Risk Factors Comparison 2024-02-29 to 2023-02-28 Form: 10-K

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In addition to the other information contained in this Form 10- K, you should carefully consider the following risks that we believe are the material risks that we face. The risks described below could have a material adverse impact on our business, financial condition, cash flows and results of operations, and should be read together and in conjunction with the forward-looking statements and " Management' s Discussion and Analysis of Financial Condition and Results of Operations " included in Item 7 of this Form 10- K, and our consolidated financial statements and the accompanying notes thereto. Risks Related to Our Business Operations As a global business, we are exposed to local business risks in different countries, which could have a material adverse effect on our financial condition, results of operations and cash flows. We have operations in several countries, including manufacturing sites, research and development facilities, sales personnel and customer support operations. As of December 31, ~~2022~~ **2023**, we operated ten manufacturing facilities. For the year ended December 31, ~~2022~~ **2023**, our foreign subsidiaries accounted for 6 % of our sales. Our operations are affected directly and indirectly by global regulatory, economic, political and social conditions, including: • new and different legal and regulatory requirements in local jurisdictions; • export duties or import quotas; • domestic and foreign customs and tariffs or other trade barriers, including the threat of escalating trade disputes that may result in higher tariffs **and the imposition of trade sanctions against certain countries, persons and entities**; • potential difficulties in staffing and labor disputes; • potential difficulties in managing and obtaining support and distribution for local operations; • increased costs of, and availability of, raw materials, energy, transportation or shipping; • credit risk and financial condition of local customers and distributors; • potential difficulties in protecting intellectual property rights; • risk of nationalization of private enterprises by foreign governments; • potential imposition of restrictions on investments; • the imposition of withholding taxes or other taxes or royalties on our income, or the adoption of other restrictions on foreign trade or investment, including currency exchange controls; • capital controls; • potential difficulties in obtaining and enforcing legal judgments in jurisdictions outside the United States; • potential difficulties in obtaining and enforcing relief in the United States against parties located outside the United States; • potential difficulties in enforcing agreements and collecting receivables; • risks relating to environmental, health and safety matters; • regional conflicts, such as the invasion of Ukraine by Russia **and the conflict involving Israel and Hamas and potentially other countries in the Middle East**; • risks relating to **information security and cyber security events; • risks relating to** epidemics and pandemics **and** ~~, including~~ effects ~~caused by the spread of COVID- 19 (coronavirus), variants thereof~~ **therefrom** ~~and other illnesses such as RSV and influenza~~; and • local political, economic and social conditions, including the possibility of hyperinflationary conditions and political instability in certain countries. We may not be successful in developing and implementing policies and strategies to address the foregoing factors in a timely and effective manner at each location where we do business. Consequently, the occurrence of one or more of the foregoing factors could have a material adverse effect on our international operations or upon our financial condition, results of operations and cash flows. Our operations and financial results have been and may continue to be adversely affected by general economic conditions. We sell **advanced materials,** catalysts and services that are used in manufacturing processes and as components of, or ingredients in, other products and, as a result, our sales are correlated with and affected by fluctuations in the level of industrial production and manufacturing output and by fluctuations in general economic activity. Demand for the products we manufacture often depends on trends in demand in the end uses our customers serve. General economic conditions and macroeconomic trends, including economic recessions and inflation, could affect overall demand for our products and any overall decline in such demand could significantly reduce our sales and profitability. In addition, volatility and disruption in financial markets could adversely affect our sales and results of operations by limiting our customers' ability to obtain the financing necessary to maintain or expand their own operations ~~. For example, the COVID- 19 pandemic and the associated economic downturn affected our financial results during 2020, and the prolonged continuation of the COVID- 19 pandemic and the possible spread of COVID- 19 variants could result in a sustained or further economic downturn that may continue to affect our operations and financial results~~. Unfavorable global economic conditions could adversely affect our business, financial condition, and results of operations. Our results of operations could be adversely affected by general conditions in the global economy and in the global financial markets. For example, **during the past several years** the global economy has experienced extreme volatility and disruptions, including significant volatility in commodity and market prices, including increasing energy prices, volatility in sulfur prices, declines in consumer confidence, declines in economic growth, supply chain interruptions, uncertainty about economic stability, record inflation globally, rising interest rates and the threat of recession. Unfavorable economic conditions could result in a variety of risks to our business, including demand and pricing for our products and difficulty in forecasting our financial results. A weak or declining economy also could strain our suppliers, possibly resulting in supply chain disruptions. In addition, inflation has increased our costs, which could impact our profitability. These and other economic factors could adversely impact our business and results of operations. Exchange rate fluctuations could adversely affect our financial condition, results of operations and cash flows. As a result of our international operations, for the year ended December 31, ~~2022~~ **2023**, we generated 6 % of our sales and associated expenses in currencies other than U. S. dollars. We incur currency transaction risk whenever we enter into either a purchase or sale transaction using a currency other than the local currency of the transacting entity. The main currencies to which we are exposed, besides the U. S. dollar, are the Euro and the British pound. The exchange rates between these currencies and the U. S. dollar have fluctuated significantly in recent years and may continue to do so in the future. In many cases, we sell exclusively in those jurisdictions and do not have the ability to mitigate our exposure to currency fluctuations through our operations. Accordingly, to the extent that we are unable to match sales made in such foreign currencies with costs paid in the same currency, exchange rate fluctuations could adversely affect our financial condition, results of operations and cash flows. In the past, we have experienced economic loss and a negative impact on earnings as a result of foreign currency exchange rate fluctuations and any future fluctuations may have similar impacts. We expect that the amount of our sales denominated in non- U. S. dollar currencies may increase in future periods. Given the volatility of exchange rates, there can be no assurance that we will be able to effectively manage our currency transaction risks or that any volatility in currency exchange rates will not have a material adverse effect on our financial condition or results of operations. See " Management' s Discussion and Analysis of Financial Condition and Results of Operations — Quantitative and Qualitative Disclosures about Market Risk. " Additionally, because our consolidated financial results are reported in U. S dollars, the translation of sales or earnings generated in other currencies into U. S. dollars can result in a significant increase or decrease in the amount of those sales or earnings in our financial statements, which also affects the comparability of our results of operations and cash flows between financial periods. Our international operations require us to comply with anti- corruption laws, economic sanctions, export controls and similar laws and regulations of the U. S. government and various international jurisdictions in which we do business. Doing business on a worldwide basis requires us and our subsidiaries to comply with the laws and regulations of the U. S. government and various international jurisdictions, and our failure to successfully comply with these laws and regulations may restrict our operations, trade practices, investment decisions and partnering activities and may expose us to liabilities. Such laws and regulations apply to companies, individual directors, officers, employees and agents. In particular, our international operations are subject to U. S. and foreign anti- corruption laws and regulations, such as the Foreign Corrupt Practices Act (" FCPA ") and the U. K. Bribery Act. For example, the FCPA prohibits us from providing anything of value to foreign officials for the purposes of influencing official decisions or obtaining or retaining business or otherwise obtaining favorable treatment, and requires us to maintain adequate record- keeping and internal accounting practices to accurately reflect our transactions. As part of our business, we may deal with state- owned business enterprises, the employees and representatives of which may be considered foreign officials for purposes of the FCPA. In addition, some of the international locations into which we sell our products lack a developed legal system and have elevated levels of corruption. As a result, we are exposed to corruption- related risk. In addition, we are ~~subject~~ **required** to **comply with** applicable economic sanctions, export controls, and similar laws and regulations imposed by the U. S. government and other countries. These laws and regulations may restrict our business practices, or the counterparties or regions with which we can trade. In addition, these laws and regulations are subject to frequent change, and such changes may require us to adjust our business practices, including by ceasing business activities in newly sanctioned countries or regions or with newly sanctioned entities or individuals, or to modify our compliance program. For example, the invasion of Ukraine by Russia and the related sanctions, export controls or other actions that have been or may be initiated by nations — including the U. S., the European Union, the United Kingdom, and Russia — could disrupt or otherwise adversely impact our customers in those countries, as well as adversely impact our business or our supply chain, business partners or customers in other countries beyond Ukraine and Russia. Further, violations of these legal requirements are punishable by criminal fines and imprisonment, civil penalties, disgorgement of profits, injunctions, debarment from government contracts, loss of export privileges and other remedial measures. We have established policies and procedures designed to assist us and our personnel in complying with applicable U. S. and international laws and regulations. These policies and procedures are codified in our Code of Conduct and other various policies. However, there can be no assurance that our policies and procedures will effectively prevent us from violating these laws and regulations in every transaction in which we may engage, and such a violation could subject us to governmental investigations and adversely affect our reputation, business, financial condition and results of operations. Alternative technology or other changes in our customers' products may reduce or eliminate the need for certain of our products. Many of the products that we sell are used in manufacturing processes and / or to produce other products and, as a result, changes in our customers' end products or processes or alternative technologies may enable our customers to reduce or eliminate consumption or use of our products. Additionally, shifting consumer preference could result in a significant reduction in the future use of fossil fuels, which would have a negative impact on our zeolite catalysts and Ecoservices businesses. If we are unable to respond appropriately to such new developments, such changes could seriously impair our ability to profitably market certain of our products. Our new product development and research and development efforts may not succeed and our competitors may develop more effective or successful products. The industries in which we operate are subject to periodic technological changes and ongoing product improvements. In order to maintain our margins and remain competitive, we must successfully develop, manufacture and market new or improved products. As a result, we must commit substantial resources each year to new product research and development. Ongoing investments in new product research and development could result in higher costs without a proportional increase in revenues. Additionally, for any new product program, there is a risk of technical or market failure, in which case we may need to commit additional resources to the program and may not be able to develop the new products needed to maintain our competitive position. Moreover, new products may have lower margins than the products they replace or may not successfully attract end users. We also expect competition to increase as our competitors develop and introduce new and enhanced products. As such products are introduced, our products may become obsolete or our competitors' products may be marketed more effectively. If we fail to develop new products, maintain or improve our margins with our new products or keep pace with technological developments, our business, financial condition, results of operations and cash flows will suffer. If we are unable to pass on increases in raw material prices, including natural gas, to our customers or to retain or replace our key suppliers, our results of operations and cash flows may be negatively affected. We purchase significant amounts of raw materials, including precursor products in our **Advanced Materials &** ~~Catalyst~~ **Catalysts** ~~Technologies~~ business and sulfur in our Ecoservices business, and we purchase significant amounts of natural gas to supply the energy required in our production process. The cost of these raw materials represents a substantial portion of our operating expenses and our results of operations have been, and could in the future be, significantly affected by increases in the costs of such raw materials. In addition, we obtain a significant portion of our raw materials from certain key suppliers. If any of those suppliers is unable to meet its obligations under current **or future** supply agreements, we may be forced to pay higher prices to obtain the necessary raw materials. Furthermore, if any of the raw materials that we use become unavailable within the geographic area from which we currently source them, we may not be able to obtain suitable and cost- effective substitutes. Any interruption of supply or any price increase of raw materials could adversely affect our profitability. While we attempt to match raw material price increases with corresponding product price increases, our ability to pass on increases in the cost of raw materials to our customers is, to a large extent, dependent upon our contractual arrangements and market conditions. There may be periods of time during which we are not able to recover increases in the cost of raw materials due to our contractual arrangements or weakness in demand for, or oversupply of, our products. Specifically, timing differences between price adjustments of raw materials and adjustments to our product prices, which in many cases are adjusted quarterly or less often, have had and may continue to have a negative effect on our profitability. Even in periods during which raw material prices decline, we may suffer decreasing profits if customers seek relief in the form of lower sales prices or if the raw material price reductions occur at a slower rate than decreases in the selling prices of our products. Such volatility can result in commercial disputes with customers and suppliers with respect to interpretations of complex contractual arrangements, the adverse resolution of which could reduce our profitability. In the past, we have entered into long- term supply contracts for certain of our raw materials. As these contracts expire, we may not be able to renegotiate or enter into new long- term supply contracts that will offer similar protection from price increases and other fluctuations on terms that are satisfactory to us or at all. We face substantial competition in the industries in which we operate. Our **Advanced Materials &** ~~Catalyst~~ **Catalysts** ~~Technologies~~ segment primarily competes with other global producers in the petrochemicals and refining industries such as Grace, BASF, UOP, and Albemarle, as well as other niche competitors such as Tosoh, Axens, and Haldor Topsoe. In our Ecoservices segment, we compete in the North American refining services industry with competitors such as Chemtrade and Veolia. We believe that we typically compete on the basis of performance, product consistency, quality, reliability, and ability to innovate in response to customer demands. Our competitors may improve their competitive position in our core end use applications by successfully introducing new products, improving their manufacturing processes, expanding their capacity or manufacturing facilities or responding more effectively than we do to new or emerging technologies and changes in customer requirements. Some of our competitors may be able to lower prices for products that compete with our products if their costs are lower. In addition, consolidation among our competitors or customers may result in reduced demand for our products or make it more difficult for us to compete. Some of our competitors' financial, technological and other resources may be greater than ours or they may have less debt than we do and, as a result, may be better able to withstand changes to industry conditions. The occurrence of any of these events could materially adversely affect our financial condition and results of operations. We are subject to the risk of loss resulting from non- payment or non- performance by our customers. Our credit procedures and policies may not be adequate to minimize or mitigate customer credit risk. Our customers may experience financial difficulties, including bankruptcies, restructurings and liquidations. These and other financial problems our customers may experience, as well as potential financial weakness in the industries in which we operate or general economic conditions, may increase our risk in extending trade credit to customers. A significant adverse change in a customer' s financial position could cause us to limit or discontinue business with such customer, require us to assume more credit risk relating to such customer' s receivables or limit our ability to collect accounts receivable from such customer, any of which could have a material adverse effect on our business, results of operations, financial condition and liquidity. We rely on a limited number of customers for a meaningful portion of our business. A loss of one or more of these customers could adversely impact our profitability. A loss of any significant customer, including a pipeline customer **in our Ecoservices segment** , or a decrease in the provision of products to any significant customer could have an adverse effect on our business until alternative arrangements are secured. Any alternative arrangement to replace the loss of a customer could result in increased variable costs relating to product shipment. In addition, any new customer agreement we enter into may not have terms as favorable as those contained in our current customer agreements, which could have a material adverse effect on our business, financial condition and results of operations. For the year ended December 31, ~~2022~~ **2023** , our top ten customers represented approximately ~~58~~ **60** % of our sales ~~(including our proportionate 50 % share of sales attributable to the Zeolyst JV)~~ and one single customer represented 13 % or $ ~~103~~ **91** . ~~3~~ **5** million of our sales in both Ecoservices and **Advanced Materials &** ~~Catalyst~~ **Catalysts** ~~Technologies~~ . Refineries, which represent a sizable subset of our Ecoservices segment customer base, have undergone significant consolidation and additional consolidation is possible in the future. Such consolidation could further increase our reliance on a small number of customers and further increase our customers' leverage over us, resulting in downward pressure on prices and an adverse effect on our profitability. Multi- year customer contracts in our Ecoservices segment are subject to potential early termination and such contracts may not be renewed at the end of their respective terms. Many of the customer contracts in our Ecoservices segment are multi- year agreements. Sulfuric acid regeneration customer contracts are typically on five- to ten- year terms and virgin sulfuric acid customer contracts are typically on one- to five- year terms, with larger customers typically favoring longer terms. Excluding contracts with automatic evergreen provisions, approximately ~~30~~ **20** % of our sulfuric acid volume for the year ended December 31, ~~2022~~ **2023** was under contracts expiring at the end of ~~2023~~ **2024** or beyond. In addition, our sulfuric acid regeneration contracts with major refinery customers typically allow for termination with advance notice of one to two years. We cannot provide assurance that our existing contracts will not be subjected to early terminations or that our expiring contracts will be renewed at the end of their terms. If we receive a significant number of such contract terminations or experience non- renewals from key customers in our Ecoservices segment, our results of operations, financial condition and cash flows may be materially adversely affected. Our quarterly results of operations are subject to fluctuations because the demand for some of our products is seasonal. Our Ecoservices segment typically experiences seasonal fluctuations as a result of higher demand for gasoline products in the summer months. Because of the seasonality of some of our product groups, the results for any one quarter are not necessarily indicative of the results that may be achieved for any other quarter or for the full year. Our growth projects may result in significant expenditures before generating revenues, if any, which may materially and adversely affect our ability to implement our business strategy. We have made and continue to make significant investments in each of our businesses. These projects require us to commit significant capital to, among other things, implement engineering plans and obtain the necessary permits before we generate revenues related to our investments in these businesses. Such projects may take longer to complete or require additional unanticipated expenditures and may never generate profits. If we fail to recover our investment, or these projects never become profitable, our ability to implement our business strategy may be materially and adversely affected. We may be liable for damages based on product liability claims brought against us or our customers for costs associated with recalls of our or our customers' products. Even though we are generally ~~a~~ **an advanced** materials and services supplier rather than a manufacturer of finished goods, the sale of our products involves the risk of product liability claims and voluntary or government- ordered product recalls. For example, certain of the products that we manufacture are used in chemical manufacturing ~~process~~ **processes** in our customers' manufacturing operations and are used in and around other chemical manufacturing facilities and other locations where personal injury or property damage may occur. While we attempt to protect ourselves from product liability claims and exposures through our adherence to standards and specifications, quality control and assurance and through contractual negotiations and provisions, there can be no assurance that our efforts will ultimately protect us from such claims. A product liability claim or voluntary or government- ordered product recall could result in substantial and unexpected expenditures, affect customer confidence in our products and divert management' s attention from other responsibilities. A product recall or successful product liability claim or series of claims against us in excess of our insurance coverage and for which we are not otherwise indemnified could have a material adverse effect on our business, financial condition, results of operations or cash flows. We have product liability insurance in amounts that we believe are adequate to cover this product liability risk. However, our insurance may not provide adequate coverage against all potential liabilities, including product recall liabilities. If a claim is brought against us, we might be required to pay legal and other expenses to defend the claim, as well as pay uncovered damage awards resulting from a claim brought successfully against us and these damages could be significant and have a material adverse effect on our financial condition. Furthermore, whether or not we are ultimately successful in defending any such claims, we might be required to direct significant financial and managerial resources to such defense and adverse publicity is likely to result. We are required to comply with a wide variety of laws and regulations, and are subject to regulation by various federal, state and foreign agencies, and our failure to comply with existing and future regulatory requirements could adversely affect our financial condition, results of operations and cash flows. We compete in industries in which we and our customers are subject to federal, state, local, international and transnational laws and regulations. Such laws and regulations are numerous and sometimes conflicting, and any future changes to such laws and regulations could adversely affect us. In order to obtain regulatory approval for certain of our new products, we must, among other things, demonstrate to the relevant authority that the product is safe and effective for its intended uses and that we are capable of manufacturing the product in accordance with current regulations. The process of seeking approvals can be costly, time- consuming and subject to unanticipated and significant delays. Any delay in obtaining, or any failure to obtain or maintain, these approvals would adversely affect our ability to introduce new products and to generate sales from those products, and could have an adverse effect on our business, financial condition, results of operations or cash flows. Our products, including the raw materials we handle, are subject to rigorous chemical registration and industrial hygiene regulations and investigation. There is risk that a key raw material, chemical or substance, or one of the end products of which our products are a part **of or are utilized to make** , may be recharacterized as having a toxicological or health- related impact on the environment, our customers or our employees. Industrial hygiene regulations are continually strengthened and if such recharacterization occurs, the relevant raw material, chemical or product may be banned or we may incur increased costs in order to comply with new requirements. Changes in industrial hygiene regulations also affect the marketability of certain of our products, and future regulatory changes may have a material adverse effect on our business. New laws and regulations, and changes in existing laws and regulations, may become effective in the future and could prevent or inhibit the development, distribution and sale of our products, including, but not limited to, the imposition of additional compliance costs, seizures, confiscation, recall or monetary fines. For example, as discussed in more detail in " Business- Environmental Regulations " and " Business- Chemical Product Regulation, " we may be materially impacted by regulatory initiatives worldwide with respect to chemical product safety such as the 2016 amendments to the U. S. Toxic Substances Control Act, the E. U. **REACH** regulation ~~" Registration, Evaluation, Authorisation and Restriction of Chemicals " (" REACH ")~~, and / or similar regulations being enacted in other countries (e. g., China REACH; Korea REACH). Additionally, ~~the~~ current **or future** U. S. ~~administration~~ **administrations** may seek to tighten current environmental standards and regulations, including, but not limited to, the Corporate Average Fuel Economy standards, which could have a material adverse effect on our sales into the clean fuels, emission control and other industries. We are subject to extensive environmental, health and safety regulations and face various risks associated with potential non- compliance or releases of hazardous materials. Like other chemical companies, our operations and properties are subject to extensive and stringent federal, state, local and foreign environmental laws and regulations. U. S. federal environmental laws that affect us include **, but are not limited to,** the Resource Conservation and Recovery Act (" RCRA "), the Clean Air Act, the Clean Water Act and the Comprehensive Environmental Response Compensation and Liability Act (" CERCLA "). These laws govern, among other things, emissions to the air, discharges or releases of hazardous substances to land, surface, subsurface strata and water, wastewater discharges and the generation, handling, storage, transportation, treatment, disposal and remediation of hazardous materials and petroleum products. We are also subject to other federal, state, local and foreign laws and regulations regarding chemical and product safety as well as employee health and safety matters, including process safety requirements. These laws and regulations may become more stringent over time and the failure to comply with such laws and regulations can result in significant fines or penalties. We have in the past been and currently are the subject of investigations and enforcement actions pursuant to environmental laws, including the Clean Air Act. Some of these matters were resolved through the payment of significant monetary penalties and a requirement to implement corrective actions at our facilities. For instance, we remain subject to a 2007 Consent Decree that resolves certain alleged Clean Air Act violations at six Ecoservices operating locations involving New Source Review, Prevention of Significant Deterioration and New Source Performance Standard obligations under the U. S. federal rules for the pollutants sulfur dioxide and sulfuric acid mist. The Consent Decree required Solvay (the owner **of such facilities** at the time) to pay a $ 2 million penalty and spend approximately $ 34 million on air pollution controls at our facilities, the majority of which was received from customers in contractual arrangements. Work under the Consent Decree has proceeded since 2007, and all of the significant capital improvements related to the Consent Decree have been completed. Three of our operating locations have been released from the scope of the Consent Decree and we are seeking release of the other locations covered by the Consent Decree **. Upon** ~~; however, an agreement has been reached on language with all agencies pending~~ issuance of New Source Review permit amendments at the remaining sites **, we expect to be fully released from the Consent Decree** . We are required by these environmental laws and regulations to obtain registrations, licenses, permits and other approvals in order to operate, ~~to~~ make disclosures to public authorities about our chemical handling and usage activities and ~~to~~ install expensive pollution control and spill containment equipment at our facilities, or ~~to~~ incur other capital expenditures aimed at achieving or maintaining compliance with such laws and regulations. **The** ~~We are in the process of completing a substantial environmentally- driven capital improvement project in 2023 and~~ failure ~~to complete this project or~~ to timely identify and implement ~~other~~ **any such** capital projects required to achieve or maintain compliance could expose us to enforcement and penalty. Under CERCLA and analogous statutes in local and foreign jurisdictions, current and former owners and operators of land impacted by releases of hazardous substances are strictly liable for the investigation and remediation of the contamination resulting from the release. Liability under CERCLA and analogous laws is strict, unlimited, joint, several and retroactive, may be imposed regardless of fault and may relate to historical activities or contamination not caused by the affected property' s current owner or operator. We could be held responsible for all cleanup costs at a site, whether currently or formerly owned or operated, regardless of fault, knowledge, timing or cause of the contamination. Further, under CERCLA and analogous laws, we may be jointly and severally liable for contamination at third party sites where we or our predecessors in interest have sent waste for treatment or disposal, even if we complied with applicable laws. In addition, we may face liability for personal injury, property damage and **/ or** natural resource damage resulting from environmental conditions attributable to hazardous substance releases at or from facilities we currently own or operate or formerly owned or operated or to which we sent waste. As such, a product spill or emission at one of our facilities or otherwise resulting from our operations could have adverse consequences on the environment and surrounding community and could result in significant liabilities with respect to investigation and remediation. Our facilities have an extended history of industrial use, and soil and groundwater contamination exists at some of our sites. As of December 31, ~~2022~~ **2023** , we had current remediation, monitoring and / or maintenance obligations at several of our current or former sites, including Dominguez, California and Martinez, California. As of December 31, ~~2022~~ **2023** , we had established reserves of approximately $ 0. 4 million to cover anticipated expenses at these sites, all of which have reached relatively mature stages of ~~either~~ the investigation, remediation or monitoring process. Actual costs to complete these projects may exceed our current estimates. As of December 31, ~~2022~~ **2023** , our total reserves associated with environmental remediation and enforcement matters were $ 0. 4 million. In addition to the ongoing remediation and monitoring activities discussed above, there is risk that the long- term industrial use at our facilities may have resulted in, or may in the future result in, contamination that has yet to be discovered, which could require additional, unplanned investigation and remediation efforts by us for which no reserves have been established, potentially without regard to whether we knew of, or caused, the release of such contaminants. Discovery of additional or unknown conditions at our facilities could have an adverse impact on our business by substantially increasing our capital expenditures, including compliance, investigation and remediation costs. Such environmental liabilities attached to our properties, or for properties that we are otherwise responsible for, could have a material adverse effect on our results of operations or financial condition. Existing and proposed regulations to address climate change by limiting greenhouse gas emissions may cause us to incur significant additional operating and capital expenses and may impact our business and results of operations. Certain of our operations result in emissions of greenhouse gases (" GHGs "), such as carbon dioxide. Growing concern about the sources and impacts of global climate change has led to a number of domestic and foreign legislative and administrative measures, both proposed and enacted, to monitor, regulate and limit carbon dioxide and other GHG emissions. In the European Union, our emissions are regulated under the E. U. Emissions Trading System (the " E. U. ETS "), an E. U.- wide trading scheme for industrial GHG emissions. The E. U. ETS is anticipated to become progressively more stringent over time, including by reducing the number of allowances to emit GHGs that E. U. member states will allocate without charge to industrial facilities. In the United States, the EPA has promulgated federal GHG regulations under the Clean Air Act that affect certain sources. For example, the EPA has issued mandatory GHG reporting requirements, under which our Dominguez, California and Baton Rouge, Louisiana facilities currently report. Moreover, California has enacted the Global Warming Solutions Act of 2006 (" Assembly Bill 32 "), a law that establishes a comprehensive program to reduce GHG emissions from all sources throughout the state and contains reporting requirements under which our Dominguez and Martinez facilities currently report. Our Dominguez facility also participates in the emissions trading market established under Assembly Bill 32. Although we believe it is likely that GHG emissions will continue to be regulated in at least some regions of the United States and in other countries (in addition to the European Union) in the future, we cannot yet predict the form such regulation will take (such as a cap- and- trade program, technology mandate, emissions tax or other regulatory mechanism) or, consequently, estimate the costs that we may be required to incur **to meet** ~~in respect of~~ such requirements, which could, for example, require that we install emission control equipment, purchase emissions allowances, administer and manage our GHG emissions program or address other regulatory obligations. Such requirements could also adversely affect our energy supply or the costs and types of raw materials that we use for fuel. Accordingly, regulations controlling or limiting GHG emissions could have a material adverse effect on our business, financial condition or results of operations, including by reducing demand for our products. Sustainability initiatives may result in operational changes and expenditures, reduced demand for our products and adversely affect our business. We recognize that sustainability is a growing global environmental concern. Continuing political and social attention to the issue of sustainability has resulted in both existing and pending international agreements and national, regional or local legislation and regulatory measures to increase sustainability. As a result of heightened public awareness and attention to the issue of sustainability as well as continued regulatory initiatives, demand for certain of our products may be reduced, which may have an adverse effect on our sales volumes, revenues and margins **. This growing global environmental concern is also manifesting in existing and pending sustainability legislation, regulations, and directives at the federal, state and international levels, including, but not limited to, the E. U. Corporate Sustainability Reporting Directive (" CSRD "), the California Climate Corporate Data Accountability Act (SB 253) and GHG Climate- related Financial Risk Act (SB 261), and proposed United States SEC rules addressing Scope 1, 2, and 3 emissions. In the future, these developments are anticipated to increase the cost associated with complying with existing, pending, and future sustainability- related legislation, regulations and directives and such increased costs and / or our failure to comply with any such legislation, regulations and directives could adversely affect our financial condition, results of operations and cash flows** . Production and distribution of our products could be disrupted for a variety of reasons, and such disruptions could expose us to significant losses or liabilities. Certain of the hazards and risks associated with our manufacturing processes and the related storage and transportation of raw materials, products and wastes may disrupt production at our manufacturing facilities and the distribution of products to our customers. These potentially disruptive risks include, but are not limited to, the following: • pipeline and storage tank leaks and ruptures; • explosions and fires; • inclement weather and natural disasters; • terrorist attacks; • failure of mechanical, process safety and pollution control equipment; • chemical spills and other discharges or releases of toxic or hazardous substances or gases; • epidemics and pandemics **and** ~~, including~~ effects ~~caused by the spread of COVID- 19 (coronavirus) and variants thereof~~ **therefrom** ; and • exposure to toxic chemicals. These hazards could expose employees, customers, the community and others to toxic chemicals and other hazards, contaminate the environment, damage property, result in personal injury or death, lead to an interruption or suspension of operations, damage our reputation and adversely affect the productivity and profitability of a particular manufacturing facility or our business as a whole. Such hazards could also result in the need for remediation, governmental enforcement, regulatory shutdowns, the imposition of government fines and penalties and claims brought by governmental entities or third parties. Legal claims and regulatory actions could subject us to both civil and criminal penalties, which could affect our product sales, reputation and profitability. If disruptions at our manufacturing facilities or in our distribution channels occur, alternative options with sufficient capacity or capabilities may not be available, may cost substantially more or may require significant time to start production or distribution. Any of these scenarios could negatively affect our business and financial performance. If one of our manufacturing facilities or distribution channels is unable to produce or distribute our products for an extended period of time, our sales may be reduced by the shortfall caused by the disruption and we may not be able to meet our customers' needs, which could cause them to seek other suppliers. Furthermore, to the extent a production disruption occurs at a manufacturing facility that has been operating at or near full capacity, the resulting shortage of our product could be particularly harmful because production at the manufacturing facility may not be able to reach levels achieved prior to the disruption. Such risks are heightened in our Ecoservices segment, which has operations and customers primarily located in the Gulf Coast, which is susceptible to a heightened risk of hurricanes, and ~~Northern~~ **in** California, which is susceptible to a heightened risk of earthquakes. For example, in December 2022, the operations of our Ecoservices' Houston and Hammond facilities were disrupted by Winter Storm Elliot ~~. We are still in the process of analyzing the impact on earnings as a result of this operational interruption~~ . The insurance that we maintain may not fully cover all potential exposures. We maintain property, business interruption, casualty and other types of insurance, but such insurance may not cover all risks associated with the operation of our business or our manufacturing process and the related use, storage and transportation of raw materials, products and wastes in or from our manufacturing sites or distribution centers. While we have purchased what we deem to be adequate limits of coverage and broadly worded policies, our coverage is subject to exclusions and limitations, including higher self- insured retentions or deductibles and maximum limits and liabilities covered. Notwithstanding diligent efforts to successfully procure specialty coverage for environmental liability and remediation, we may incur losses beyond the limits or outside the terms of coverage of our insurance policies, including liabilities for environmental remediation. In addition, from time to time, various types of insurance for companies in the industries in which we operate have not been available on commercially acceptable terms or, in some cases, at all. We are potentially at additional risk if one or more of our insurance carriers fail. Additionally, severe disruptions in the domestic and global financial markets could adversely impact the ratings and survival of some insurers. Future downgrades in the ratings of enough insurers could adversely impact both the availability of appropriate insurance coverage and its cost. In the future, we may not be able to obtain coverage at current levels, if at all, and our premiums may increase significantly on coverage that we maintain. We could be subject to damages based on claims brought against us by our customers or lose customers as a result of the failure of our products to meet certain quality specifications. If a product fails to perform in a manner consistent with quality specifications, or has a shorter useful life than that which was guaranteed, a customer could seek replacement of the product or damages for costs incurred as a result of the product failing to perform as guaranteed. A successful claim or series of claims against us could cause reputational harm and have a material adverse effect on our financial condition and results of operations and could result in a loss of one or more customers. We may engage in strategic acquisitions or dispositions of certain assets or businesses that could affect our business, results of operations, financial condition and liquidity. We may selectively pursue complementary acquisitions, such as the Chem32 acquisition, and joint ventures, such as the Zeolyst Joint Venture, each of which inherently involves a number of risks and presents financial, managerial and operational challenges, including: • potential disruption of our ongoing business and distraction of management; • difficulty with integration of personnel and financial and other systems; • hiring additional management and other critical personnel; and • increasing the scope, geographic diversity and complexity of our operations. In addition, we may encounter unforeseen obstacles or costs in the integration of acquired businesses. For example, the presence of one or more material liabilities of an acquired company that are unknown to us at the time of acquisition may have a material adverse effect on our business. Our acquisition and joint venture strategy may not be received positively by customers, and we may not realize any anticipated benefits from acquisitions or joint ventures. We may also opportunistically pursue dispositions of certain assets and businesses, which may involve material amounts of assets or lines of business, which could adversely affect our results of operations, financial condition and liquidity. If any such dispositions were to occur, under the terms of the agreements governing our outstanding indebtedness, we may be required to apply the proceeds of the sale to repay such indebtedness. In addition, our strategic acquisitions and dispositions may also affect the diversity of our assets and our capital structure. As a result, our acquisitions and dispositions could affect our business, results of operations, financial condition, and liquidity. Further, all the risks associated with our acquisitions and dispositions may not be immediately known to us, and the anticipated benefits of such acquisition or disposition may not be fully realized. On December 14, 2020, we completed the sale of our Performance Materials business to Potters Buyer, LLC, an affiliate of The Jordan Company, L. P., for a purchase price of $ 650. 0 million, which was subject to certain adjustments for indebtedness, working capital, and cash at the closing of the transaction. Effective on August 1, 2021, we completed the sale of our Performance Chemicals business to Cerberus Capital Management, L. P. and Koch Mineral & Trading LLC for a purchase price of $ 1. 1 billion, which was subject to certain adjustments including for indebtedness, cash, working capital and transaction expenses at the closing of the transaction. Our joint ventures may not operate according to their business plans if our partners fail to fulfill their obligations or differences in views among our partners results in delayed decisions or failures to agree on major issues, which may adversely affect our results of operations and force us to dedicate additional resources to these joint ventures. We currently participate in a joint venture relating to the Zeolyst International business and may enter into additional joint ventures in the future. The nature of a joint venture requires us to share control with unaffiliated third parties and we sometimes have joint and several liability with our joint venture partners. If our joint venture partners do not fulfill their obligations, or if differences in views among the joint venture participants ~~results~~ - **result** in delayed decisions or failures to agree on major issues, the affected joint venture may not be able to operate according to its business plan. For example, the Zeolyst Joint Venture is structured as a general partnership in which we are equal partners with Shell Catalysts & Technologies, an affiliate of Royal Dutch Shell plc. or " Shell ". Accordingly, we do not control the Zeolyst Joint Venture and cannot unilaterally undertake strategies, plans, goals and operations or determine when cash distributions will be made to us. Furthermore, we are liable on a joint and several basis with Shell for all of the partnership' s liabilities if it does not have sufficient assets to satisfy such liabilities. Such factors may adversely affect our results of operation and force us to dedicate additional and unexpected resources to our joint ventures. Our failure to protect our intellectual property rights could adversely affect our future performance and growth. Protection of our proprietary processes, methods, compounds and other technologies is important to our business. We depend upon our ability to develop and protect our intellectual property rights to distinguish our products from those of our competitors. Failure to protect our existing intellectual property rights may allow our competitors to copy our products and may result in the loss of valuable proprietary technologies or other intellectual property. Failure to protect our innovations and trademarks by securing intellectual property rights could also result in our having to pay other companies for infringing on their intellectual property rights. We rely on a combination of patent, trade secret, trademark and copyright law as well as regulatory and judicial enforcement to protect such technologies and trademarks. In addition, the laws of many foreign countries do not protect our intellectual property rights to the same extent as the laws of the United States. As of December 31, ~~2022~~ **2023** , we owned ~~20~~ **21** patented inventions in the United States, with ~~197~~ **175** patents issued in countries around the world and ~~40~~ **61** patent applications pending worldwide covering such inventions. Some of these patents are licensed to others. In addition, we have acquired certain rights under patents and inventions of others through licenses. Should any of these licenses granted to us by third parties terminate prior to the expiration of the licensed intellectual property, we would need to cease using the licensed intellectual property, and either develop or license alternative technologies. In such a case, there can be no assurance that alternative technologies exist or that we would be able to obtain such a license on favorable terms. Competitors and third parties may infringe on our patents or violate our intellectual property rights. Defending and enforcing our intellectual property rights can involve litigation and can be expensive and time consuming. Such proceedings could put our patents at risk of being invalidated and confidential information may be disclosed through the discovery process; these costs and diversion of resources could harm our business. We cannot provide any assurances that any of our pending applications will mature into issued patents, or that any patents that have issued or may issue in the future do or will include claims with a scope sufficient to provide any competitive advantage. Patents involve complex legal and factual questions and, therefore, the issuance, scope, validity and enforceability of any patent claims we have or may obtain cannot be predicted with certainty. Patents may be challenged, deemed unenforceable, invalidated or circumvented. Patents may be challenged in the courts, as well as in various administrative proceedings before the United States Patent and Trademark Office or foreign patent offices. We are currently and may in the future be a party to various adversarial patent office proceedings involving our patents or the patents of third parties. Such challenges can result in some or all of the claims of the challenged patent being invalidated, deemed unenforceable, or interpreted narrowly which, in the case of challenges to our own patents, may be adverse to our interests. Accordingly, the issuance of patents is not conclusive of the validity, scope, or enforceability of such patents. Moreover, even if valid and enforceable, competitors may be able to design around our patents or use pre- existing technologies to compete with us. We also rely upon unpatented proprietary know- how, continuing technological innovation and other trade secrets to develop and maintain our competitive position, which may not provide us with complete protection against competitors. Misappropriation or unauthorized disclosure of our proprietary know-how could harm our competitive position or have an adverse effect on our business. While it is our policy to enter into confidentiality agreements with our employees and third parties to protect our intellectual property rights and we strive to maintain the physical security of our properties and the security of our IT systems, there can be no assurances that: • our confidentiality agreements will not be breached; • our security measures will not be breached; • such agreements will provide meaningful protection for our trade secrets or proprietary know- how; or • adequate remedies will be available in the event of an unauthorized use or disclosure of such trade secrets and know- how. In addition, there can be no assurances that others will not obtain knowledge of these trade secrets through independent development or other access by legal means. Measures taken by us to protect these assets and rights may not provide meaningful protection for our trade secrets or proprietary manufacturing expertise and adequate remedies may not be available in the event of an unauthorized use or disclosure of our trade secrets or manufacturing expertise. In addition, as noted above, our patents and other intellectual property rights may be challenged, invalidated, circumvented or rendered unenforceable. Furthermore, we cannot provide assurance that any pending patent or trademark application filed by us will result in an issued patent or registered trademark or, if patents are issued to us, that those patents will provide meaningful protection against competitors or against competitive technologies. The failure of our patents or other measures to protect our processes, apparatuses, technology, trade secrets and proprietary manufacturing expertise, methods and compounds or trademarks and provide us with freedom to exclude competition could have an adverse effect on our business, financial condition, results of operations and cash flows. See " Business- Intellectual Property. " Our products may infringe the intellectual property rights of others, which may cause us to incur unexpected costs or prevent us from selling our products. Our industry is characterized by vigilant pursuit of intellectual property rights, particularly with respect to our **advanced** ~~silica~~ **silicas** ~~catalysts~~ and zeolite catalysts product groups. Like us, our competitors rely on intellectual property rights to maintain profitability and competitiveness. As the number of products and competitors has increased, the likelihood of intellectual property disputes has risen. Although it is our policy and intention not to infringe valid patents of **others** ~~which we are aware~~ , our processes, apparatuses, technology, proprietary manufacturing expertise, methods, compounds and products may infringe on issued patents or infringe or misappropriate other intellectual property rights of others. Accordingly, we continually monitor third- party intellectual property to confirm our freedom to operate. Nevertheless, we may be subject to legal proceedings and claims in the ordinary course of our business, including claims of alleged infringement of the patents or trademarks or infringement or misappropriation of other intellectual property rights of third parties by us or our licensees in connection with their use of our products. Intellectual property litigation is expensive and time- consuming, regardless of the merits of any claim, and could divert the attention of our management and technical personnel away from operating our business. If we were to discover that our processes, apparatuses, technology, products or trademarks infringe the valid intellectual property rights of others, we might need to obtain licenses from these parties or substantially reengineer or rebrand our products in order to avoid infringement. We may not be able to obtain the necessary licenses on acceptable terms, or at all, or be able to reengineer our products successfully or at an acceptable cost. Moreover, if we are sued for infringement and lose the suit, we could be required to pay substantial damages and / or be enjoined from using or selling the infringing products or technology or using the infringing trademark. Additionally or alternatively, we may seek to challenge third- party patents in administrative proceedings before the United States patent office or one or more foreign patent offices. Any of the foregoing could cause us to incur significant costs and prevent us from selling our products, which could have an adverse effect on our business, financial condition, results of operations and cash flows. Even if we ultimately prevail, the existence of lawsuits could prompt our customers to switch to alternative products. In addition, we have agreed, and will continue to agree, to indemnify certain customers for certain intellectual property infringement claims related to intellectual property relating to our products and the manufacture thereof. Should there be infringement claims against our licensees, we could be required to indemnify them for losses resulting from such claims or to refund amounts they have paid to us. Disruption, failure or ~~cyber security~~ **cybersecurity** breaches affecting or targeting computers and infrastructure used by us or our business partners may adversely impact our business and operations. We use computers and telecommunication systems to analyze and store financial and operating data and to communicate within our company, with outside business partners, and across international borders. These systems can be subject to technical system flaws; power loss; cyber attacks, including viruses, malware, phishing, ransomware, terrorism, and surveillance; unauthorized access; malicious software; intentional or inadvertent data privacy breaches by employees or others with authorized access; hacktivism; ransomware; physical or electronic break- ins; fires or natural disasters; supply chain attacks; and other ~~cyber security~~ **cybersecurity** issues. We have no assurance that our systems are appropriately redundant to withstand these events. Accordingly, such events could cause adverse effects and material disruptions to our operations or systems or those of our business partners; compromise the security, integrity, availability, and confidentiality of customer information, employee information, strategic projects, product formulas and other trade secrets, other business or personal sensitive data, including third party confidential information in our possession. Release of third party confidential information could materially harm our reputation, affect our relationships with such parties and expose us to liability. Although we have introduced many security measures, including firewalls and information technology security policies **and training** , these measures may not offer the appropriate level of security. A security breach or other compromise of our information security safeguards could expose our confidential information, including third party confidential information in our possession (such as customer information) to theft and misuse, which could in turn adversely affect our relationships with such third parties and have an adverse effect on our business, financial condition, results of operations and cash flows. In addition, a disruption, blockage, failure or a cyber breach of software or operating systems we use, or of the networks and infrastructure on which they rely, could damage critical production, distribution and / or storage assets, delay or prevent delivery to markets, and make it difficult or impossible to accurately account for production and settle transactions. These impacts may adversely affect our relationships with ~~such~~ employees **, customers** and **other** third parties and may have an adverse effect on our business reputation, competitiveness, financial condition, results of operations and cash flows, including damage to our operations, employees, or other third parties, resulting in remediation costs, litigation or regulatory actions. Although we have introduced many security measures, including firewalls and information technology security policies **and training** , these measures may not offer the appropriate level of security. We routinely experience attempts by external parties to penetrate and attack our networks and systems. Although such attempts to date have not resulted in any material breaches, disruptions, financial loss, or loss of business- critical information, our systems and procedures for protecting against such attacks and mitigating such risks may prove to be insufficient in the future. As technologies evolve and these cyber security attacks become more sophisticated, we may incur significant costs to upgrade or enhance our security measures to protect against such attacks, and we may face difficulties in fully anticipating or implementing adequate preventive measures or mitigating potential harm. Risks Related to our Financial Condition The non- GAAP financial information included in this Form 10- K is presented for informational purposes only and may not be an indication of our financial condition or results of operations in the future. The non- GAAP financial information included in this Form 10- K includes information that we use to evaluate our past performance, but should not be considered in isolation or as an alternative to measures of our performance determined under GAAP. Because our operations are conducted through our subsidiaries and joint ventures, we are dependent on the receipt of distributions and dividends or other payments from our subsidiaries and joint ventures for cash to fund our operations and expenses, including to make future dividend payments, if any. Our operations are conducted through our subsidiaries and joint ventures. As a result, our ability to make future dividend payments, if any, is dependent on the earnings of our subsidiaries and joint ventures and the payment of those earnings to us in the form of dividends, loans or advances and through repayment of loans or advances from us. Payments to us by our subsidiaries and joint ventures will be contingent upon our subsidiaries' or joint ventures' earnings and other business considerations and may be subject to statutory or contractual restrictions. We have not paid regular dividends on our common stock; however, we paid a special cash dividend in December 2020 and in August 2021 that was financed with the cash proceeds from our sale of our Performance Materials and Performance Chemicals businesses, respectively. To the extent that we determine in the future to pay dividends on our common stock, the agreements governing our outstanding indebtedness significantly restrict the ability of our subsidiaries to pay dividends or otherwise transfer assets to us. We may need to recognize impairment charges related to goodwill, identified intangible assets and fixed assets. We are required to test goodwill and any other intangible asset with an indefinite life for possible impairment on the same date each year and on an interim basis if there are indicators of a possible impairment. We are also required to evaluate indefinite- lived intangible assets and fixed assets for impairment if there are indicators of a possible impairment. There is significant judgment required in the analysis of a potential impairment of goodwill, identified intangible assets and fixed assets. If, as a result of a general economic slowdown or deterioration in one or more of the industries in which we operate or in our financial performance or future outlook, or if the estimated fair value of our long- lived assets decreases, we may determine that one or more of our long- lived assets is impaired. An impairment charge would be determined based on the estimated fair value of the assets and any such impairment charge could have a material adverse effect on our results of operations and financial position. We performed our annual impairment test on goodwill on October 1, ~~2022~~ **2023** , and determined there was no goodwill impairment. We may be subject to future changes in tax legislation or exposure to additional tax liabilities that may adversely affect our results of operations. We are subject to taxes in the U. S. as well as foreign jurisdictions where our subsidiaries are organized. Due to economic and political conditions, tax rates, tax laws and other non- tax legislation, such as economic substance regulations, our business may experience significant impacts as a result of prospective changes. For example, the Inflation Reduction Act (" IRA ") enacted in the U. S. on August 16, 2022 imposes several new taxes that ~~become~~ **became** effective in 2023, including a 1 % excise tax on stock repurchases. Our future effective tax rates may be affected by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities, changes in available tax credits or tax deductions, as well as changes in tax and other non- tax laws or their interpretation. Additionally, our organization is engaged in a number of cross- border intercompany transactions, subject to local transfer pricing regimes currently in place. We believe the economics of these transactions have been clearly reported, and the appropriate local transfer pricing documentation is contemporaneously available, although tax authorities may propose and potentially sustain adjustments that could result in changes to our mix of earnings in countries with differing statutory tax rates. The Organization of Economic Cooperation and Development (" OECD "), which represents a coalition of member countries, is supporting changes to numerous long- standing tax principles through its base erosion and profit shifting (" BEPS ") project. This project focuses on a number of issues, including the shifting of profits cross- border amongst affiliated entities. Given the scope of the Company' s international operations and the fluid and uncertain nature of how the BEPS project might ultimately lead to future legislation, it is difficult to assess how any changes in tax laws would impact the Company' s future income tax expense **. For example, the Model Rules under BEPS' s Pillar Two include a common approach for a global minimum tax. The Company has assessed the minimum tax and does not expect it to be within the scope of the Model Rules beginning January 1, 2024. The Company will continue to monitor the BEPS project and the applicability of new tax legislation to the Company** . Our tax returns and other tax matters are subject to examination by local tax authorities and governmental bodies. We regularly assess the likelihood of an adverse outcome resulting from these examinations, in order to determine any resulting impact to our provision for taxes. There can be no assurance as to the outcome of these examinations. If our effective tax rates were to increase as a result of a tax examination, or if the ultimate determination of the taxes owed by us is for an amount in excess of amounts previously accrued, our operating results, cash flows and financial condition could be adversely affected. We have underfunded pension plan liabilities. We will require current and future operating cash flow to fund these shortfalls. We have no assurance that we will generate sufficient cash flow to satisfy these obligations. We maintain defined benefit pension plans covering employees who meet age and service requirements. While all of our plans have been frozen, our net pension liability and cost is materially affected by the discount rate used to measure pension obligations, the longevity and actuarial profile of our workforce, the level of plan assets available to fund those obligations and the actual and expected long- term rate of return on plan assets. Significant changes in investment performance or a change in the portfolio mix of invested assets can result in corresponding increases and decreases in the valuation of plan assets, particularly equity securities, or in a change in the expected rate of return on plan assets. Assets available to fund the pension obligations of our plans as of December 31, ~~2022~~

2023 were approximately $ ~~60~~ 61 . 6 million, or approximately $ ~~6~~ 4 . ~~3~~ 9 million less than the measured pension benefit obligation on a GAAP basis. In addition, any changes in the discount rate could result in a significant increase or decrease in the valuation of pension obligations, affecting the reported funded status of our pension plans as well as the net periodic pension cost in the following years. Similarly, changes in the expected return on plan assets can result in significant changes in the net periodic pension cost in the following years. We also provide certain health care and life insurance benefits through an unfunded plan to a group of retirees in the United States who retired prior to the date on which these benefit programs were frozen. Current employees are not eligible for any post- retirement health care or life insurance benefits. Costs of these other post- employment benefit plans are dependent upon numerous factors, assumptions and estimates. Risks Related to our Indebtedness Our substantial level of indebtedness could adversely affect our financial condition. We have substantial indebtedness, which as of December 31, ~~2022~~ 2023 , totaled approximately $ ~~886~~ 877 . 5 million. Our substantial indebtedness, combined with our other financial obligations and contractual commitments, could have important consequences, including: • requiring us to dedicate a substantial portion of our cash flows from operations to payments on our indebtedness, thereby reducing funds available for working capital, capital expenditures, acquisitions, selling and marketing efforts, product development and other purposes; • increasing our vulnerability to adverse economic and industry conditions, which could place us at a competitive disadvantage compared to our competitors that have relatively less indebtedness; • limiting our flexibility in planning for, or reacting to, changes in our business and the industries in which we operate; • increasing our exposure to rising interest rates because certain of our borrowings are at variable interest rates; • restricting us from making investments, strategic acquisitions or causing us to make non- strategic divestitures; and • limiting our ability to borrow additional funds, or to dispose of assets to raise funds, if needed, for working capital, capital expenditures, acquisitions, product development and other corporate purposes. Although the terms of the agreements governing our outstanding indebtedness contain restrictions on the incurrence of additional indebtedness, such restrictions are subject to a number of important exceptions and indebtedness incurred in compliance with such restrictions could be substantial. If we and our restricted subsidiaries incur significant additional indebtedness, the related risks that we face could increase. The terms of our indebtedness restrict our current and future operations, particularly our ability to respond to change or to take certain actions. The indentures governing our outstanding indebtedness contain a number of restrictive covenants that impose significant operating and financial restrictions on us and may limit our ability to engage in acts that may be in our long- term best interest, including restrictions on our ability to incur additional indebtedness, make investments, acquisitions, loans and advances, sell, transfer or otherwise dispose of our assets or incur liens. See " Management' s Discussion and Analysis of Financial Condition and Results of Operations — Financial Condition, Liquidity and Capital Resources — Debt. " In addition, the restrictive covenants in the agreements governing our senior secured credit facilities require us to maintain specified financial ratios and satisfy other financial condition tests. Our ability to meet these financial ratios and tests can be affected by events beyond our control. A breach of such covenants could result in an event of default unless we obtain a waiver to avoid such default. If we are unable to obtain a waiver, such a default may allow our creditors to accelerate the related debt and may result in the acceleration of, or default under, any other debt to which a cross- acceleration or cross- default provision applies. In the event our lenders or noteholders accelerate the repayment of our borrowings, we and our subsidiaries may not have sufficient assets to repay that indebtedness. Risks Related to our Common Stock ~~CCMP and INEOS continue to have influence over us, which could limit your ability to influence the outcome of key transactions, including a change of control. As of December 31, 2022, investment funds affiliated with CCMP beneficially owned approximately 9 % of our outstanding common stock and INEOS beneficially owned approximately 20 % of our outstanding common stock. For as long as affiliates of CCMP and INEOS continue to beneficially own a substantial percentage of the voting power of our outstanding common stock, they will continue to have significant influence over us. For example, they will be able to strongly influence the election of all of the members of our board of directors and our business and affairs, including any determinations with respect to mergers or other business combinations, the acquisition or disposition of assets, the incurrence of additional indebtedness, the issuance of any additional shares of common stock or other equity securities, the repurchase or redemption of shares of our common stock and the payment of dividends. Additionally, CCMP and INEOS are in the business of making investments in companies and may acquire and hold interests in businesses that compete directly or indirectly with us. CCMP and INEOS may also pursue acquisition opportunities that may be complementary to our business, and, as a result, those acquisition opportunities may not be available to us.~~ Our stock price could be extremely volatile and, as a result, you may not be able to resell your shares at or above the price you paid for them. Since launching our IPO in September 2017, the price of our common stock, as reported on the New York Stock Exchange, has ranged from a low of $ 8. 20 on November 15, 2022 to a high of $ 18. 90 on March 9, 2021. In addition, the stock market in general has been highly volatile. As a result, the market price of our common stock is likely to be similarly volatile, and investors in our common stock may experience a decrease, which could be substantial, in the value of their stock, including decreases unrelated to our operating performance or prospects, and could lose part or all of their investment. The price of our common stock could be subject to wide fluctuations in response to a number of factors, including those described elsewhere herein and others such as: • variations in our operating performance and the performance of our competitors; • actual or anticipated fluctuations in our quarterly or annual operating results; • publication of research reports by securities analysts about us, our competitors or our industry; • our failure or the failure of our competitors to meet analysts' projections or guidance that we or our competitors may give to the market; • additions or departures of key personnel; • strategic decisions by us or our competitors, such as acquisitions, divestitures, spin- offs, joint ventures, strategic investments or changes in business strategy; • the passage of legislation or other regulatory developments affecting us or our industry; • changes in legislation, regulation and government policy as a result of the U. S. presidential and congressional elections; • speculation in the press or investment community; • changes in accounting principles; • **sales of substantial amounts of our stock by current stockholders (including stock by insiders or 5 % stockholders); •** terrorist acts, acts of war or periods of widespread civil unrest; • natural disasters and other calamities; and • changes in general market and economic conditions. In addition, broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance, and factors beyond our control may cause our stock price to decline rapidly and unexpectedly. We are exposed to the impact of any global or domestic economic disruption that may occur **.** ~~, including the economic effects of COVID- 19~~ . In the past, securities class action litigation has often been initiated against companies following periods of volatility in their stock price. This type of litigation could result in substantial costs and divert our management' s attention and resources, and could also require us to make substantial payments to satisfy judgments or to settle litigation. Your percentage ownership in us may be diluted by future issuances of capital stock, which could reduce your influence over matters on which stockholders vote. Our board of directors has the authority, without action or vote of our stockholders, to issue all or any part of our authorized but unissued shares of common stock, including shares issuable upon exercise of options, or shares of our authorized but unissued preferred stock. Issuances of common stock or voting preferred stock would reduce your influence over matters on which our stockholders vote and, in the case of issuances of preferred stock, would likely result in your interest in us being subject to the prior rights of holders of that preferred stock. ~~There may be sales of a substantial amount of our common stock by our current stockholders, and these sales could cause the price of our common stock to fall. As of December 31, 2022, there were 122, 186, 238 shares of our common stock outstanding. Approximately 9 % and 20 % of our outstanding common stock is held by affiliates of CCMP and by INEOS, respectively. Sales of substantial amounts of our common stock in the public market, or the perception that such sales will occur, could adversely affect the market price of our common stock and make it difficult for us to raise funds through securities offerings in the future. Investment funds affiliated with CCMP may require us to register shares of our common stock held by them for resale under the federal securities laws, subject to reduction upon the request of the underwriter of the offering, if any. Registration of those shares would allow the investment funds affiliated with CCMP to immediately resell their shares in the public market. Any such sales or anticipation thereof could cause the market price of our common stock to decline. In addition, we have registered shares of our common stock that are reserved for issuance under our 2016 Stock Incentive Plan and 2017 Omnibus Incentive Plan, as amended and restated.~~ Provisions in our charter documents and Delaware law may deter takeover efforts that may be beneficial to stockholder value. ~~In addition to INEOS' s beneficial ownership of a substantial percentage of our common stock, provisions~~ **Provisions** in our certificate of incorporation and bylaws and Delaware law could make it harder for a third party to acquire us, even if doing so might be beneficial to our stockholders. These provisions include a classified board of directors and the ability of our board of directors to issue preferred stock without stockholder approval that could be used to dilute a potential hostile acquiror. Our certificate of incorporation imposes some restrictions on mergers and other business combinations between us and any holder of 15 % or more of our outstanding common stock other than INEOS **Limited** and investment funds affiliated with CCMP **, Capital Advisors, L. P. (" CCMP "), one of our former stockholders** . As a result, you may lose your ability to sell your stock for a price in excess of the prevailing market price due to these protective measures, and efforts by stockholders to change the direction or management of the company may be unsuccessful. Our certificate of incorporation designates courts in the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees. Our certificate of incorporation provides that, subject to limited exceptions, the Court of Chancery of the State of Delaware is the sole and exclusive forum for: • any derivative action or proceeding brought on our behalf; • any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders; • any action asserting a claim against us arising pursuant to any provision of the General Corporation Law of the State of Delaware, our certificate of incorporation or our bylaws; • any action to interpret, apply, enforce or determine the validity of our certificate of incorporation or bylaws; or • any other action asserting a claim against us that is governed by the internal affairs doctrine (each, a " Covered Proceeding "). In addition, our certificate of incorporation provides that if any action the subject matter of which is a Covered Proceeding is filed in a court other than the specified Delaware courts without the approval of our board of directors (each, a " Foreign Action "), the claiming party will be deemed to have consented to (i) the personal jurisdiction of the specified Delaware courts in connection with any action brought in any such courts to enforce the exclusive forum provision described above and (ii) having service of process made upon such claiming party in any such enforcement action by service upon such claiming party' s counsel in the Foreign Action as agent for such claiming party. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to these provisions. These provisions may limit a stockholder' s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and employees. Alternatively, if a court were to find these provisions of our certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business and financial condition. ~~Our certificate of incorporation contains a provision renouncing our interest and expectancy in certain corporate opportunities, which could adversely impact our business. Each of CCMP and INEOS, and the members of our board of directors who are affiliated with CCMP and INEOS, by the terms of our certificate of incorporation, are not required to offer us any corporate opportunity of which they become aware and can take any such corporate opportunity for themselves or offer it to other companies in which they have an investment. We, by the terms of our certificate of incorporation, expressly renounce any interest or expectancy in any such corporate opportunity to the extent permitted under applicable law, even if the opportunity is one that we or our subsidiaries might reasonably have pursued or had the ability or desire to pursue if granted the opportunity to do so. Our certificate of incorporation may not be amended to eliminate our renunciation of any such corporate opportunity arising prior to the date of any such amendment. CCMP and INEOS are in the business of making investments in companies and may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. These potential conflicts of interest could have a material adverse effect on our business, financial~~

~~condition, results of operations or prospects if CCMP or INEOS allocate attractive corporate opportunities to themselves or their affiliates instead of to us.~~ We may not pay additional dividends on our common stock and, consequentially, you may not receive any return on investment unless you sell your common stock for a price greater than that which you paid for it. Although we paid special cash dividends in December 2020 and August 2021, our board of directors may decide to retain future earnings, if any, for future operations, expansion and debt repayment and may not pay any special or regular dividends for the foreseeable future. Any decision to declare and pay special or regular dividends in the future will be made at the discretion of our board of directors and will depend on, among other things, our results of operations, financial condition, cash requirements, contractual restrictions and other factors that our board of directors may deem relevant. In addition, our ability to pay dividends may be limited by covenants of any existing and future outstanding indebtedness we or our subsidiaries incur, including our credit facilities and outstanding notes. See " Because our operations are conducted through our subsidiaries and joint ventures, we are dependent on the receipt of distributions and dividends or other payments from our subsidiaries and joint ventures for cash to fund our operations and expenses, including to make future dividend payments, if any. " As a result, you may not receive any return on an investment in our common stock unless you sell your common stock for a price greater than that which you paid for it. General Risk Factors Significant trade developments stemming from the U. S. administration, U. S. courts' or the United Kingdom' s exit from the European Union could have an adverse effect on us. The United States has in recent years renegotiated a number of trade agreements, such as the United States- Mexico- Canada Agreement (" USMCA "), imposed tariffs on goods imported from China and certain other countries, and increasingly levied sanctions and export controls on China and other countries. All of these actions have resulted in retaliatory action, including retaliatory tariffs and other restrictions by China and other countries. These changes, as well as any other changes in social, political, regulatory and economic conditions, or further changes to foreign or domestic laws and policies governing foreign trade (including export, import and sanctions), manufacturing and development and foreign direct investment in the territories and countries where we or our customers operate could adversely affect our operating results and our business. Additionally, in June 2016, the United Kingdom held a referendum and voted in favor of leaving the European Union and, on January 31, 2020, the United Kingdom exited the European Union and the implementation period or transition period ended on December 31, 2020. This referendum and exit has created political and economic uncertainty, particularly in the United Kingdom and the European Union, and this uncertainty may last for years. Our business could be affected during this period of uncertainty, and perhaps longer, by the impact of the United Kingdom' s referendum and exit. In addition, our business could be negatively affected by new trade agreements between the United Kingdom and other countries, including the United States, and by the possible imposition of trade or other regulatory barriers in the United Kingdom. These possible negative impacts, and others resulting from the United Kingdom' s withdrawal from the European Union, may adversely affect our customers' businesses and our operating results. If we lose certain key personnel or are unable to hire additional qualified personnel, we may not be able to execute our business strategy and our business could be adversely affected. Our success depends, in part, upon the continued services of our highly skilled personnel involved in management, research, production and distribution and, in particular, upon the efforts and abilities of our key officers. Although we believe that we are adequately staffed in key positions, we may not be able to retain such personnel on acceptable terms or at all, and such personnel may seek to compete with us in the future. If we lose the service of any of our key personnel, we may not be able to hire replacements with the same level of industry experience and knowledge necessary to execute our business strategy, which in turn could have a material adverse effect on our business, financial condition, results of operations or cash flows. We depend on good relations with our workforce, and any significant disruptions could adversely affect our operations. As of December 31, ~~2022~~ **2023** , we had ~~890~~ **911** employees ~~globally~~ **worldwide** , approximately ~~45~~ **44** % of which were represented by a union, works council or other employee representative body. As of December 31, ~~2022~~ **2023** , ~~138~~ **137** of our U. S. unionized employees were covered under collective bargaining agreements that will expire on or before December ~~31~~ **30** , ~~2023~~ **2024** . Failure to reach agreement with any of our unionized work groups regarding the terms of their collective bargaining agreements or annual pay increases may result in a labor strike, work stoppage or slowdown. In addition, a large number of our employees are employed in countries in which employment laws provide greater bargaining or other rights to employees than the laws of the United States. Such employment rights require us to work collaboratively with the legal representatives of the employees to effect any changes to labor arrangements. For example, many of our employees in Europe are represented by works councils that must approve any changes in conditions of employment, including salaries, benefits and staff changes, and may impede efforts to restructure our workforce. Although we believe that we have a good working relationship with our employees, a strike, work stoppage or slowdown by our employees or a dispute with our employees could result in a significant disruption to our operations or higher ongoing labor costs. In addition, our ability to make adjustments to control compensation and benefit costs, or otherwise adapt to changing business needs, may be limited by the terms and duration of our collective bargaining agreements. We are subject to certain risks related to litigation filed by or against us, as well as administrative and regulatory proceedings, and adverse results may harm our business. We cannot predict with certainty the cost of defense, the cost of prosecution or the ultimate outcome of litigation and other administrative and regulatory proceedings filed by or against us, including remedies or damage awards, and **how** adverse results in any litigation or other administrative and regulatory proceedings may materially harm our business. Litigation and other administrative and regulatory proceedings may include, but are not limited to, actions relating to intellectual property, commercial arrangements, environmental, health and safety matters, joint venture agreements, labor and employment matters, domestic and foreign antitrust matters or other harms resulting from the actions of individuals or entities outside of our control. In the case of intellectual property litigation and proceedings, adverse outcomes could include the cancellation, invalidation or other loss of material intellectual property rights used in our business and injunctions prohibiting our use of our processes, apparatuses, technology, trade secrets and proprietary manufacturing expertise, methods and compounds that are subject to third- party patents or other third- party intellectual property rights. Litigation based on environmental matters or exposure to hazardous substances in the workplace or from our products could result in significant liability for us. For example, we are currently subject to various asbestos premises liability claims that relate to **a** ~~employee or~~ contractor exposure to asbestos contained in certain building materials at our sites. Furthermore, our international operations expose us to potential administrative and regulatory proceedings in foreign jurisdictions. Adverse outcomes in any of the foregoing could have a material adverse effect on our business. If we fail to maintain effective internal control over financial reporting and effective disclosure controls and procedures, we may not be able to accurately report our financial results in a timely manner or prevent fraud, which may adversely affect investor confidence in our company. Pursuant to Section 404 of the Sarbanes- Oxley Act of 2002, as amended, our management is required to report on, and our independent registered public accounting firm is required to attest to, the effectiveness of our internal control over financial reporting. This assessment includes disclosure of any material weakness identified by our management in our internal control over financial reporting. In addition, we are required to comply with the SEC' s rules implementing Section 302 of the Sarbanes- Oxley Act, which requires management to certify financial and other information in our quarterly and annual reports, and we are required to disclose significant changes made in our internal controls and procedures on a quarterly basis. If we identify a material weakness in our internal control over financial reporting, we may not be able to remediate the material weakness identified in a timely manner or maintain all of the controls necessary to remain in compliance with our reporting obligations. If we are unable to assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an unqualified opinion as to the effectiveness of our internal control over financial reporting in future periods, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could be negatively affected, and we could become subject to investigations by the New York Stock Exchange, on which our securities are listed, the SEC or other regulatory authorities, which could require additional financial and management resources. Regulations related to conflict minerals could adversely impact our business. The Dodd- Frank Wall Street Reform and Consumer Protection Act of 2010 contains provisions to improve transparency and accountability concerning the supply of certain minerals, known as conflict minerals, originating from the Democratic Republic of Congo (the " DRC ") and adjoining countries. The SEC requires annual disclosure and reporting requirements for those companies who use conflict minerals mined from the DRC and adjoining countries in their products. We incur costs associated with complying with these disclosure requirements, including for diligence to determine the sources of conflict minerals used in our products and other potential changes to products, processes or sources of supply as a consequence of such verification activities. These rules could adversely affect the sourcing, supply and pricing of materials used in our products. As there may be only a limited number of suppliers offering " conflict free " conflict minerals, we cannot be sure that we will be able to obtain necessary conflict minerals from such suppliers in sufficient quantities or at competitive prices.