	8	63	63	4	3	57	57
Total	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

The fair values of pension investments as of December 31, 2022 are summarized below:

Asset category:	Fair Value Measurement at December 31, 2022 Using:			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Equities securities:				
Global equity securities	\$ 53 (1)	\$ —	\$ —	\$ 53
Global commingled equity funds	35 (2)	—	—	35
Debt securities:				
US government bonds	48 (3)	—	—	48
Foreign government bonds	19 (3)	—	—	19
US corporate bonds	—	34 (4)	—	34
Foreign corporate bonds	—	22 (4)	—	22
Real Estate:				
Property/ real estate fund	—	1 (5)	—	1
Other:				
Insurance contracts	—	—	63 (7)	63
Cash & cash equivalents	11 (6)	—	—	11
Total at fair value	\$ 166	\$ 57	\$ 63	\$ 286

- (1) For global equity securities, this category is comprised of shares of common stock in both U.S. and international companies from a diverse set of industries and size. Common stock is valued at the closing market price reported on a U.S. or international exchange where the security is actively traded. Equity securities are classified within level 1 of the fair value hierarchy.
- (2) Global commingled equity funds are comprised of managed funds that invest in common stock of both U.S. and international companies shares from a diverse set of industries and size. Common stock are valued at the closing market price reported on a U.S. or international exchange where the security is actively traded. These funds are classified within level 1 of the fair value hierarchy.
- (3) For US and foreign government bonds, this category includes U.S. treasuries, U.S. federal agency obligations and international government debt. The fair value of these investments are based on observable quoted prices on active exchanges, which are level 1 inputs.
- (4) For US corporate bonds and foreign corporate bonds, this category is comprised of corporate bonds of U.S. and foreign companies from a diverse set of industries and size. The fair values for the U.S. and foreign corporate bonds are determined using quoted prices of similar securities in active markets and observable data or broker or dealer quotations. The fair values for these investments are classified as level 2 within the valuation hierarchy.
- (5) For property / real estate funds, this category includes real estate properties, partnership equities and investments in operating companies. The fair value of the assets is determined using discounted cash flows by estimating an income stream for the property plus a reversion into a present value at a risk adjusted rate. Yield rates and growth assumptions utilized are derived from market transactions as well as other financial and industry data. The fair value of these investments are classified as level 2 in the valuation hierarchy.

- (6) Cash and cash equivalents include cash and short-interest bearing investments with maturities of three months or less. Investments are valued at cost plus accrued interest. Cash and cash equivalents are classified within level 1 of the valuation hierarchy.
- (7) For insurance contracts, the fair value is estimated as the cost of purchasing equivalent annuities on terms consistent with those currently available in the market. The contracts are with highly rated insurance companies and are classified within level 3 of the valuation hierarchy. The following table summarizes changes in fair value of the pension plan assets classified as level 3 for the year ended December 31, 2022:

Insurance Contracts	
Balance, December 31, 2021	\$ 98
Actual return on plan assets	(20)
Purchases, sales, settlements	(5)
Transfers in/out of Level 3	—
Foreign currency translation	(10)
Balance, December 31, 2022	<u>\$ 63</u>

The fair values of pension investments as of December 31, 2021 are summarized below:

	Fair Value Measurement at December 31, 2021, Using:			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Asset category:				
Equities securities:				
Global equity securities	\$ 93 ⁽¹⁾	\$ —	\$ —	\$ 93
Global commingled equity funds	73 ⁽²⁾	—	—	73
Debt securities:				
US government bonds	81 ⁽³⁾	—	—	81
Foreign government bonds	39 ⁽³⁾	—	—	39
US corporate bonds	—	73 ⁽⁴⁾	—	73
Foreign corporate bonds	—	42 ⁽⁴⁾	—	42
Real Estate:				
Property/ real estate fund	—	1 ⁽⁵⁾	—	1
Other:				
Insurance contracts	—	—	98 ⁽⁷⁾	98
Cash & cash equivalents	19 ⁽⁶⁾	—	—	19
Total at fair value	<u>\$ 305</u>	<u>\$ 116</u>	<u>\$ 98</u>	<u>\$ 519</u>

- (1) For global equity securities, this category is comprised of shares of common stock in both U.S. and international companies from a diverse set of industries and size. Common stock is valued at the closing market price reported on a U.S. or international exchange where the security is actively traded. Equity securities are classified within level 1 of the fair value hierarchy.
- (2) Global commingled equity funds are comprised of managed funds that invest in common stock of both U.S. and international companies shares from a diverse set of industries and size. Common stock are valued at the closing market price reported on a U.S. or international exchange where the security is actively traded. These funds are classified within level 1 of the fair value hierarchy.
- (3) For US and foreign government bonds, this category includes U.S. treasuries, U.S. federal agency obligations and international government debt. The fair value of these investments are based on observable quoted prices on active exchanges, which are level 1 inputs.
- (4) For US corporate bonds and foreign corporate bonds, this category is comprised of corporate bonds of U.S. and foreign companies from a diverse set of industries and size. The fair values for the U.S. and foreign corporate bonds are determined using quoted prices of similar securities in active markets and observable data or broker or dealer quotations. The fair values for these investments are classified as level 2 within the valuation hierarchy.
- (5) For property / real estate funds, this category includes real estate properties, partnership equities and investments in operating companies. The fair value of the assets is determined using discounted cash flows by estimating an income stream for the property plus a reversion into a present value at a risk adjusted

rate. Yield rates and growth assumptions utilized are derived from market transactions as well as other financial and industry data. The fair value of these investments are classified as level 2 in the valuation hierarchy.

- (6) Cash and cash equivalents include cash and short-interest bearing investments with maturities of three months or less. Investments are valued at cost plus accrued interest. Cash and cash equivalents are classified within level 1 of the valuation hierarchy.
- (7) For insurance contracts, the fair value is estimated as the cost of purchasing equivalent annuities on terms consistent with those currently available in the market. The contracts are with highly rated insurance companies and are classified within level 3 of the valuation hierarchy. The following table summarizes changes in fair value of the pension plan assets classified as level 3 for the year ended December 31, 2021:

	Insurance Contracts	
Balance, December 31, 2020	\$	111
Actual return on plan assets		(6)
Purchases, sales, settlements		(6)
Transfers in/out of Level 3		—
Foreign currency translation		(1)
Balance, December 31, 2021	\$	98

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”). A discretionary contribution of 6% was made for 2022, 2021 and 2020. 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 \$5 million, \$5 million and \$4 million during 2022, 2021 and 2020, respectively, which was included in “Selling, general and administrative expenses” in the Consolidated Statements of Income. Compensation expense associated with our discretionary contribution was \$5 million in 2022, \$5 million in 2021 and \$4 million in 2020, which was included in “Selling, general and administrative expenses” in the Consolidated Statements of Income.

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, \$1 million and \$1 million during 2022, 2021 and 2020, respectively, which was included in “Selling, general and administrative expenses” in the Consolidated Statements of Income.

South Africa Defined Contribution Plans

Tronox Mineral Sands Proprietary Limited, a wholly owned subsidiary of the Company, participates in several defined contribution plans which are registered in the Republic of South Africa and are governed by the South African Pension Funds Act of 1956. These plans provide retirement and other benefits to all permanent employees, and where applicable, retired employees and their dependents. The Company contributes a range of 10% to 15% (depending on the plan) of the employees' predefined pre-tax pensionable earnings. Compensation expense associated with these plans was \$7 million, \$5 million, and \$4 million during 2022, 2021 and 2020, respectively, which was included in both "Costs of goods sold" and "Selling, general and administrative expenses" in the Consolidated Statements of Income.

22. Related Party Transactions

Tasnee / Cristal

At December 31, 2022 Cristal International Holdings B.V. (formerly known as Cristal Inorganic Chemical Netherlands Cooperatief W.A.), a wholly-owned subsidiary of Tasnee, continues to own 37,580,000 shares of Tronox, or a 24% ownership interest.

On May 9, 2018, we entered into an Option Agreement with AMIC which is owned equally by Tasnee and Cristal. Under the terms of the Option Agreement, 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 AMIC indebtedness (the "AMIC Debt"). The AMIC Debt would remain outstanding debt of the SPV upon exercise of the Option. The Option may be exercised if the Slagger achieves certain production criteria related to sustained quality and tonnage of slag produced (the "Option Criteria"). Likewise, AMIC may require us to acquire the Slagger on the same terms if the Option Criteria are satisfied. Furthermore, 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 (the "Tronox Loans"). At both December 31, 2022 and 2021, we have lent AMIC the Tronox Loans maximum amount of \$125 million, which, together with the related accrued interest of \$13 million and \$9 million, respectively, is recorded within "Other long-term assets" on the Consolidated Balance Sheet. The Option did not have a significant impact on the financial statements as of or for the periods ended December 31, 2022 and 2021. For the years ended December 31, 2022 and 2021, Tronox recorded \$60 million and nil, respectively, for purchases of feedstock material produced by the Slagger. Such sales are recorded in "Cost of goods sold" on the Consolidated Statement of Income. At December 31, 2022 and 2021, amounts due related to Slagger feedstock purchases were \$14 million and nil, respectively, which are recorded within "Accrued liabilities" on the Consolidated Balance Sheet.

On May 13, 2020, we amended the Option Agreement (the "First Amendment") with AMIC to address circumstances in which the Option Criteria cannot be satisfied. Pursuant to the First Amendment, Tronox has the right to acquire the SPV in exchange for (i) our forgiveness of the Tronox Loans principal and accrued interest thereon, and (ii) the SPV's assumption of \$36 million of indebtedness plus accrued interest thereon lent by AMIC to the SPV. Under the First Amendment, the SPV would not assume any of the AMIC Debt.

Additionally, on May 13, 2020, we amended a Technical Services Agreement that we had entered with AMIC on March 15, 2018, to add project management support services. Under this arrangement, AMIC and its consultants are still responsible for engineering and construction of the Slagger while we provide technical advice and project management services including supervision and management of third party consultants intended to satisfy the Option Criteria. As compensation for these services, Tronox receives a management fee, which is subject to certain success incentives if and when the Slagger achieves the Option Criteria. For both of the years ended December 31, 2022 and 2021, Tronox recorded management fees of \$8 million, in "Other (expense) income, net" within the Consolidated Statement of Income. For the years ended December 31, 2022 and 2021, Tronox recorded other technical support fees received under the Technical Services Agreement of \$2 million and nil, respectively, in "Selling, general and administrative expenses" on the Consolidated Statement of Income. At December 31, 2022 and 2021, Tronox had a receivable due from AMIC related to management fee and technical support fees of \$2 million and \$1 million, respectively, that is recorded within "Prepaid and other assets" on the Consolidated Balance Sheet.

At December 31, 2022, Tronox had a receivable due from Tasnee of \$2 million related primarily to pre-acquisition period tax matters in process with certain tax authorities which are reimbursable from Tasnee. At December 31, 2021, Tronox had a receivable due from Tasnee of \$8 million related primarily to \$4 million of stamp duty taxes reimbursable from Tasnee and \$3 million for pre-acquisition period tax matters. These receivables are recorded within "Prepaid and other assets" on the Consolidated Balance Sheet.

On December 29, 2019, we entered into an agreement with Cristal to acquire certain assets co-located at our Yanbu facility which produce metal grade TiCl₄ ("MGT"). Consideration for the acquisition was the assumption by Tronox of a \$36 million note payable to Cristal (the "MGT Loan"). MGT is used at a titanium "sponge" plant facility, 65% of the ownership interests of which are held by Advanced Metal Industries Cluster and Toho Titanium Metal Co. Ltd ("ATTM"), a joint venture between AMIC and Toho Titanium Company Ltd. ATTM uses the TiCl₄, which we supply by pipeline, for the production of titanium sponge, a precursor material used in the production of titanium metal.

On December 17, 2020 we completed the MGT transaction. Repayment of the \$36 million note payable is based on a fixed U.S. dollar per metric ton quantity of MGT delivered by us to ATTM over time and therefore the ultimate maturity date is variable in nature. If ATTM fails to purchase MGT from us under certain contractually agreed upon conditions, then at our election we may terminate the MGT supply agreement with ATTM and will no longer owe any amount under the loan agreement with Cristal. We currently estimate the ultimate maturity to be between approximately five and six years, subject to actual future MGT production levels. The interest rate on the note payable is based on the SAIBOR plus a premium. At December 31, 2022 and 2021 the outstanding balance of the note payable was \$30 million and \$33 million, respectively, of which \$7 million and \$7 million, respectively, was expected to be paid within the next twelve months. The note payable is recorded within "Long-term debt, net" and "Long-term debt due within one year" on the Consolidated Balance Sheet. For both years ended December 31, 2022 and 2021, Tronox recorded interest expense of \$1 million related to the MGT Loan, which is recorded in "Interest expense" on the Consolidated Statement of Income. During the years ended December 31, 2022 and 2021, Tronox recorded \$3 million and

\$4 million, respectively, for MGT Loan repayments to Cristal that is recorded within "Net sales" on the Consolidated Statement of Income.

As a result of these transactions we have entered into related to the MGT assets, Tronox recorded \$4 million and \$8 million for purchase of chlorine gas for the years ended December 31, 2022 and 2021, respectively, from ATTM and such amounts are recorded in "Cost of goods sold" on the Consolidated Statement of Income. The amount due to ATTM as of December 31, 2022 and 2021, for the purchase of chlorine gas was \$1 million and \$1 million, respectively, and is recorded within "Accrued liabilities" on the Consolidated Balance Sheet.

During the years ended December 31, 2022 and 2021, Tronox recorded \$29 million and \$31 million, respectively, for MGT sales made to AMIC. The MGT sales are recorded in "Net sales" on the Consolidated Statement of Income. At December 31, 2022 and December 31, 2021, Tronox had a receivable from AMIC of \$6 million and \$6 million, respectively, from MGT sales that is recorded within "Prepaid and other assets" on the Consolidated Balance Sheet.

23. Segment Information

We operate our business under one operating segment, Tronox, which is also our reportable segment. The Company's chief operating decision maker, who are its Co-CEOs, reviews financial information presented at the consolidated level for purposes of allocating resources and evaluating financial performance. Since we operate our business under one segment, there is no difference between our consolidated results and segment results.

We disaggregate revenue from contracts with customers by product type and geographic area as well as sales based on country of production. 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.

During 2022, 2021 and 2020 our ten largest third-party customers represented 30%, 28%, and 32%, respectively, of our consolidated net sales. During 2022, 2021, and 2020, no single customer accounted for 10 % of our consolidated net sales.

Net sales to external customers based on country of production, were as follows:

	Year Ended December 31,		
	2022	2021	2020
U.S. operations	\$ 733	\$ 716	\$ 653
International operations:			
United Kingdom	331	396	301
Australia	822	873	637
South Africa	484	441	330
Saudi Arabia	419	420	269
Other - international	665	726	568
Total net sales	\$ 3,454	\$ 3,572	\$ 2,758

See Note 3 for further information on revenues.

There is no difference between the total consolidated assets and our segment assets. Property, plant and equipment, net, mineral leaseholds, net, and lease right of use assets, net by geographic region, were as follows:

	December 31,	
	2022	2021
U.S. operations	\$ 308	\$ 251
International operations:		
United Kingdom	93	97
Saudi Arabia	226	241
South Africa	705	705
Australia	1,093	1,000
Other - international	242	248
Total	\$ 2,667	\$ 2,542

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

Under the supervision of and with the participation of Tronox's management, including our Co-CEOs and CFO, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended) (the "Exchange Act"), as of December 31, 2022, the end of the period covered by this report. Based on that evaluation, our co-CEOs and CFO have concluded that the Company's disclosure controls and procedures were effective as of that date. Tronox's disclosure controls and procedures are designed to ensure that information required to be disclosed by Tronox in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms, and that such information is accumulated and communicated to Tronox's management, including Tronox's co-CEOs and CFO, or other person performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control Over Financial Reporting

Management of Tronox Holdings plc and its subsidiaries is responsible for establishing and maintaining adequate internal control over financial reporting. Internal controls over financial reporting is a process designed under the supervision of our interim principal co-executive officers and principal financial officer 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, 2022. 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, 2022 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, 2022 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which appears in Item 8 of this Form 10-K.

Changes in Internal Control Over Financial Reporting

We are currently undergoing a multi-year IT-enabled transformation program that includes increased automation of both operational and financial systems, including the global enterprise risk management program, during third quarter of 2022, we implemented upgrades to our financial systems and platforms in certain regions. The full implementation is expected to occur in phases over a number of years. As the phased implementation of this system occurs, we expect certain changes to our processes and procedures which, in turn, will result in changes to our internal control over financial reporting.

While we expect this transformation program to strengthen our internal financial controls, management will continue to evaluate and monitor our internal controls as processes and procedures in each of the affected areas evolve.

Other than as discussed above, there have been no changes to our internal control over financial reporting during the quarter ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III**Item 10. Directors, Executive Officers and Corporate Governance**

Information about our executive officers as of February 22, 2023:

NAME	POSITION
John D. Romano	Co-Chief Executive Officer
Jean-Francois Turgeon	Co-Chief Executive Officer
Timothy Carlson	Senior Vice President, Chief Financial Officer
Jeff Engle	Senior Vice President, Commercial and Strategy
Russell Austin	Senior Vice President, Operations
Jeffrey Neuman	Senior Vice President, General Counsel and Secretary
D. John Srivisal	Senior Vice President, Business Development and Finance
Melissa Zona	Senior Vice President, Chief Sustainability and Human Resources Officer
Jennifer Guenther	Vice President, Head of Investor Relations
Jonathan P. Flood	Vice President, Controller and Principal Accounting Officer

Information about members of our Board of Directors as of February 22, 2023:

NAME	CURRENT OCCUPATION
Ilan Kaufthal	Chairman of the Board, Tronox Holdings plc; Eastwind Advisors
Mutlaq Al-Morished	CEO, TASNEE
Vanessa Guthrie	Former Managing Director and Chief Executive Officer, Toro Energy Limited
Peter B. Johnston	Former Interim CEO, Tronox Limited; Former Global Head of Nickel Assets, Glencore
Ginger M. Jones	Former Senior Vice President and CFO, Cooper Tire & Rubber Company
Stephen Jones	Former President and CEO, Covanta Holding Corporation
Moazzam Khan	Managing Director, Cristal International Holdings BV
Sipho Nkosi	Former CEO, Exxaro Resources Limited
John Romano	Co-Chief Executive Officer, Tronox
Jean-Francois Turgeon	Co-Chief Executive Officer, Tronox

Other 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 Ethics and Business Conduct that applies to our co-Chief Executive Officers and senior financial officers, will be presented in Tronox Holding plc's definitive proxy statement for its 2023 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, under the headings "Proposal 1 - Election of Directors" and "Code of Ethics and Business Conduct" and is incorporated herein by reference.

Item 11. Executive Compensation

Information regarding executive officer and director compensation will be presented in Tronox Holdings plc's definitive proxy statement for its 2023 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, under the headings "Human Resources and Compensation Committee Interlocks and Insider Participation", "2022 Non-Employee Director Compensation" and "Compensation Discussion and Analysis" and is incorporated herein by reference, except as to information required pursuant to Item 402(v) of Regulation S-K relating to pay versus performance.

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 Holdings plc's definitive proxy statement for its 2023 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, under the heading "Security Ownership of Certain Beneficial Owners" and is incorporated herein by reference.

Equity Compensation Plan Information

The following table provides information as of December 31, 2022 regarding securities issued under the Tronox Holdings plc Amended and Restated Management Equity Incentive Plan (the "Tronox Holdings plc MEIP").

	Number of securities to be issued upon exercise of outstanding restricted share units and options	Weighted-average exercise price of outstanding options ⁽¹⁾	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in the second column) ⁽²⁾
Equity compensation plans approved by security holders	4,305,496	\$ 20.55	6,257,303
Equity compensation plans not approved by security holders	—	—	—
Total	4,305,496	\$ 20.55	6,257,303

(1) Because there is no exercise price for restricted share units, such awards are not included in the weighted-average exercise price.

(2) Each restricted share unit awarded under the Tronox Holdings plc MEIP was granted at no cost to the persons receiving them and represents the contingent right to receive the equivalent number of ordinary 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 Holdings plc's definitive proxy statement for its 2023 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, under the heading "Certain Relationships and Related Transactions" 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 Holdings plc's definitive proxy statement for its 2023 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, under the heading "Fees Paid to Independent Registered Public Accounting Firm" and is incorporated herein by reference.

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.

3. Exhibits

(b) The exhibits listed in the following table have been filed with, or incorporated by reference into, this Annual Report on Form 10-K.

2.1	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 on February 21, 2017).
2.2	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 on March 1, 2018).
2.3	Amendment No. 2 to Transaction Agreement dated March 28, 2019, by and among The National Titanium Dioxide Company Limited, Tronox Limited, and, solely for certain purposes, Cristal Inorganic Chemicals Netherlands Coöperatief W.A. (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed on April 2, 2019).
3.1	Articles of Association of Tronox Holdings plc (incorporated by reference to Exhibit 3.1 of the Current Report on Form 8-K filed on March 27, 2019).
4.1	Specimen ordinary share certificate of Tronox Holdings plc (incorporated by reference to Exhibit 4.1 of the Current Report on Form 8-K filed on March 27, 2019).
4.2	Shareholders Agreement, dated April 10, 2019, by and between Tronox Holdings plc, Cristal Inorganic Chemicals Netherlands Coöperatief W.A., The National Titanium Dioxide Company Limited, Gulf Investment Corporation and Dr. Talal Al-Shair (incorporated by reference to Exhibit 4.1 of the Current Report on Form 8-K filed on April 11, 2019).
4.3	Description of Securities of the Registrant (filed herewith).
4.4	Indenture, dated as of March 15, 2021, among Tronox Incorporated, Tronox Holdings plc and the 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 on March 15, 2021).
4.5	Form of 4.625 % Senior Notes due 2029 (incorporated by reference to Exhibit 4.1 of the Current Report on Form 8-K filed on March 15, 2021)
10.1*	Tronox Holdings plc Amended and Restated Management Equity Incentive Plan (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed on March 27, 2019).
10.2*	Tronox Holdings plc Amended and Restated Annual Bonus Incentive Plan (incorporated by reference to Exhibit 10.3 of the Current Report on Form 8-K filed on March 27, 2019).
10.3*	Offer letter, dated November 7, 2019 by and between Tronox Holdings plc and Timothy Carlson (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed on November 12, 2019).
10.4*	General form of executive officer Time-Based Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.4 of the Annual Report on Form 10-K filed on February 22, 2022).
10.5*	General form of executive officer TSR Performance-Based Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.5 of the Annual Report on Form 10-K filed on February 22, 2022).
10.6*	General form of executive officer ROIC Performance-Based Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.6 of the Annual Report on Form 10-K filed on February 22, 2022).
10.7*	General form of Director Grant Restricted Share Unit Agreement (incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q filed on May 4, 2017).
10.8	Form of Director Deed of Indemnification (incorporated by reference to Exhibit 10.4 of the Current Report on Form 8-K filed on March 27, 2019).

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10.9	Agreement for the Provision of Depositary Services and Custody Services, dated as of April 10, 2019, in respect of Tronox Holdings plc Depositary Receipts among Computershare Trust Company, N.A., Tronox Holdings plc, Cristal Inorganic Chemicals Netherlands Coöperatief W.A. and all other holders from time to time of depositary receipts issued in accordance herewith (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed on April 15, 2019).
10.10	Amended and Restated First Lien Credit Agreement dated as of September 22, 2017 (as amended through and including March 11, 2021) with a syndicate of lenders and HSBC Bank USA, National Association, as administrative agent and collateral agent (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed on March 11, 2021).
10.11	Amendment No. 1 to Amended and Restated First Lien Credit Agreement, dated as of April 4, 2022, with the incremental term lender party thereto, and HSBC Bank USA, National Association, as administrative agent and collateral agent (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed on April 4, 2022).
10.12*	Retirement Agreement dated as of March 18, 2021 by and between the Company and Mr. Jeffrey N. Quinn (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed on March 18, 2021).
10.13*	Employment Agreement dated as of March 18, 2021 by and between the Company and Mr. John D. Romano (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed on March 18, 2021).
10.14*	Employment Agreement dated as of March 18, 2021 by and between the Company and Mr. Jean-Francois Turgeon (incorporated by reference to Exhibit 10.3 of the Current Report on Form 8-K filed on March 18, 2021).
14.1	Tronox Code of Ethics and Business Conduct, effective March 27, 2019 (incorporated by reference to Exhibit 14.1 of the Annual Report on Form 10-K filed on March 16, 2020).
21.1	Subsidiaries of Tronox Holdings plc. (filed herewith)
23.1	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm for Tronox Holdings plc. (furnished herewith)
24.0	Power of Attorney (filed herewith)
31.1	Rule 13a-14(a) Certification of John Romano. (furnished herewith)
31.2	Rule 13a-14(a) Certification of Jean-Francois Turgeon. (furnished herewith)
31.3	Rule 13a-14(a) Certification of Timothy Carlson. (furnished herewith)
32.1	Section 1350 Certification for John Romano. (furnished herewith)
32.2	Section 1350 Certification for Jean-Francois Turgeon. (furnished herewith)
32.3	Section 1350 Certification for Timothy Carlson. (furnished herewith)
96.1	Technical Report Summary on the Cooljarloo Australia operations (incorporated by reference to Exhibit 96.1 of the Annual Report on Form 10-K filed on February 22, 2022).
96.2	Technical Report Summary on the Atlas and Campaspe Australia operations (incorporated by reference to Exhibit 96.2 of the Annual Report on Form 10-K filed on February 22, 2022).
96.3	Technical Report Summary on the Namakwa Sands South Africa operations (incorporated by reference to Exhibit 96.3 of the Annual Report on Form 10-K filed on February 22, 2022).
96.4	Technical Report Summary on the KZN Mineral Sands South Africa operations (incorporated by reference to Exhibit 96.4 of the Annual Report on Form 10-K filed on February 22, 2022).
101.INS	Inline XBRL Instance Document (filed herewith)
101.SCH	Inline XBRL Taxonomy Extension Schema Document (filed herewith)
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document (filed herewith)
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document (filed herewith)
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document (filed herewith)
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document (filed herewith)
104	The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2022, which has been formatted in Inline XBRL, and included with Exhibit 101.

* Indicates management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary.

None.

SIGNATURES

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 22nd day of February 2023.

TRONOX HOLDINGS PLC
(Registrant)

By: /s/ Jonathan P. Flood

Name: Jonathan P. Flood

Title: Vice President, Controller and Principal Accounting Officer

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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.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ John Romano</u> John Romano	Co-Chief Executive Officer, Director (Principal Executive Officer)	February 22, 2023
<u>/s/ Jean-Francois Turgeon</u> Jean-Francois Turgeon	Co-Chief Executive Officer, Director (Principal Executive Officer)	February 22, 2023
<u>/s/ Timothy Carlson</u> Timothy Carlson	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 22, 2023
<u>/s/ Jonathan P. Flood</u> Jonathan P. Flood	Vice President and Controller (Principal Accounting Officer)	February 22, 2023
<u>*</u> Ilan Kaufthal	Chairman of the Board of Directors	February 22, 2023
<u>*</u> Mutlaq Al-Morished	Director	February 22, 2023
<u>*</u> Vanessa Guthrie	Director	February 22, 2023
<u>*</u> Stephen Jones	Director	February 22, 2023
<u>*</u> Moazzam Khan	Director	February 22, 2023
<u>*</u> Peter B. Johnston	Director	February 22, 2023
<u>*</u> Sipho Nkosi	Director	February 22, 2023
<u>*</u> Ginger M. Jones	Director	February 22, 2023
<u>*By: /s/ Jeffrey Neuman</u> Jeffrey Neuman, Attorney-in-fact	Senior Vice President, General Counsel and Secretary	February 22, 2023

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

As of December 31, 2022, Tronox Holdings plc (“Tronox Holdings” or the “Company”) had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”): our ordinary shares.

Description of Ordinary Shares

The following description of our ordinary shares, nominal value US\$0.01 per share, is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to the applicable laws of England and Wales, the applicable provisions of the UK Companies Act 2006 (the “UK Companies Act”) and our Articles of Association (the “Articles of Association”), which is incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.3 is a part. We encourage you to read our Articles of Association and the applicable provisions of the UK Companies Act for additional information.

General

As of the date of this filing, we are authorized to issue up to 500 million of our ordinary shares. Computershare Trust Company, N.A. is the transfer agent and registrar for our ordinary shares, which are listed on the New York Stock Exchange under the symbol “TROX.”

Dividends and Distributions

Subject to the UK Companies Act, shareholders may declare dividends by ordinary resolution (but no dividend shall exceed any dividend recommended by the Board). The Board may also pay dividends to shareholders in accordance with their respective rights and interests in the Company. Dividends may be paid only out of “distributable reserves,” defined as “accumulated, realized profits, so far as not previously utilized by distribution or capitalization, less accumulated, realized losses, so far as not previously written off in a reduction or reorganization of capital.” The Company is not permitted to pay dividends out of share capital, which includes share premiums. Realized reserves are determined by reference to qualifying accounts of the Company meeting certain prescribed contents requirements and in accordance with generally accepted accounting principles. The Company will not be permitted to make a distribution if, at the time, the amount of its net assets is less than the aggregate of its issued and paid-up share capital and undistributable reserves or to the extent that the distribution will reduce the net assets below such amount. The Company is undertaking a reduction of capital with the aim of ensuring that sufficient distributable reserves will be available to permit dividends, distributions or share repurchases.

There are no fixed dates on which entitlement to dividends arise on any of the ordinary shares.

A general meeting declaring a dividend may, upon the recommendation of the Board, by ordinary resolution direct that it be satisfied wholly or partly by the distribution of assets, including shares or securities in any company. The Articles of Association also permit a scrip dividend scheme under which the Board may allot to

holders of ordinary shares who have elected to receive them, further ordinary shares, credited as fully paid, instead of cash in respect of all or part of a dividend. Unclaimed dividends and other amounts payable by the Company can be invested or otherwise used by the Board for the benefit of the Company until they are claimed or disposed of in accordance with any applicable law relating to unclaimed monies.

Conversion, Redemption and Residency

There are no conversion rights or redemption provisions relating to the ordinary shares. Under the laws of England and Wales, persons who are neither residents nor nationals of the UK may freely hold, vote and transfer the ordinary shares in the same manner and under the same terms as UK residents or nationals.

Voting Rights

The Articles of Association provide that, for so long as any shares are held by a Depositary (as defined in the Articles of Association), a resolution put to the vote at a general meeting shall be decided on a poll. Subject to the UK Companies Act and to any rights or restrictions as to voting attached to any class of shares, every shareholder present and entitled to vote on the resolution has one vote for every ordinary share of which he, she or it is the holder. In the case of joint holders of an ordinary share, the vote of the senior holder (determined by the order of the joint holders' names on the register) who votes (or any proxy duly appointed by the senior holder) shall be accepted to the exclusion of the votes of the other joint holders.

Amendment to the Articles of Association

Under the laws of England and Wales, and subject to a quorum being present, the shareholders may amend the articles of association of the Company by special resolution (i.e., a resolution approved by the holders of at least 75% of the aggregate voting power of the outstanding ordinary shares that, being entitled to vote, vote on the resolution) at a general meeting. The full text of the special resolution must be included in the notice of the meeting.

Winding Up

In the event of a voluntary winding up of the Company, the liquidator may, with the sanction of a special resolution of the Company and any other sanction required by law, divide among the shareholders the whole or any part of the assets of the Company and vest the whole or any part of the assets in trustees upon such trusts for the benefit of the members as the liquidator, with the like sanction, will determine. Upon any such winding up, after payment or provision for payment of the Company's debts and liabilities, the holders of ordinary shares (and any other shares in issue at the relevant time which rank equally with such shares) will share equally, on a share for share basis, in the Company's assets remaining for distribution to the holders of ordinary shares.

Pre-emptive Rights and New Issues of ordinary shares

Under the laws of England and Wales, the Board is, with certain exceptions, unable to allot and issue securities without being authorized by the shareholders in a general meeting. In addition, the laws of England and

Wales require that any issuance of equity securities that are to be paid for wholly in cash must be offered first to the existing holders of equity securities in proportion to the respective nominal amounts (i.e., par values) of their holdings on the same or more favorable terms, unless a special resolution (i.e., a resolution approved by the holders of at least 75% of the aggregate voting power of the outstanding ordinary shares that, being entitled to vote, vote on the resolution) excluding this requirement has been passed in a general meeting of shareholders (which authority can be for a maximum of five years, after which a further shareholder approval would be required to renew the exclusion). In this context, equity securities generally means shares other than shares which, with respect to dividends or capital, carry a right to participate only up to a specified amount in a distribution, which, in relation to the Company, will include the ordinary shares and all rights to subscribe for or convert securities into such shares.

The directors of the Company have been authorized by way of a shareholder resolution passed at a general meeting of the Company held on February 25, 2019, for a period of five years, to allot shares in the Company, or to grant rights to subscribe for or to convert or exchange any security into shares in the Company, up to an aggregate nominal amount (i.e., par value) of US\$5,000,000 and pre-emption rights in respect of such allotments have also been excluded.

The laws of England and Wales also prohibit an English company from issuing shares at a discount to nominal amount (i.e., par value) or for no consideration. If the shares are issued upon the lapse of restrictions or the vesting of any restricted stock award or any other share-based grant underlying any ordinary shares, the nominal amount (i.e., par value) of the shares must be paid up in accordance with the laws of England and Wales.

Shareholder Rights Plan

Under the Articles of Association, a shareholder rights plan may be established to prevent an “ownership change” for the purpose of section 382 of the US Internal Revenue Code of 1986, as amended (“section 382”). The purpose of any rights plan will be to preserve the Company’s ability to utilize its net operating loss carry forwards and other tax attributes, which would be substantially limited if the Company experienced an “ownership change” as defined under section 382. In general, an ownership change would occur under section 382 if the shareholders who are treated as owning 5% or more of ordinary shares for the purposes of section 382 collectively increased their aggregate ownership in ordinary shares by more than 50% over a rolling three-year period.

Effective from the date that a rights plan is introduced, the Board will grant subscription rights to holders of ordinary shares to acquire ordinary shares (or shares of any class as specified in the rights plan) such that, if any person or group acquires 4.5% or more of the ordinary shares, or if a person or group that owns 4.5% or more of ordinary shares acquires additional ordinary shares representing 0.5% or more of the issued ordinary shares, then, subject to certain exceptions, there would be a triggering event under the rights plan. The rights would then separate from the ordinary shares and would be adjusted to become exercisable so that ordinary shares (or shares of any class as specified in the rights plan) could be acquired by all holders of ordinary shares (other than the person or group that caused the trigger event). The shares to be acquired would have a market value equal to twice the exercise price, resulting in significant dilution in the ownership interest of the person or group that caused the trigger event.

If a rights plan is established, the Board will have the discretion to exempt any acquisition of ordinary shares from the provisions of the rights plan if it determines that doing so would not jeopardize or endanger the

Company's use of its net operating losses. The Board will also have the ability to terminate any rights plan prior to a triggering event, including, but not limited to, in connection with a transaction.

Rights issued under a rights plan are expected to expire five years after the date on which any rights plan is established.

Disclosure of Interests in Shares

The laws of England and Wales give the Company the power to serve a notice requiring any person whom it knows has, or whom it has reasonable cause to believe has, or within the previous three years has had, any ownership interest in any ordinary shares to disclose specified information regarding those shares. Failure to provide the information requested within the prescribed period (or knowingly or recklessly providing false information) after the date the notice is sent can result in criminal or civil sanctions being imposed against the person in default.

Under the Articles of Association, if any shareholder, or any other person appearing to be interested in ordinary shares held by such shareholder, fails to give the Company the information required by the notice, the Board may withdraw voting and certain other rights, and place restrictions on the rights to receive dividends and to transfer such ordinary shares.

Alteration of Share Capital; Repurchase of ordinary shares

Subject to the provisions of the UK Companies Act, and without prejudice to any relevant special rights attached to any class of shares, the Company may, from time to time:

- increase its share capital by allotting and issuing new shares in accordance with the Articles of Association and any relevant shareholder resolution;
- consolidate all or any of its share capital into shares of a larger nominal amount (i.e., par value) than the existing shares; or
- redenominate its share capital or any class of share capital.

The laws of England and Wales prohibit the Company from purchasing its own shares unless such purchase has been approved by its shareholders. Shareholders may approve two different types of such share purchases: "on-market" purchases or "off-market" purchases. "On-market" purchases may be made only on a "recognised investment exchange," which does not include the NYSE, which is the only exchange on which the Company's Shares are traded. In order to purchase its own shares, the Company must therefore obtain shareholder approval for "off-market" purchases. This requires that the Company's shareholders pass an ordinary resolution approving the terms of the contract pursuant to which any purchase is to be made. Such approval may be for a specific purchase or constitute a general authority lasting for up to five years after the date of the resolution, and renewal of such approval for additional five-year terms may be sought more frequently. However, shares may be repurchased only

out of distributable reserves or, subject to certain exceptions, the proceeds of a fresh issue of shares made for that purpose. At a general meeting of the Company held on February 25, 2019, shareholder resolutions were passed authorizing the Company to repurchase ordinary shares for a period of five years through (i) an approved form of share repurchase contract, or (ii) an approved form of share repurchase plan established in accordance with Rule 10b5-1 under the Exchange Act.

Transfer of ordinary shares

The Articles of Association allow holders of ordinary shares to transfer all or any of their ordinary shares in the case of ordinary shares held in certificated form by instrument of transfer in writing in any usual form or in any other form which is permitted by the UK Companies Act and is approved by the Board. The instrument of transfer must be executed by or on behalf of the transferor and (in the case of a transfer of a share which is not fully paid) by or on behalf of the transferee.

The Board may, in its absolute discretion, refuse to register a transfer of a certificated ordinary share to any person if it is not fully paid or is an ordinary share on which the Company has a lien. The Board may also refuse to register the transfer of a share in certain other limited circumstances, including if the transfer is not in favor of four or fewer transferees or it is in favor of a minor, bankrupt or person of mental ill health. If the Board refuses to register the transfer of a share, the instrument of transfer must be returned to the transferee within two months after the date on which the transfer was lodged with the Company with the notice of refusal and reasons for the refusal.

The Company's share register is maintained by its transfer agent, Computershare Trust Company, N.A. Registration in this share register is determinative of share ownership. A shareholder who holds ordinary shares through the DTC clearance system is not the holder of record of such shares. Instead, the depositary (for example, Cede & Co., as nominee for DTC) or other nominee is the holder of record of such shares. Accordingly, a transfer of shares from a person who holds such shares through the DTC clearance system to a person who also holds such shares through the DTC clearance system will not be registered in the Company's official share register, as the depositary or other nominee will remain the record holder of such shares.

Anti-Takeover Provisions

The UK City Code on Takeovers and Mergers (the "Takeover Code") applies, among other things, to an offer for a public company whose registered office is in the UK (or the Channel Islands or the Isle of Man) and whose securities are not admitted to trading on a regulated market in the UK (or on any stock exchange in the Channel Islands or the Isle of Man) if the company is considered by the UK Panel on Takeovers and Mergers (the "Takeover Panel"), the regulatory body which issues and administers the Takeover Code, to have its place of central management and control in the UK (or the Channel Islands or the Isle of Man). This is known as the "residency test". Under the Takeover Code, the Takeover Panel will determine whether the Company has its place of central management and control in the UK by looking at various factors, including the structure of the Board, the functions of the directors and where they are resident.

If, at the time of a takeover offer, the Takeover Panel determines that the Company has its place of central management and control in the UK, the Company would be subject to a number of rules and restrictions, including but not limited to the following: (i) the ability of the Company to enter into deal protection arrangements with a bidder would be extremely limited; (ii) the Company might not, without the approval of its shareholders, be able to perform certain actions that could have the effect of frustrating an offer, such as issuing shares or carrying out acquisitions or disposals; and (iii) the Company would be obliged to provide equality of information to all bona fide competing bidders.

It is intended that all of the Company's directors will reside outside of the UK, the Channel Islands and the Isle of Man. Accordingly, for the purposes of the Takeover Code, the Company is expected to be considered to have its place of central management and control outside the UK, the Channel Islands or the Isle of Man. Therefore, the Takeover Code is not expected to apply to the Company. It is possible that in the future circumstances could change that may cause the Takeover Code to apply to the Company.

Although the Company is not expected to be subject to the Takeover Code, the Articles of Association incorporate the protections of mandatory offer provisions substantially similar to the Takeover Code. Except with the prior consent of the Board or the prior approval of independent shareholders, a shareholder, together with persons acting in concert with it, would be at risk of certain sanctions including disenfranchisement (as regards voting and entitlement to dividends) if they acquired an interest in ordinary shares carrying 30% or more of the voting rights of the Company without making an offer for all of the other issued ordinary shares in cash or accompanied by a cash alternative. These provisions could have the effect of discouraging the acquisition and holding of interests of 30% or more of the voting rights and encouraging those shareholders who may be acting in concert with respect to the acquisition of shares to consult with the Board before effecting any additional purchases.

The mandatory offer provisions in the Articles of Association only apply while the Takeover Code does not apply to the Company.

LIST OF TRONOX HOLDINGS PLC SUBSIDIARIES

<u>Subsidiary</u>	<u>Jurisdiction of Incorporation or Organization</u>
Cristal Metals, LLC	Delaware
Tronox Finance LLC	Delaware
Tronox Incorporated	Delaware
Tronox LLC	Delaware
Tronox US Holdings Inc.	Delaware
<u>Non-U.S. Subsidiaries:</u>	
CIC Switzerland	Switzerland
Hong Kong Titanium Products Company Limited	Hong Kong
Jiangxi Tikon Titanium Products Co. Ltd.	China
Millennium Inorganic Chemicals Holdings Brasil Ltda.	Brazil
Millennium Inorganic Chemicals Le Havre SAS	France
Millennium Inorganic Chemicals Overseas Holdings	United Kingdom
Millennium Inorganic Chemicals SAS	France
Shanghai Millennium Chemicals Trading Ltd.	China
Tronox Belgium BVBA	Belgium
Tronox Finance PLC	United Kingdom
Tronox France SaS	France
Tronox Global Holdings Pty Limited	Australia
Tronox India Private Limited	India

Tronox International BV	Netherlands
Tronox Investment Holdings Limited	United Kingdom
Tronox Investments Netherlands BV	Netherlands
Tronox Investments UK Limited	United Kingdom
Tronox KZN Sands (Pty) Ltd	South Africa
Tronox Limited	Australia
Tronox Management Pty Ltd.	Australia
Tronox Mineral Sands (Pty) Ltd	South Africa
Tronox Mining Australia Limited	Australia
Tronox Pigment Bunbury Ltd	Australia
Tronox Pigment UK Limited	United Kingdom
Tronox Pigmentos do Brasil SA	Brazil
Tronox Pigments (Holland) B.V.	Netherlands
Tronox Pigments Pty Limited	Australia
Tronox Pigments (Singapore) Pte. Ltd.	Singapore
Tronox Sands Holdings Pty Limited	Australia
Tronox Saudi Industries Company	Kingdom of Saudi Arabia
Tronox UK Holdings Limited	United Kingdom
Tronox UK Merger Company Limited	United Kingdom

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (No. 333-240322) and Form S-3 (No. 333-237838) of Tronox Holdings plc of our report dated February 22, 2023 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/PricewaterhouseCoopers LLP
Stamford, Connecticut
February 22, 2023

POWER OF ATTORNEY

Each of the undersigned, as a director of Tronox Holdings plc (the “Company”), a public limited company registered under the laws of England and Wales, hereby appoints Timothy Carlson, John Srivisal, Jeffrey Neuman and Steven Kaye, each with power to act without the other and with power of substitution and resubstitution, as my attorney-in-fact and agent for me and in my name, place and stead in any and all capacities,

- (i) to sign the Company’s Annual Report on Form 10-K under the Securities Exchange Act of 1934 for the year ended December 31, 2022,
- (ii) to sign any amendment to the Annual Report referred to in (i) above, or to any previously filed Annual Report on Form 10-K for any prior fiscal year, and
- (iii) to file the documents described in (i) and (ii) above and all exhibits thereto and any and all other documents in connection therewith,

granting unto each said attorney-in-fact and agent full power and authority to do and perform every act and thing requisite, necessary or desirable to be done in connection therewith, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his or her substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

This Power of Attorney may be signed in any number of counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument.

Dated: February 22, 2023

[SIGNATURE PAGE TO FOLLOW]

Signatures

/s/ Ilan Kaufthal

Ilan Kaufthal

/s/ Mutlaq H. Al-Morished

Mutlaq H. Al-Morished

/s/ Vanessa Guthrie

Vanessa Guthrie

/s/ Peter Johnston

Peter Johnston

/s/ Ginger Jones

Ginger Jones

/s/ Stephen Jones

Stephen Jones

/s/ Moazzam A. Khan

Moazzam A. Khan

/s/ Siphonkosi

Siphonkosi

Title

Chairman of the Board

Director

Director

Director

Director

Director

Director

Director

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO
EXCHANGE ACT RULE 13A-14(A)/15D-14(A)
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, John Romano, certify that:

1. I have reviewed this Annual Report on Form 10-K for the year ended December 31, 2022 of Tronox Holdings plc (the “Registrant”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;
4. The Registrant’s other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the Registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Registrant’s internal control over financial reporting that occurred during the Registrant’s most recent fiscal quarter (the Registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant’s internal control over financial reporting; and
5. The Registrant’s other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant’s auditors and the audit committee of the Registrant’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant’s internal control over financial reporting.

Date: February 22, 2023

/s/ JOHN ROMANO

John Romano

Co-Chief Executive Officer

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO
EXCHANGE ACT RULE 13A-14(A)/15D-14(A)
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Jean-Francois Turgeon, certify that:

1. I have reviewed this Annual Report on Form 10-K for the year ended December 31, 2022 of Tronox Holdings plc (the “Registrant”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;
4. The Registrant’s other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the Registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Registrant’s internal control over financial reporting that occurred during the Registrant’s most recent fiscal quarter (the Registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant’s internal control over financial reporting; and
5. The Registrant’s other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant’s auditors and the audit committee of the Registrant’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant’s internal control over financial reporting.

Date: February 22, 2023

/s/ JEAN-FRANCOIS TURGEON

Jean-Francois Turgeon

Co-Chief Executive Officer

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO
EXCHANGE ACT RULE 13A-14(A)/15D-14(A)
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Timothy Carlson, certify that:

1. I have reviewed this Annual Report on Form 10-K for the year ended December 31, 2022 of Tronox Holdings plc (the “Registrant”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;
4. The Registrant’s other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the Registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Registrant’s internal control over financial reporting that occurred during the Registrant’s most recent fiscal quarter (the Registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the Registrant’s internal control over financial reporting; and
5. The Registrant’s other certifying officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant’s auditors and the audit committee of the Registrant’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant’s internal control over financial reporting.

Date: February 22, 2023

/s/ TIMOTHY CARLSON

Timothy Carlson

Senior Vice President and Chief Financial Officer

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to 18 U.S.C § 1350, the undersigned officer of Tronox Holdings plc (the “Registrant”) hereby certifies that the Registrant’s Annual Report on Form 10-K for the year ended December 31, 2022 (the “Report”) fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

February 22, 2023

/s/ JOHN ROMANO

John Romano

Co-Chief Executive Officer

The foregoing certification is being furnished solely pursuant to 18 U.S.C. § 1350 and is not being filed as part of the Report or as a separate disclosure document.

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to 18 U.S.C. § 1350, the undersigned officer of Tronox Holdings plc (the “Registrant”) hereby certifies that the Registrant’s Annual Report on Form 10-K for the year ended December 31, 2022 (the “Report”) fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

February 22, 2023

/s/ JEAN-FRANCOIS TURGEON

Jean-Francois Turgeon

Co-Chief Executive Officer

The foregoing certification is being furnished solely pursuant to 18 U.S.C. § 1350 and is not being filed as part of the Report or as a separate disclosure document.

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

Pursuant to 18 U.S.C § 1350, the undersigned officer of Tronox Holdings plc (the “Registrant”) hereby certifies that the Registrant’s Annual Report on Form 10-K for the year ended December 31, 2022 (the “Report”) fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

February 22, 2023

/s/ TIMOTHY CARLSON

Timothy Carlson

Senior Vice President and Chief Financial Officer

The foregoing certification is being furnished solely pursuant to 18 U.S.C. § 1350 and is not being filed as part of the Report or as a separate disclosure document.