# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
**Washington, D.C. 20549**

# FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
**For the fiscal year ended December 31, 2021**

**OR**

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

**Commission File No. 1-9328**

# ECOLAB INC.
(Exact name of registrant as specified in its charter)

**Delaware**
(State or other jurisdiction of incorporation or organization)

**41-0231510**
(I.R.S. Employer Identification No.)

**1 Ecolab Place, St. Paul, Minnesota 55102**
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: **1-800-232-6522**

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

| Title of each class | Trading symbol(s) | Name of each exchange on which registered |
|---|---|---|
| **Common Stock, $1.00 par value** | **ECL** | **New York Stock Exchange** |
| **2.625% Euro Notes due 2025** | **ECL 25** | **New York Stock Exchange** |
| **1.000% Euro Notes due 2024** | **ECL 24** | **New York Stock Exchange** |

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

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

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

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

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

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

Large accelerated filer ☒
Accelerated filer ☐
Non-accelerated filer ☐
Smaller reporting company ☐
Emerging growth company ☐

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

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

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

Aggregate market value of voting and non-voting common equity held by non-affiliates of registrant on June 30, 2021, the last business day of the Registrant's most recently completed second fiscal quarter: $58,664,362,024 (see Item 12, under Part III hereof), based on a closing price of registrant's Common Stock of $205.97 per share.

The number of shares of registrant's Common Stock, par value $1.00 per share, outstanding as of January 31, 2022: 286,751,531 shares.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's Proxy Statement for the Annual Meeting of Stockholders to be held May 5, 2022, and to be filed within 120 days after the registrant's fiscal year ended December 31, 2021 (hereinafter referred to as "Proxy Statement"), are incorporated by reference into Part III.

**ECOLAB INC.**
**FORM 10-K**
**For the Year Ended December 31, 2021**

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# PART I

Except where the context otherwise requires, references in this Form 10-K to (i) "Ecolab," "Company," "we" and "our" are to Ecolab Inc. and its subsidiaries, collectively; (ii) "Nalco" are to Nalco Company LLC, a wholly-owned subsidiary of the Company; (iii) "Nalco transaction" and "Nalco merger" are to the merger of Ecolab and Nalco Holding Company completed in December 2011; (iv) "Purolite" are to Purolite LLC, a wholly-owned subsidiary of the Company and its subsidiaries, collectively; and (v) "Purolite transaction" are to the Company's acquisition of the shares of the subsidiaries and certain other affiliated entities of Purolite Corporation and substantially all of the assets of Purolite Corporation used or held for use in connection with its filtration and purification resins business in December 2021.

## Item 1. Business.

### General Development of Business.

Ecolab was incorporated as a Delaware corporation in 1924. Our fiscal year is the calendar year ending December 31. International subsidiaries are included in the consolidated financial statements on the basis of their U.S. GAAP (accounting principles generally accepted in the United States of America) November 30 fiscal year ends to facilitate the timely inclusion of such entities in our consolidated financial reporting.

On June 3, 2020, we completed the previously announced separation of our Upstream Energy business (the "ChampionX business") in a Reverse Morris Trust transaction (the "Transaction") through the split-off of ChampionX Holding Inc. ("ChampionX"), formed by Ecolab as a wholly owned subsidiary to hold the ChampionX business, followed immediately by the merger (the "Merger") of ChampionX with a wholly owned subsidiary of ChampionX Corporation (f/k/a Apergy Corporation, "Apergy").

As discussed in Note 5 Discontinued Operations, the ChampionX business met the criteria to be reported as discontinued operations because the separation of ChampionX was a strategic shift in business that had a major effect on our operations and financial results. Therefore, we reported the historical results of ChampionX, including the results of operations and cash flows as discontinued operations, and related assets and liabilities were retrospectively reclassified for all periods presented herein. Unless otherwise noted, the accompanying financial information has been revised to reflect the effect of the separation of ChampionX and prior year balances have been revised accordingly to reflect continuing operations only.

Subsequent to the separation of ChampionX, we no longer report the Upstream Energy segment, which previously held the ChampionX business. We are aligned into three reportable segments and Other.

Effective in the first quarter of 2020, and in anticipation of the separation of the Upstream Energy business, we created the Upstream and Downstream operating segments from the Global Energy operating segment, which was also a reportable segment. We eliminated the Global Energy reportable segment and created the Downstream operating segment and the Upstream operating segment, which are reported in the Global Industrial reportable segment and newly established Upstream Energy reportable segment which is reported in discontinued operations, respectively. Also, in the first quarter of 2020, we announced leadership changes which allow for shared oversight and focus on the Healthcare and Life Sciences operating segments and established the Global Healthcare & Life Sciences reportable segment. This segment is comprised of the Healthcare operating segment which was previously aggregated in the Global Institutional reportable segment and the Life Sciences operating segment which was previously aggregated in the Global Industrial reportable segment. Additionally, the Textile Care operating segment is reported in Other, which had previously been aggregated in the Global Industrial reportable segment. We also renamed the Global Institutional reportable segment to the Global Institutional & Specialty reportable segment. We made other immaterial changes, including the movement of certain customers and cost allocations between reportable segments.

On December 1, 2021, we acquired Purolite for total consideration of $3.7 billion in cash. Purolite is a leading and fast-growing global provider of high-end ion exchange resins for the separation and purification of solutions that is highly complementary to our current offering and critical to safe, high quality drug production and biopharma product purification in the life sciences industries. It also provides purification and separation solutions for critical industrial markets like microelectronics, nuclear power and food and beverage. Headquartered in King of Prussia, Pennsylvania, Purolite operates in more than 30 countries. Purolite is reported within our Life Sciences operating segment.

We continued to invest in and build our business through various acquisitions that complement our strategic vision. See Part II, Item 8, Note 4 of this Form 10-K for additional information about acquisitions and divestitures.

### Narrative Description of Business.

### General

With 2021 sales of $12.7 billion, we are a global leader in water, hygiene and infection prevention solutions and services. We deliver comprehensive solutions, data-driven insights and personalized service to advance food safety, maintain clean and safe environments, optimize water and energy use, and improve operational efficiencies and sustainability for customers in the food, healthcare, hospitality and industrial markets in more than 170 countries around the world. Our cleaning and sanitizing programs and products and pest elimination services support customers in the foodservice, food and beverage processing, hospitality, healthcare, government and education, retail, textile care and commercial facilities management sectors. Our products and technologies are also used in water treatment, pollution control, energy conservation, refining, primary metals manufacturing, papermaking, mining and other industrial processes.

We pursue a “Circle the Customer – Circle the Globe” strategy by providing an array of innovative programs, products and services designed to meet the specific operational and sustainability needs of our customers throughout the world. Through this strategy and our varied product and service mix, one customer may utilize the offerings of several of our operating segments. Important in our business proposition for customers is our ability to produce improved results while reducing their water and energy use. With that in mind, we focus on continually innovating to optimize both our own operations and the solutions we provide to customers, aligning with our corporate strategy to address some of the world’s most pressing and complex sustainability challenges such as water scarcity and climate change. The work we do matters, and the way we do it matters to our employees, customers, investors and the communities in which we and our customers operate.

Sustainability is core to our business strategy. We deliver sustainable solutions that help companies around the world achieve their business goals while reducing environmental impacts. We partner with customers at approximately three million customer locations around the world to reduce water and energy use as well as greenhouse gas emissions through our high-efficiency solutions. By partnering with our customers to help them do more with less through the use of our innovative and differentiated solutions, we aim to help our customers conserve more than 300 billion gallons of water annually by 2030. In 2020, we helped our customers conserve more than 206 billion gallons of water and avoid more than 3.5 million metric tons of greenhouse gas emissions.

The following description of our business is based upon our reportable segments as reported in our consolidated financial statements for the year ended December 31, 2021, which are located in Item 8 of Part II of this Form 10-K. Operating segments that share similar economic characteristics and future prospects, nature of the products and production processes, end-use markets, channels of distribution and regulatory environment have been aggregated into three reportable segments: Global Industrial, Global Institutional & Specialty and Global Healthcare & Life Sciences. Operating segments that were not aggregated and do not exceed the quantitative criteria to be separately reported have been combined into Other. We provide similar information for Other as compared to our three reportable segments as we consider the information regarding its underlying operating segments as useful in understanding our consolidated results.

## Global Industrial

This reportable segment consists of the Water, Food & Beverage, Downstream and Paper operating segments, which provide water treatment and process applications, and cleaning and sanitizing solutions, primarily to large industrial customers within the manufacturing, food and beverage processing, transportation, chemical, primary metals and mining, power generation, global refining, petrochemical, pulp and paper industries. The underlying operating segments exhibit similar manufacturing processes, distribution methods and economic characteristics. Descriptions of the four operating segments which comprise our Global Industrial reportable segment follow below.

***Water***

Water serves customers across industrial and institutional markets. Within Water, our light industry markets include food and beverage, manufacturing and transportation, institutional clients including commercial buildings, hospitals, universities and hotels, and global high technology serving customers including data centers and microelectronics. Heavy industries served include power, chemicals and primary metals and mining.

Water provides water treatment products and technology programs for cooling water, waste water, boiler water and process water applications. Our cooling water treatment programs are designed to control challenges associated with cooling water systems — corrosion, scale and microbial fouling and contamination — in open recirculating, once-through and closed systems. Our wastewater products and programs focus on improving overall plant economics, addressing compliance issues, optimizing equipment efficiency and improving operator capabilities and effectiveness. We provide integrated chemical and digitally-based solutions, process improvements and mechanical component modifications to optimize boiler performance and control corrosion and scale build-up. Our programs assist in more effectively managing water use for plant processes by optimizing the performance of treatment chemicals and equipment in order to minimize costs and maximize returns on investment.

Our offerings include specialty products such as scale and corrosion inhibitors, antifoulants, pre-treatment solutions, membrane treatments, coagulants and flocculants, and anti-foamers, as well as our 3D TRASAR™ technologies, which combines chemistry, remote services and monitoring and control. We provide products and programs for water treatment and process applications aimed at combining environmental benefits with economic gains for our customers. Typically, water savings, energy savings and operating efficiency are among our primary sources of value creation for our customers, with product quality and production enhancement improvements also providing key differentiating features for many of our offerings. Our offerings are sold primarily by our corporate account and field sales employees.

We believe we are one of the leading global suppliers of products and programs for chemical applications within the industrial water treatment industry.

***Food & Beverage***

Food & Beverage provides cleaning and sanitation products and programs to facilitate the processing of products for human consumption. Food & Beverage provides detergents, cleaners, sanitizers, lubricants and animal health products, as well as cleaning systems, digitally-based dispensers, monitors and chemical injectors for the application of chemical products, primarily to dairy plants; dairy, swine and poultry farms; breweries and soft-drink bottling plants as well as meat, poultry and other food processors. Food & Beverage is also a leading developer and marketer of antimicrobial products used in direct contact with meat, poultry, seafood and produce during processing in order to reduce microbial contamination. Food & Beverage also designs, engineers and installs CIP ("clean-in-place") process control systems and facility cleaning systems for its customer base. Water savings, energy savings, and operating efficiency are among our sources of value creation for our customers. Products for use in processing facilities are sold primarily by our corporate account and field sales employees, while products for use on farms are sold through dealers and independent, third-party distributors.

We believe we are one of the leading global suppliers of cleaning and sanitizing products to the dairy plant, dairy, swine and poultry farm, beverage/brewery, food, meat and poultry, and beverage/brewery processing industries.

***Downstream***

Downstream provides products and programs for process and water treatment applications specific to the petroleum refining and fuels industry, enabling our customers to profitably refine and upgrade hydrocarbons. We solve our customers' toughest process and water challenges so they can reliably, sustainably and profitably refine fuels and process petrochemicals. Our proven chemistry and digital technologies combined with service increase refinery and petrochemical plant reliability and the useful life of customer assets while improving product quality and yields. Our product portfolio includes corrosion inhibitors, antifoulants, hydrogen sulfide removal, cold flow improvers, lubricity inhibitors, crude desalting, reactive monomer inhibitors, olefins, anti-polymerants, anti-oxidants and water treatment.

Our customers include many of the largest publicly traded oil, refining and petrochemical companies, as well as national refining and petrochemical companies, and large independent refining companies. Our downstream offerings are sold primarily by our corporate account and field sales employees and, to a lesser extent, through engineering, procurement, and construction contractors (EPC), technology licensors, distributors, sales agents and joint ventures.

We believe we are one of the leading global providers of products and programs for specialty chemical applications to downstream refineries and petrochemical operations.

***Paper***

Paper provides water and process applications for the pulp and paper industries, offering a comprehensive portfolio of programs that are used in all principal steps of the papermaking process and across all grades of paper, including graphic grades, board and packaging, and tissue and towel. While Paper provides its customers similar types of products and programs for water treatment and wastewater treatment as those offered by Water, Paper also offers two specialty programs that differentiate its offerings from Water—pulp applications and paper applications. Our pulp applications maximize process efficiency and increase pulp cleanliness and brightness in bleaching operations, as well as predict and monitor scaling potential utilizing on-line monitoring to design effective treatment programs and avoid costly failures. Our paper process applications focus on improving our customers' operational efficiency, in part through water savings, energy savings and operating efficiency. Advanced digital sensing, monitoring and automation combine with innovative chemistries and detailed process knowledge to provide a broad range of customer solutions. Specialty products include flocculants, coagulants, dewatering aids and digester yield additives. Our offerings are sold primarily by our corporate account and field sales employees.

We believe we are one of the leading global suppliers of water treatment products and process aids to the pulp and papermaking industry.

## Global Institutional & Specialty

This reportable segment consists of the Institutional and Specialty operating segments, which provide specialized cleaning and sanitizing products to the foodservice, hospitality, lodging, government, education and retail industries. The underlying operating segments exhibit similar manufacturing processes, distribution methods and economic characteristics. Descriptions of the two operating segments which comprise our Global Institutional & Specialty reportable segment follow below.

***Institutional***

Institutional sells specialized cleaners and sanitizers for washing dishes, glassware, flatware, foodservice utensils and kitchen equipment ("warewashing"), plus specialized cleaners for various applications throughout food service operations, on-premise laundries (typically used by hotel and healthcare customers) and general housekeeping functions. We also sell food safety products and equipment, water filters, dishwasher racks and related kitchen sundries to the foodservice, lodging, educational and healthcare industries. Institutional also provides pool and spa treatment programs for hospitality and other commercial customers, as well as a broad range of janitorial cleaning and floor care products and programs to customers in hospitality, healthcare and commercial facilities. Institutional develops various digital monitoring and chemical dispensing systems which are used by our customers to efficiently and safely dispense our cleaners and sanitizers, and through these products, systems and our on-site sales and service expertise, develop better results for our customers including water savings, energy savings and operating efficiency. In addition, Institutional markets a lease program comprised of energy-efficient dishwashing machines, detergents, rinse additives and sanitizers, including full machine maintenance. Through our EcoSure Food Safety Management business, Institutional also provides customized on-site evaluations, training and quality assurance services to foodservice operations. With the Lobster Ink business, Institutional provides our customers with end-to-end digital training solutions designed to drive corrective actions and optimal frontline execution.

Institutional sells its products and programs primarily through its direct field sales and corporate account sales personnel. Corporate account sales personnel establish relationships and negotiate contracts with larger multi-unit or “chain” customers. We also utilize independent, third-party foodservice, broad-line and janitorial distributors to provide logistics to end customers that prefer to work through these distributors. Many of these distributors also participate in marketing our product and service offerings to the end customers. Through our field sales personnel, we generally provide the same customer support to end-use customers supplied by these distributors as we do to direct customers.

We believe we are one of the leading global suppliers of warewashing and laundry products and programs to the food service, hospitality and lodging markets.

***Specialty***

Specialty supplies cleaning and sanitizing chemical products and related items primarily to regional, national and international quick service restaurant (“QSR”) chains and food retailers (i.e., supermarkets and grocery stores). Its products include specialty and general purpose hard surface cleaners, degreasers, sanitizers, polishes, hand care products and assorted cleaning tools and equipment which are primarily sold under the “Ecolab” and “Kay” brand names. Specialty’s cleaning and sanitation programs are customized to meet the needs of the market segments it serves and are designed to provide highly effective cleaning performance, promote food safety, reduce labor, water and energy costs and enhance user and guest safety. A number of dispensing options are available for products in the core product range. Specialty supports its product sales with training programs and technical support designed to meet the special needs of its customers.

Both Specialty’s QSR business and its food retail business utilize their corporate account sales force which manages relationships with customers at the corporate and regional office levels (and, in the QSR market segment, at the franchisee level) and their field sales force which provides program support at the individual restaurant or store level. QSR customers are primarily supplied through third party distributors while most food retail customers utilize their own distribution networks. While Specialty’s customer base has broadened significantly over the years, Specialty’s business remains largely dependent upon a limited number of major QSR chains and franchisees and large food retail customers.

We believe we are one of the leading suppliers of cleaning and sanitizing products to the global QSR market and a leading supplier of cleaning and sanitizing products to the global food retail market.

## Global Healthcare & Life Sciences

This reportable segment consists of the Healthcare and Life Sciences operating segments, which provide specialized cleaning and sanitizing products to the healthcare, personal care and pharmaceutical industries. The underlying operating segments exhibit similar manufacturing processes, distribution methods and economic characteristics. Descriptions of the two operating segments which comprise our Global Healthcare & Life Sciences reportable segment follow below.

***Healthcare***

Healthcare provides infection prevention and surgical solutions to acute care hospitals, surgery centers and medical device Original Equipment Manufacturers (“OEM”). Healthcare’s proprietary infection prevention and surgical solutions (hand hygiene, hard surface disinfection, digital monitoring systems, instrument cleaning, patient drapes, equipment drapes and surgical fluid warming and cooling systems) are sold primarily under the "Ecolab," "Microtek," and “Anios” brand names to various departments within the acute care environment (Infection Control, Environmental Services, Central Sterile and Operating Room). Healthcare sells its products and programs principally through its field sales personnel and corporate account personnel but also sells through healthcare distributors.

We believe we are one of the leading suppliers of infection prevention and surgical solutions in the United States and Europe.

***Life Sciences***

Life Sciences provides end-to-end cleaning and contamination control solutions to pharmaceutical and personal care manufacturers. These products are primarily sold under the “Ecolab” brand name, and include detergents, cleaners, sanitizers, disinfectants, surface wipes, as well as cleaning systems, electronic dispensers and chemical injectors for the application of chemical products. With the acquisition of Purolite, the portfolio now includes premium fluid treatment and purification solutions with a broad range of unique products sold under the “Purolite” brand name, particularly focusing on biopharma purification solutions, active pharmaceutical ingredients (“API’s”) and high value industrial applications. The Life Sciences portfolio also includes decontamination systems and services utilizing hydrogen peroxide vapor, which are sold under the “Bioquell” brand name. The pharmaceutical clean room environment is the primary area that Ecolab and Bioquell products are utilized. Purolite products are primarily used in the purification of biologic therapeutics, API’s and high value industrial applications. Products and programs are sold primarily through our field sales and corporate account personnel, and to a lesser extent through distributors.

Life Sciences is comprised of customers and accounts related to manufacturing in the following industries: pharmaceutical, animal health and medicine, blood purification and dialysis, biologic products, cosmetics and medical devices. Our tailored, comprehensive solutions and technical know-how focus on ensuring product quality, safety and compliance standards are met while improving operational efficiency in customers' cleaning, sanitation and disinfection processes. We believe we are one of the leading suppliers of process purification solutions in Europe and North America and of contamination control solutions in Europe, with a growing presence in North America and other regions.

## Other

Other consists of the Pest Elimination, Textile Care and Colloidal Technologies Group operating segments. These operating segments do not meet the quantitative criteria to be separately reported. We disclose these operating segments within Other as we consider the information useful in understanding our consolidated results.

***Pest Elimination***

Pest Elimination provides services designed to detect, eliminate and prevent pests, such as rodents and insects, in restaurants, food and beverage processors, educational and healthcare facilities, hotels, quick service restaurant and grocery operations and other institutional and commercial customers. The services of Pest Elimination are sold and performed by our field sales and service personnel.

In addition to the United States, which constitutes the largest operation, we operate in various countries in Asia Pacific, Greater China, Western Europe, Latin America and South Africa.

We believe Pest Elimination is a leading supplier of pest elimination programs to the commercial, hospitality and institutional markets in the geographies it serves.

***Textile Care***

Textile Care provides products and services that manage the entire wash process through custom designed programs, premium products, dispensing equipment, water and energy management and reduction, and real time data management for large scale, complex commercial laundry operations including uniform rental, hospitality, linen rental and healthcare laundries. Textile Care's programs are designed to meet our customers' needs for exceptional cleaning, while extending the useful life of linen and reducing our customers' overall operating costs. Products and programs are marketed primarily through our field sales employees and, to a lesser extent, through distributors. We believe we are one of the leading global suppliers in the laundry markets in which we compete.

***Colloidal Technologies Group***

The Colloidal Technologies Group ("CTG") produces and sells colloidal silica, which is comprised of nano-sized particles of silica in water. These products and associated programs are used primarily for binding and polishing applications. CTG serves customers across various industries, including semiconductor manufacturing, catalyst manufacturing, chemicals and aerospace component manufacturing.

CTG incorporates strong collaboration with customers to develop customized solutions that meet the technical demands of their operations. Our silica-based applications are widely used for polishing of silicon wafers, semiconductor substrates and the precision surface finishing of optics, watch crystals and other glass components. We offer a variety of silica-based particles that can be used as binders in heterogeneous catalyst systems and as silica nutrients for manufacturing specialty zeolites. Our silica products are used worldwide as a binder for precision investment casting slurries, which ultimately facilitate the manufacture of near net-shape metal parts such as turbine blades and golf club heads.

Our products are sold primarily by our corporate account employees. We believe we are one of the leading global suppliers of colloidal silica.

## Additional Information

***International Operations***

We directly operate in approximately 100 countries outside of the United States through wholly-owned subsidiaries or, in some cases, through a joint venture with a local partner. In certain countries, selected products are sold by our export operations to distributors, agents or licensees, although the volume of those sales is not significant in terms of our overall revenues. In general, our businesses conducted outside the United States are similar to those conducted in the United States.

Our business operations outside the United States are subject to the usual risks of foreign operations, including possible changes in trade and foreign investment laws, international business laws and regulations, tax laws, currency exchange rates and economic and political conditions. The profitability of our international operations is generally lower than the profitability of our businesses in the United States, due to (i) the additional cost of operating in numerous and diverse foreign jurisdictions with varying laws and regulations, (ii) higher costs of importing certain raw materials and finished goods in some regions, (iii) the smaller scale of international operations where certain operating locations are smaller in size, and (iv) the additional reliance on distributors and agents in certain countries which can negatively impact our margins. Proportionately larger investments in sales and technical support are also necessary in certain geographies in order to facilitate the growth of our international operations.

***Competition***

In general, the markets in which the businesses in our Global Industrial reportable segment compete are led by a few large companies, with the rest of the market served by smaller entities focusing on more limited geographic regions or a smaller subset of products and services. Our businesses in this segment compete on the basis of their demonstrated value, technical expertise, innovation, digital technology, chemical formulations, global customer support, detection equipment, monitoring capabilities, and dosing and metering equipment. Through the combination of our digitally enabled end-to-end water management and hygiene solutions, data-driven insights and personalized service, our Global Industrial businesses deliver outcomes that help our customers optimize water and energy use, improve productivity, advance food safety, and achieve sustainability and net zero goals, while optimizing total cost of operations.

The businesses in our Global Institutional & Specialty reportable segment and Other have two significant classes of competitors. First, we compete with a small number of large companies selling directly or through distributors on a national or international scale. Second, we have numerous smaller regional or local competitors which focus on more limited geographies, product lines and/or end-use customer segments. We compete principally by providing superior value, premium customer support, training, service, and innovative and differentiated products to help our customers protect their brand reputation and improve their operational efficiency.

Within the Global Healthcare & Life Sciences reportable segment, the Healthcare business competes geographically with companies primarily focused on a smaller range of product categories, with few globally scaled competitors. Life Sciences business competes in the European market versus several mid-size and regional competitors and competes against two large and other mid-size or regional competitors in North America. Outside of North America and Europe competitors are much more fragmented and do not offer the same level of service or coverage as Ecolab. Our businesses in this segment compete by enabling our customers success through improved hygiene, digitally enabled programs in key operating room and patient room space as well as a tailored approach to delivering key inputs that directly impact our customers patients globally.

***Sales***

Our products, systems and services are primarily marketed in domestic and international markets by our Company-trained direct field sales personnel who also advise and assist our customers in the proper and most efficient use of the products and systems in order to meet a full range of cleaning and sanitation, water treatment and process chemistry needs. Independent, third-party distributors and, to a lesser extent, sales agents, are utilized in several markets, as described in the segment descriptions found above.

***Customers and Classes of Products***

We believe our business is not materially dependent upon a single customer. Additionally, although we have a diverse customer base and no customer or distributor constituted 10 percent or more of our consolidated revenues in 2021, 2020 or 2019, we do have customers and independent third-party distributors, the loss of which could have a material adverse effect on results of operations for the affected earnings periods; however, we consider it unlikely that such an event would have a material adverse impact on our financial position. No material part of our business is subject to renegotiation or termination at the election of a governmental unit.

We sold one class of products within the Global Institutional & Specialty reportable segment which comprised 10% or more of consolidated net sales in the last three years. Sales of warewashing products were approximately 10%, 11%, and 13% of consolidated net sales in 2021, 2020, and 2019, respectively.

***Human Capital***

As of December 31, 2021, Ecolab employed approximately 47,000 employees, including approximately 25,000 sales and service and 1,200 research, development, and engineering employees. Approximately 42% of the employees are employed in North America, 21% in Europe, 8% in Asia Pacific, 18% in Latin America, 4% in India, Middle East and Africa, and 7% in Greater China.

We are committed to developing a culture that is diverse, equitable, inclusive, and fully leverages our employees' talents as we work together to serve the needs of our customers. We believe in providing comprehensive training and career development opportunities and in compensating and rewarding our employees equitably. Our commitment to the safety of our employees, contractors and customers is evident in all we do, from the way we operate, to the products we develop and to the customers we serve. In addition, we are committed to promoting the health and well-being of our employees, our customers, and their customers by contributing to programs and initiatives that enhance the quality of life in the communities where they work and live. In support of these overall objectives, key areas of focus include:

*Diversity, Equity, and Inclusion:* We have a long-standing belief that a diverse, equitable, and inclusive workforce is a critical foundation for the shared success of our employees, our company, our customers, and our communities. To build that strong foundation, we have worked to embed diversity and inclusion throughout all people processes, including recruitment, promotional practices, training and development, and total rewards. To help guide our work and ensure a broad commitment to progress, Ecolab utilizes a Diversity Council made up of senior leaders throughout our company and chaired by our CEO. We review key metrics and practices, including diverse representation, hiring practices, and retention with the Council and with senior executives and business leads monthly. We set diversity goals at or above market availability and require diverse slates for all hiring activity. As a part of our 2030 impact goals, we have committed to the following:

- Committing to the UN Sustainable Development Goal 5: Gender Equality for Women and Girls
- Maintaining Ecolab's pay equity in the U.S. and expanding globally
- Increasing management level gender diversity to 35% with the ultimate goal of gender parity
- Increasing management level ethnic/racial diversity to 25% as we seek to meet full representation of the U.S. workforce at all levels

We have a vibrant and growing community of Employee Resource Groups (ERGs) to help employees connect with colleagues, take part in career and leadership development experiences, and provide important insights in support of advancing our work in diversity, equity, and inclusion. These employee-led ERGs create community and focus across several dimensions of diversity, including gender, race/ethnicity, gender identity, sexual orientation, ability/disability, military service and more. All employees are welcome and encouraged to join, participate or become leaders within any of our 12 ERGs.

*Employee Training and Development:* At our core, Ecolab's growth is rooted in decades of science, learning and innovation. We have ambitious solution-oriented teams and we continually look for ways to help our employees learn and grow. Beyond rigorous technical, functional, and business-specific training courses, our Global Corporate Flagship Development Programs are designed to deepen leadership capability and prepare successors for key leadership roles.

*Safety, Health and Wellness:* At Ecolab, the safety of our employees and contractors is our top priority and is embedded into our company values. Our safety goals are simple: zero accidents, zero injuries and zero violations. We communicate that this is a collective goal all employees commit to, own, and deliver on every day. Our leadership teams and a network of Safety, Health and Environment professionals around the world support employees with proven safety programs, processes, and platforms. Understanding underlying and potential risks is a critical component to improving safety outcomes. Our Global Safety Dashboard tracks our performance on a range of leading and lagging safety indicators and helps us measure the effectiveness of our safety programs.

Additionally, a Be Well Program is available to U.S. employees and their families to empower, educate and support their personal journey to overall well-being by making positive lifestyle choices while creating a culture of wellness throughout Ecolab. Over the last few years, we've expanded our offerings to include comprehensive child and elder caregiver resources to help employees balance the demands of work and personal responsibilities. To ensure the safety of our employees amidst an ongoing COVID-19 pandemic environment, we've continued to help our global employees garner access to vaccines and COVID-19 testing, have provided the option for employees who can do their work remotely to work from home, and have implemented additional safety measures for our employees working in the field and in our plant and warehouse locations.

*Future of Work*: Ecolab is committed to building a best-in-class, thriving work environment for all employees —from those who work in the field serving our customers, to those who work in our manufacturing facilities, to our employees who work in an office environment— our focus extends across all segments of our workforce. The Future of Work at Ecolab will embrace enhanced tools and technology and evolved practices to optimize performance, productivity, and collaboration. As we prepare to welcome more of our employees back to work in our Ecolab offices, we will offer a hybrid work model that balances evolving work practices and norms while preserving the practices we believe are core and fundamental to our success.

For additional detail regarding our Human Capital Management metrics and focus areas, please refer to our website for additional detail regarding our Human Capital Management metrics and focus areas, Diversity, Equity and Inclusion initiatives and other information and metrics, including our latest Corporate Responsibility GRI Report and EEO-1 report.

***Patents and Trademarks***

We own and license a number of patents, trademarks and other intellectual property, including intellectual property from our recent acquisition of Purolite. While we have an active program to protect our intellectual property by filing for patents or trademarks and pursuing legal action, when appropriate, to prevent infringement, except for the items listed below, we do not believe our overall business is materially dependent on any individual patent or trademark.

- Patents related to our TRASAR and 3D TRASAR technology, which are material to our Global Industrial reportable segment. U.S. and foreign patents protect aspects of our key TRASAR and 3D TRASAR technology until at least 2024.

- Trademarks related to Ecolab, Nalco and 3D TRASAR, which collectively are material to all of our reportable segments. The Ecolab, Nalco and 3D TRASAR trademarks are registered or applied for in all of our key markets and we anticipate maintaining them indefinitely.

***Seasonality***

We experience variability in our quarterly operating results due to seasonal sales volume and business mix fluctuations in our operating segments. Part II, Item 8, Note 20, entitled “Quarterly Financial Data” of this Form 10-K is incorporated herein by reference.

***Investments in Equipment***

We have no unusual working capital requirements. We have invested in the past, and will continue to invest in the future, in process control and monitoring equipment consisting primarily of systems used by customers to dispense our products as well as to monitor water systems. The investment in such equipment is discussed under the heading "Investing Activities" in Management's Discussion and Analysis of Financial Condition and Results of Operations of this Form 10-K.

***Manufacturing and Distribution***

We manufacture most of our products and related equipment in Company-operated manufacturing facilities. Some products are also produced for us by third-party contract manufacturers. Other products and equipment are purchased from third-party suppliers. Additional information on product/equipment sourcing is found in the segment discussions above and additional information on our manufacturing facilities is located under Part I, Item 2. “Properties,” of this Form 10-K.

Deliveries to customers are made from our manufacturing plants and a network of distribution centers and third-party logistics service providers. We use common carriers, our own delivery vehicles, and distributors for transport. Additional information on our plant and distribution facilities is located under Part I, Item 2. “Properties,” of this Form 10-K.

***Raw Materials***

Raw materials purchased for use in manufacturing our products are inorganic chemicals, including alkalis, acids, biocides, phosphonates, phosphorous materials, silicates and salts; and organic chemicals, including acids, alcohols, amines, fatty acids, surfactants, solvents, monomers and polymers. Healthcare purchases plastic films and parts to manufacture medical devices that serve the surgical and infection prevention markets. Pesticides used by Pest Elimination are purchased as finished products under contract or purchase order from the producers or their distributors. We also purchase packaging materials for our manufactured products and components for our specialized cleaning equipment and systems. We purchase more than 10,000 raw materials, with the largest single raw material representing less than four percent of raw material purchases. Our raw materials, with the exception of a few specialized chemicals which we manufacture, are generally purchased on an annual contract basis and are ordinarily available in adequate quantities from a diverse group of suppliers globally. We have encountered supply chain disruptions from the impacts of the COVID-19 pandemic which has impacted the availability of certain raw materials; however, we believe this to be short-term in nature. When practical, global sourcing is used so that purchasing or production locations can be shifted to control product costs at globally competitive levels.

***Research and Development***

Our research and development program consists principally of developing and validating the performance of new products, processes, techniques and equipment, improving the efficiency of those already existing, improving service program content, evaluating the environmental compatibility of products and technical support. Key disciplines include analytical and formulation chemistry, microbiology, data science and predictive analytics, process and packaging engineering, digital and remote monitoring engineering and product dispensing technology. Substantially all of our principal products have been developed by our research, development and engineering personnel.

We believe continued research and development activities are critical to maintaining our leadership position within the industry and will provide us with a competitive advantage as we seek additional business with new and existing customers.

***Joint Ventures***

Over time, we have entered into partnerships or joint ventures in order to meet local ownership requirements, to achieve quicker operational scale, to expand our ability to provide our customers a more fully integrated offering or to provide other benefits to our business or customers. During 2021, the impact on our consolidated net income of our joint ventures, in the aggregate, was approximately three percent. We will continue to evaluate the potential for partnerships and joint ventures that can assist us in increasing our geographic, technological and product reach.

***Environmental and Regulatory Considerations***

Our businesses are subject to various legislative enactments and regulations relating to the protection of the environment and public health. While we cooperate with governmental authorities and take commercially practicable measures to meet regulatory requirements and avoid or limit environmental effects, some risks are inherent in our businesses. Among the risks are costs associated with transporting and managing hazardous materials and waste disposal and plant site clean-up, fines and penalties if we are found to be in violation of law, as well as modifications, disruptions or discontinuation of certain operations or types of operations including product recalls and reformulations. Similarly, the need for certain of our products and services is dependent upon or might be limited by governmental laws and regulations. Changes in such laws and regulations, including among others, air, water, chemical and product regulations, could impact the sales of some of our products or services. In addition to an increase in costs of manufacturing and delivering products, a change in production regulations or product regulations could result in interruptions to our business and potentially cause economic or consequential losses should we be unable to meet the demands of our customers for products.

Additionally, although we are not currently aware of any such circumstances, there can be no assurance that future legislation or enforcement policies will not have a material adverse effect on our consolidated results of operations, financial position or cash flows. Environmental and regulatory matters most significant to us are discussed below.

***Ingredient Legislation***: Various laws and regulations have been enacted by state, local and foreign jurisdictions pertaining to the sale of products which contain phosphorous, volatile organic compounds, or other ingredients that may impact human health or the environment. Under California Proposition 65, for example, label disclosures are required for certain products containing chemicals listed by California. Chemical management initiatives that promote pollution prevention through research and development of safer chemicals and safer chemical processes are being advanced by several states.

Environmentally preferable purchasing programs for cleaning products have been enacted in a number of states to date, and in recent years have been considered by several other state legislatures. Cleaning product ingredient disclosure legislation has been introduced in the U.S. Congress in each of the past few years but has not passed, and several states are considering further regulations in this area. In 2017, California passed the Cleaning Product Right to Know Act of 2017, that required ingredient transparency on-line and on-label by 2020 and 2021, respectively. New York has proposed similar ingredient disclosure regulation. The U.S. Government is monitoring “green chemistry” initiatives through a variety of initiatives, including its “Design for the Environment” (“DfE”)/ “Safer Choice” program. DfE/Safer Choice has three broad areas of work (recognition of safer products on a DfE/Safer Choice label, development of best practices for industrial processes and evaluation of safer chemicals), and we are involved in these to varying degrees. Our Global Institutional and Global Industrial cleaning products are subject to the regulations and may incur additional stay-in-market expenses associated with conducting the required alternatives analyses for chemicals of concern. To date, we generally have been able to comply with such legislative requirements by reformulation or labeling modifications. Such legislation has not had a material adverse effect on our consolidated results of operations, financial position or cash flows to date.

***TSCA***: The nation’s primary chemicals management law, the Toxic Substances Control Act (“TSCA”), was updated for the first time in 40 years with the passage of the Frank R. Lautenberg Chemical Safety for the 21st Century Act (“LCSA”) in 2016. The LCSA modernizes the original 1976 legislation, aiming to establish greater public confidence in the safety of chemical substances in commerce, improve the U.S. Environmental Protection Agency’s (“EPA”) capability and authority to regulate existing and new chemical substances, and prevent further state action or other notification programs like REACH (see below). For Ecolab, the TSCA changes mainly impact testing and submission costs for new chemical substances in the United States. In addition, the EPA likely will be more aggressively using the existing TSCA tools to manage chemicals of concern. We anticipate that compliance with new requirements under TSCA could be similar to the costs associated with REACH in the European Union, which is discussed below.

***REACH***: The European Union has enacted a regulatory framework for the Registration, Evaluation and Authorization of Chemicals (“REACH”), which aims to manage chemical safety risks. REACH established a European Chemicals Agency (“ECHA”) in Helsinki, Finland, which is responsible for evaluating data to determine hazards and risks and to manage this program for authorizing chemicals for sale and distribution in Europe. We met all REACH registration requirements. To help manage this program, we have been simplifying our product lines and working with chemical suppliers to comply with registration requirements. In addition, Korea, Taiwan, Turkey and other countries are implementing similar requirements. Potential costs to us are not yet fully quantifiable but are not expected to have a material adverse effect on our consolidated results of operations or cash flows in any one reporting period or on our financial position.

***GHS***: In 2003, the United Nations adopted a standard on hazard communication and labeling of chemical products known as the Globally Harmonized System of Classification and Labeling of Chemicals (“GHS”). GHS is designed to facilitate international trade and increase safe handling and use of hazardous chemicals through a worldwide system that classifies chemicals based on their intrinsic hazards and communicates information about those hazards through standardized product labels and safety data sheets (“SDSs”). Most countries in which we operate adopted GHS-related legislation by 2021. The primary cost of compliance revolves around reclassifying products and revising SDSs and product labels. We have met applicable deadlines and are working toward a phased-in approach to mitigate the costs of GHS implementation in remaining countries (e.g., Peru, Chile, India). Potential costs to us are not expected to have a material adverse effect on our consolidated results of operations or cash flows in any one reporting period or on our financial position.

***Pesticide and Biocide Legislation***: Various international, federal and state environmental laws and regulations govern the manufacture and/or use of pesticides. We manufacture and sell certain disinfecting, sanitizing and material preservation products that kill or reduce microorganisms (bacteria, viruses, fungi) on hard environmental surfaces, in process fluids and on certain food products. Such products constitute “pesticides” or “antimicrobial pesticides” under the current definitions of the Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”), as amended by the Food Quality Protection Act of 1996, the principal federal statute governing the manufacture, labeling, handling and use of pesticides. We maintain several hundred product registrations with the U.S. Environmental Protection Agency (“EPA”). Registration entails the necessity to meet certain efficacy, toxicity and labeling requirements and to pay on-going registration fees. In addition, each state in which these products are sold requires registration and payment of a fee. In general, the states impose no substantive requirements different from those required by FIFRA. However, California and certain other states have adopted additional regulatory programs, and California imposes a tax on total pesticide sales in that state. While the cost of complying with rules as to pesticides has not had a material adverse effect on our consolidated results of operations, financial condition, or cash flows to date, the costs and delays in receiving necessary approvals for these products continue to increase. Total fees paid to the EPA and the states to obtain or maintain pesticide registrations are not expected to significantly affect our consolidated results of operations or cash flows in any one reporting period or our financial position.

In Europe, the Biocidal Products Regulation established a program to evaluate and authorize marketing of biocidal active substances and products. We are working with suppliers and industry groups to manage these requirements and have met all relevant deadlines of the program by the timely submission of dossiers for active substances and biocide products. Anticipated registration costs, which will be incurred through the multi-year phase-in period, will be significant; however, these costs are not expected to significantly affect our consolidated results of operations or cash flows in any one reporting period or our financial position. The same is true for emerging biocide regulations in Asia.

In addition, Pest Elimination applies restricted-use pesticides that it generally purchases from third parties. That business must comply with certain standards pertaining to the use of such pesticides and to the licensing of employees who apply such pesticides. Such regulations are enforced primarily by the states or local jurisdictions in conformity with federal regulations. We have not experienced material difficulties in complying with these requirements.

***FDA Antimicrobial Product Requirements***: Various laws and regulations have been enacted by federal, state, local and foreign jurisdictions regulating certain products manufactured and sold by us for controlling microbial growth on humans, animals and foods. In the United States, these requirements generally are administered by the U.S. Food and Drug Administration ("FDA"). However, the U.S. Department of Agriculture and EPA also may share in regulatory jurisdiction of antimicrobials applied to food. The FDA codifies regulations for these product categories in order to ensure product quality, safety and effectiveness. The FDA also has been expanding requirements applicable to such products, including proposing regulations for over-the-counter antiseptic drug products, which may impose additional requirements associated with antimicrobial hand care products and associated costs when finalized by the FDA. FDA regulations associated with the Food Safety Modernization Act may impose additional requirements related to safety product lines. To date, such requirements have not had a material adverse effect on our consolidated results of operations, financial position or cash flows.

***Medical Device and Drug Product Requirements***: As a manufacturer, distributor and marketer of medical devices and human drugs, we also are subject to regulation by the FDA and corresponding regulatory agencies of the state, local and foreign governments in which we sell our products. These regulations govern the development, testing, manufacturing, packaging, labeling, distribution and marketing of medical devices and medicinal products. We also are required to register with the FDA as a medical device and drug manufacturer, comply with post-market reporting (e.g., Adverse Event Reporting, MDR and Recall) requirements, and to comply with the FDA's current Good Manufacturing Practices and Quality System Regulations which require that we have a quality system for the design and production of our products intended for commercial distribution in the United States and satisfy recordkeeping requirements with respect to our manufacturing, testing and control activities. Countries in the European Union require that certain products being sold within their jurisdictions obtain a “CE mark,” an international symbol of adherence to quality assurance standards, and be manufactured in compliance with certain requirements (e.g., Medical Device Directive 93/42/EE, Medical Device Regulation (EU) 2017/745, and ISO 13485). We have CE mark approval to sell various medical device and medicinal products in Europe. Our other international non-European operations also are subject to government regulation and country-specific rules and regulations. Regulators at the federal, state and local level have imposed, are currently considering and are expected to continue to impose regulations on medical devices and drug products. No prediction can be made of the potential effect of any such future regulations, and there can be no assurance that future legislation or regulations will not increase the costs of our products or prohibit the sale or use of certain products.

***Equipment:*** Ecolab's products are dispensed by equipment that is subject to state and local regulatory requirements, as well as being subject to UL, NSF, and other approval requirements. For certain digitally connected product offerings, Federal Communication Commission ("FCC") and corresponding international requirements are applicable. We have both dedicated manufacturing facilities and third-party production of our equipment. We are developing processes to monitor and manage changing regulatory regimes and assist with equipment systems compliance. To date, such requirements have not had a material adverse effect on our consolidated results of operations, financial position or cash flows.

***Other Environmental Legislation***: Our manufacturing plants are subject to federal, state, local or foreign jurisdiction laws and regulations relating to discharge of hazardous substances into the environment and to the transportation, handling and disposal of such substances. The primary federal statutes that apply to our activities in the United States are the Clean Air Act, the Clean Water Act and the Resource Conservation and Recovery Act. We are also subject to the Superfund Amendments and Reauthorization Act of 1986, which imposes certain reporting requirements as to emissions of hazardous substances into the air, land and water. The products we produce and distribute into Europe are also subject to directives governing electrical waste (WEEE Directive 2012/19/EU) and restrictive substances (RoHS Directive 2011/65/EU). Similar legal requirements apply to Ecolab's facilities globally. We make capital investments and expenditures to comply with environmental laws and regulations, to promote employee safety and to carry out our announced environmental sustainability principles. To date, such expenditures have not had a significant adverse effect on our consolidated results of operations, financial position or cash flows. Our capital expenditures for environmental, health and safety projects worldwide were approximately $28 million in 2021 and $18 million in 2020. Approximately $50 million has been budgeted globally for projects in 2022. The increase in the projected spend reflects a return to historical annual expenditure levels prior to the COVID-19 pandemic.

***Climate Change***: Various laws and regulations pertaining to climate change have been implemented or are being considered for implementation at the international, national, regional and state levels, particularly as they relate to the reduction of greenhouse gas (GHG) emissions. We have not determined that any of these laws directly impact Ecolab at the present time; however, as a matter of corporate policy, we support a balanced approach to reducing GHG emissions while sustaining economic growth.

Furthermore, climate-related risks are assessed within our Enterprise Risk Management process and Annual Business Significance Risks Assessment, which is aligned with recommendations of the Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures (TCFD). We report TCFD disclosures in our annual CDP Climate report located at https://www.ecolab.com/sustainability/sustainability-reporting-resources. We are evaluating further application of the recommendations of the TCFD in alignment with the recommended timeline from the TCFD.

Ecolab recognizes that climate change poses potential risks and creates potential opportunities to our organization. Ecolab has taken steps to further identify and assess the nature and magnitude of these risks and opportunities. Ecolab has been focused on assessing climate risks for the past three years, leading up to our TCFD-aligned climate risk assessment conducted in 2021. We will continue our efforts to assess additional climate-related risks and opportunities including, exploring our supply chain resiliency. Subsequently, Ecolab will review the results of our analysis and develop adaptation and management plans for any relevant climate change risks and to further benefit from identified opportunities for customer impact.

To further bolster our climate commitment, in 2019 we announced new goals to reduce our GHG emissions by half by 2030 and achieve net zero by 2050, in alignment with the United Nations Global Compact's Business Ambition for 1.5ºC. In 2020, we further committed to move to 100% renewable energy by 2030 and set a science-based target (SBT) addressing our Scope 1, 2 and 3 GHG emissions. Our SBT commits us to reduce absolute Scope 1 and 2 emissions by 50% by 2030 from a 2018 base year, and to work with our suppliers representing 70% of our Scope 3 emissions to set science-based reduction targets by 2024.

In addition to managing our operational and supply chain sustainability performance, we partner with customers at more than three million customer locations around the world to reduce energy and GHG emissions through our high-efficiency solutions in cleaning and sanitation, water, paper, and energy services. Showcasing our global team's dedication to helping our customers thrive and make a positive impact in the world, we have set a 2030 goal to help our customers reduce their GHG emissions by 6.0 million metric tons.

Ecolab recognizes the climate-water nexus. As part of our 2030 Impact Goals, we have committed to restore greater than 50% of our water withdrawal and achieve Alliance for Water Stewardship Standard certification in high-risk watersheds. In addition, we aim to reduce net water withdrawals by 40% per unit of production across our enterprise. We also magnify our impact through the water-saving solutions we deliver to our customers, and have set a goal to help our customers conserve more than 300 billion gallons of water annually by 2030.

***Environmental Remediation and Proceedings***: Along with numerous other potentially responsible parties ("PRP"), we are currently involved with waste disposal site clean-up activities imposed by the federal Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") or state equivalents at 19 sites in the United States. Additionally, we have similar liability at three sites outside the United States. In general, under CERCLA, we and each other PRP that actually contributed hazardous substances to a Superfund site are jointly and severally liable for the costs associated with cleaning up the site. Customarily, the PRPs will work with the EPA to agree and implement a plan for site remediation.

Based on an analysis of our experience with such environmental proceedings, our estimated share of all hazardous materials deposited on the sites referred to in the preceding paragraph, and our estimate of the contribution to be made by other PRPs which we believe have the financial ability to pay their shares, we have accrued our best estimate of our probable future costs relating to such known sites. In establishing accruals, potential insurance reimbursements are not included. The accrual is not discounted. It is not feasible to predict when the amounts accrued will be paid due to the uncertainties inherent in the environmental remediation and associated regulatory processes.

We have also been named as a defendant in lawsuits where our products have not caused injuries, but the claimants wish to be monitored for potential future injuries. We cannot predict with certainty the outcome of any such tort claims or the involvement we or our products might have in such matters in the future, and there can be no assurance that the discovery of previously unknown conditions will not require significant expenditures. In each of these chemical exposure cases, our insurance carriers have accepted the claims on our behalf (with or without reservation) and our financial exposure should be limited to the amount of our deductible; however, we cannot predict the number of claims that we may have to defend in the future and we may not be able to continue to maintain such insurance.

We have also been named as a defendant in a number of lawsuits alleging personal injury due to exposure to hazardous substances, including multi-party lawsuits alleging personal injury in connection with our products and services. While we do not believe that any of these suits will be material to us based upon present information, there can be no assurance that these environmental matters could not have, either individually or in the aggregate, a material adverse effect on our consolidated results of operations, financial position or cash flows.

Our worldwide net expenditures for contamination remediation were approximately $0.5 million in 2021 and $0.6 million in 2020. Our worldwide accruals at December 31, 2021 for probable future remediation expenditures, excluding potential insurance reimbursements, totaled approximately $6.0 million. We review our exposure for contamination remediation costs periodically and our accruals are adjusted as considered appropriate. While the final resolution of these issues could result in costs below or above current accruals and, therefore, have an impact on our consolidated financial results in a future reporting period, we believe the ultimate resolution of these matters will not have a material effect on our consolidated results of operations, financial position or cash flows.

## Available Information.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers, including us, that file electronically with the SEC at https://www.sec.gov.

General information about us, including our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as any amendments and exhibits to those reports, are available free of charge through our website at https://investor.ecolab.com as soon as reasonably practicable after we file them with, or furnish them to, the SEC.

In addition, the following governance materials are available on our web site at https://investor.ecolab.com/corporate-governance: (i) charters of the Audit, Compensation, Finance, Governance and Safety, Health and Environment Committees of our Board of Directors; (ii) our Board's Corporate Governance Principles; and (iii) our Code of Conduct.

We include our website addresses throughout this report for reference only. The information contained on our websites, including the corporate responsibility, EEO-1, and climate reports identified in this report, is not incorporated by reference into this report.

## Information about our Executive Officers.

The persons listed in the following table are our current executive officers. Officers are elected annually. There is no family relationship among any of the directors or executive officers and no executive officer has been involved during the past ten years in any legal proceedings described in applicable Securities and Exchange Commission regulations.

| Name | Age | Office | Positions Held Since Jan. 1, 2017 |
|---|---|---|---|
| Douglas M. Baker, Jr. | 63 | Executive Chairman of the Board | Jan. 2021 – Present |
| | | Chairman of the Board and Chief Executive Officer | Jan. 2017 – Dec. 2020 |
| Christophe Beck | 54 | President and Chief Executive Officer | Jan. 2021 – Present |
| | | President and Chief Operating Officer | Apr. 2019 – Dec. 2020 |
| | | Executive Vice President and President – Industrial | May 2018 – Mar. 2019 |
| | | Executive Vice President and President – Global Nalco Water | May 2017 – May 2018 |
| | | Executive Vice President and President – Global Water & Process Services | Jan. 2017 – May 2017 |

| Name | Age | Office | Positions Held Since Jan. 1, 2017 |
|---|---|---|---|
| Larry L. Berger | 61 | Executive Vice President and Chief Technical Officer | Jan. 2017 – Present |
| Jennifer J. Bradway | 45 | Senior Vice President and Corporate Controller<br>Senior Vice President and Controller, Global Institutional<br>Vice President Finance, Institutional North America<br>Vice President and Controller, Institutional U.S.<br>Finance Director, Institutional U.S. Distribution | Jan. 2022 - Present<br>Jan. 2020 – Dec. 2021<br>May 2018 – Dec. 2019<br>Feb. 2017 – Apr. 2018<br>Jan. 2017 – Feb 2017 |
| Darrell R. Brown | 58 | Executive Vice President and President – Global Industrial<br>Executive Vice President and President – Energy Services<br>Executive Vice President, Global Downstream & WellChem<br>Executive Vice President and President – Europe | Apr. 2019 – Present<br>Jan. 2018 – Mar. 2019<br>Apr. 2017 – Dec. 2017<br>Jan. 2017 – Mar. 2017 |
| Angela M. Busch | 55 | Executive Vice President – Corporate Strategy & Business Development<br>Senior Vice President – Corporate Development | Aug. 2018 – Present<br>Jan. 2017 – Aug. 2018 |
| Alexander A. De Boo | 54 | Executive Vice President and President – Global Markets<br>Executive Vice President and President – Western Europe<br>Senior Vice President and General Manager – Industrial, Europe<br>Senior Vice President and General Manager – Food & Beverage, Europe<br>Vice President and General Manager – Textile Care, Europe | Feb. 2021 - Present<br>Apr. 2020 – Jan. 2021<br>Oct. 2018 – Apr. 2020<br>June 2017 – Oct. 2018<br>Jan. 2017 – June 2017 |
| Machiel Duijser (1) | 50 | Executive Vice President and Chief Supply Chain Officer | Feb. 2020 – Present |
| Scott D. Kirkland | 48 | Chief Financial Officer<br>Senior Vice President and Corporate Controller<br>Senior Vice President – Finance, Global Energy Services | Jan. 2022 – Present<br>June 2019 – Dec. 2021<br>Jan. 2017 – May 2019 |
| Laurie M. Marsh | 58 | Executive Vice President – Human Resources | Jan. 2017 – Present |
| Michael C. McCormick | 59 | Executive Vice President, General Counsel and Secretary<br>Executive Vice President, General Counsel and Assistant Secretary<br>Chief Compliance Officer, Deputy General Counsel and Assistant Secretary | Oct. 2017 – Present<br>Mar. 2017 – Sep. 2017<br>Jan. 2017 – Feb. 2017 |
| Timothy P. Mulhere | 59 | Executive Vice President and President – Global Institutional & Specialty Services<br>Executive Vice President and President – Global Institutional<br>Executive Vice President and President – Regions | Jan. 2020 – Present<br>July 2018 – Jan. 2020<br>Jan. 2017 – June 2018 |
| Gail Peterson | 43 | Senior Vice President – Global Marketing & Communications<br>Vice President – Marketing Global Healthcare<br>Vice President – Corporate Strategy | Jan. 2021 – Present<br>July 2017 – Dec. 2020<br>Jan. 2017 – June 2017 |
| Elizabeth A. Simermeyer | 57 | Executive Vice President and President – Global Healthcare and Life Sciences<br>Executive Vice President – Global Marketing & Communications and Life Sciences | Dec. 2019 – Present<br>Jan. 2017– Dec. 2019 |

(1) Prior to joining Ecolab in February 2020, Mr. Duijser was employed by Reckitt Benckiser Group plc (RB), a global provider of health, hygiene and home products, as Chief Supply Officer since November 2018. Mr. Duijser joined RB from Amazon.com, Inc., a global service provider for e-commerce, cloud computing, digital streaming, and artificial intelligence, where he served as Vice President Worldwide Engineering from 2017 to 2018.

## Forward-Looking Statements

This Form 10-K, including Part I, Item 1, entitled "Business," and the MD&A within Part II, Item 7, contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements include expectations concerning items such as:

- amount, funding and timing of cash expenditures relating to our restructuring and other initiatives, as well as savings from such initiatives
- future cash flows, access to capital, targeted credit rating metrics and impact of credit rating downgrade
- adequacy of cash reserves
- uses for cash, including dividends, share repurchases, debt repayments, capital investments and strategic business acquisitions
- global market risk
- long-term potential of our business
- impact of changes in exchange rates and interest rates
- customer retention rate
- bad debt experience, non-performance of counterparties and losses due to concentration of credit risk
- disputes, claims and litigation
- environmental contingencies
- impact and cost of complying with laws and regulations
- sustainability and human capital targets
- returns on pension plan assets
- contributions to pension and postretirement healthcare plans
- amortization expense
- impact of new accounting pronouncements
- income taxes, including tax attributes, valuation allowances, uncertain tax positions, permanent reinvestment assertions and goodwill deductibility
- recognition of share-based compensation expense
- payments under operating leases
- future benefit plan payments
- market position
- the impact of the Covid-19 pandemic, including global economic recovery, supply shortages, inflation and delivered product costs

Without limiting the foregoing, words or phrases such as "will likely result," "are expected to," "will be," "will continue," "is anticipated," "we believe," "we expect," "estimate," "project" (including the negative or variations thereof), "intends," "could," or similar terminology, generally identify forward-looking statements. Forward-looking statements may also represent challenging goals for us. These statements, which represent our expectations or beliefs concerning various future events, are based on current expectations that involve a number of risks and uncertainties that could cause actual results to differ materially from those of such forward-looking statements. We caution that undue reliance should not be placed on such forward-looking statements, which speak only as of the date made. For a further discussion of these and other factors which could cause results to differ from those expressed in any forward-looking statement, see Item 1A of this Form 10-K, entitled "Risk Factors." Except as may be required under applicable law, we undertake no duty to update our forward-looking statements.

## Item 1A. Risk Factors.

The following are important factors which could affect our financial performance and could cause our actual results for future periods to differ materially from our anticipated results or other expectations, including those expressed in any forward-looking statements made in this Form 10-K. See the section entitled "Forward-Looking Statements" set forth above.

We may also refer to this disclosure to identify factors that may cause results to differ materially from those expressed in other forward-looking statements including those made in oral presentations, including telephone conferences and/or webcasts open to the public.

### Economic & Operational Risks

***The COVID-19 pandemic and measures taken in response thereto have materially and adversely impacted, and we expect may continue to materially and adversely impact, our business and results of operations, and the full impact of the pandemic will depend on future developments, which are highly uncertain and cannot be predicted.***

Beginning in March 2020, the COVID-19 pandemic had a rapid and significant negative impact on the global economy, including a significant downturn in the foodservice, hospitality and travel industries. Measures taken to alleviate the pandemic (such as stay-at-home orders and other responsive measures) significantly impacted our restaurant and hospitality customers and negatively affected demand for our products and services in these segments, resulting in a material adverse effect on our business and results of operations. While many of these measures eased through the third quarter of 2021 driving increased consumer traffic and in-unit dining, the spread of COVID-19 variants resulted in restrictions on activities in the fourth quarter, particularly in geographies where vaccination rates lag, continuing to impact consumer activity. Concerns remain that our markets could see a prolonged resurgence of cases triggering additional government mandated lockdowns or similar restrictions. In addition, the COVID-19 pandemic continues to have a material effect on the macroeconomic environment, including significant supply chain disruptions resulting from labor shortages, disruptions to logistics networks and capacity constraints, and there is continued uncertainty around its duration and ultimate impact.

We expect the full impact of the COVID-19 pandemic, including the extent of its effect on our business, results of operations and financial condition, to be dictated by future developments which remain uncertain and cannot be predicted, such as the severity of the disease, the duration of the outbreak, the distribution, acceptance and efficacy of vaccines, the likelihood of a resurgence of the outbreak, including as a result of emerging variants, actions that may be taken by governmental authorities intended to minimize the spread of the pandemic or to stimulate the economy and other unintended consequences. In addition to the reduction in the demand for our products and services, the COVID-19 pandemic has had, and we expect will continue to have, certain negative impacts on our business, including, but not limited to, the following:

- We rely on a global workforce and take measures to protect the health and safety of our employees, customers and others with whom we do business while continuing to effectively manage our employees and maintain business operations. We have taken additional measures and incurred additional expenses to protect the health and safety of our employees to comply with applicable government requirements and safety guidance. Additionally, our business operations may be disrupted if a significant portion of our workforce is unable to work safely and effectively due to illness, quarantines, government actions or other restrictions or measures responsive to the pandemic, or if members of senior management or our Board of Directors are unable to perform their duties for an extended period of time. A significant outbreak in one of our manufacturing facilities could adversely impact our ability to make and ship products in a timely manner. Measures taken across our business operations to address health and safety may not be sufficient to prevent the spread of COVID-19 among our employee base, customers and others. Therefore, we could face operational disruptions and incur additional expenses, including devoting additional resources to assisting employees diagnosed with COVID-19 and further changing health and safety protocols and processes, that could adversely affect our business and results of operations.

- A significant number of our employees, as well as customers and others with whom we do business, continue to work remotely in response to the COVID-19 pandemic. Our business operations may be disrupted, and we may experience increased risk of adverse effects to our business, if our business operations are negatively impacted as a result of remote work arrangements, including due to cybersecurity risks or other disruption to our technology infrastructure. Further, if our key operating facilities experience closures or worker shortages as a result of COVID-19, whether temporary or sustained, our business operations could be significantly disrupted.

- We are subject to the mandatory vaccination and workplace safety protocols of Executive Order 14042 issued on September 9, 2021 and subsequent guidance issued thereunder by the Safer Federal Workforce Task Force. The Executive Order is currently stayed pending judicial review. This mandate, if enforceable, applies broadly to require covered federal contractor employees on covered contracts, those who perform duties in connection with a covered contract, and those working at the same workplace as covered employees, to be fully vaccinated for COVID-19, except for those that are legally entitled to an accommodation under applicable law. We may similarly be required to flow-down our obligations to certain of our subcontractors and suppliers. If it survives court challenge, the guidance remains subject to the interpretation of various government agencies and other entities, and questions remain regarding the specific application of the Executive Order and related guidance. As a result, if our understanding of its application to our workforce differs from our federal customers' interpretation, or, despite our strong employee vaccination efforts, enough of our covered employees are unwilling to comply with the mandate, we may experience increased costs, business disruptions and attrition as a result of the mandate. Additionally, we may be subject to potential breach of contract claims, loss of business and assessment of fines if we or our affected subcontractors and suppliers are not able to fully comply in the time frame provided or if such subcontractors and suppliers choose to terminate their contract rather than comply.

- Cost management and various cost-containment actions implemented across our business in response to the COVID-19 pandemic could hinder execution of our business strategy, including the deferral of planned capital expenditures, and could adversely affect our business and results of operations.
- We believe that we appropriately reserve for expected credit losses; however, we cannot be certain that loss or delay in the collection of accounts receivable will not have a material adverse effect on our results of operations and financial condition.

***Our results could be materially and adversely affected by difficulties in securing the supply of certain raw materials or by fluctuations in the cost of raw materials.***

The prices of raw materials used in our business fluctuate, and in recent years we have experienced periods of significant increased raw material costs. Changes in raw material prices, unavailability of adequate and reasonably priced raw materials or substitutes for those raw materials, or the inability to obtain or renew supply agreements on favorable terms has materially and adversely affected our business and can in the future materially and adversely affect our consolidated results of operations, financial position or cash flows. In addition, volatility and disruption in economic activity and conditions could disrupt or delay the performance of our suppliers and thus impact our ability to obtain raw materials at favorable prices or on favorable terms, which may materially and adversely affect our business.

***Our results depend upon the continued vitality of the markets we serve.***

Economic downturns, and in particular downturns in our larger markets including the foodservice, hospitality, travel, health care, food processing, refining, pulp and paper, mining and steel industries, can adversely impact our end-users. The last two years we have experienced the negative impact of the COVID-19 pandemic on the demand for our products and services provided to customers in the full-service restaurant, hospitality, lodging and entertainment industries. In prior years, the weaker global economic environment, particularly in Europe, has also negatively impacted certain of our end-markets. During these periods of weaker economic activity, our customers and potential customers may reduce or discontinue their volume of purchases of cleaning and sanitizing products and water treatment and process chemicals, which has had, and may continue to have, a material adverse effect on our business, financial condition, results of operation or cash flows.

***Our results are impacted by general worldwide economic factors.***

Economic factors such as the worldwide economy, capital flows, interest rates and currency movements, including, in particular, our exposure to foreign currency risk, have affected our business in the past and may have a material adverse impact on our business in the future. For example, COVID-19 has impacted global supply chains for most products, as well as led to disruption and volatility in global capital markets, which increases the cost of capital and could potentially adversely impact access to capital. COVID-19 has caused similar volatility in foreign currency markets, increasing risk of unfavorable impacts on earnings due to significant FX rate movements. Recent political and economic upheaval in countries with Ecolab operations, such as Russia, Turkey, and Argentina, could also have a material adverse impact on our consolidated results of operations, financial position and cash flows by negatively impacting economic activity, including in our key end-markets, and by further weakening the local currency versus the U.S. dollar, resulting in reduced sales and earnings from our foreign operations, which are generated in the local currency, and then translated to U.S. dollars.

***We are subject to information technology system failures, network disruptions and breaches in data security.***

We rely to a large extent upon information technology systems and infrastructure to operate our business. The size and complexity of our information technology systems make them vulnerable to failure, malicious intrusion and random attack. Acquisitions have resulted in further de-centralization of systems and additional complexity in our systems infrastructure. Likewise, data security breaches by employees or others with permitted access to our systems pose a risk that sensitive data may be exposed to unauthorized persons or to the public. While we have invested in protection of data and information technology, we have experienced immaterial cybersecurity attacks and incidents, and there can be no assurance that our efforts will prevent failures, cybersecurity attacks or breaches in our systems that could cause reputational damage, business disruption or legal and regulatory costs; could result in third-party claims; could result in compromise or misappropriation of our intellectual property, trade secrets or sensitive information; or could otherwise adversely affect our business. Certain of our customer offerings include digital components, such as remote monitoring of certain customer operations. A breach of those remote monitoring systems could expose customer data giving rise to potential third-party claims and reputational damage. There may be other related challenges and risks as we complete implementation of our ERP system upgrade.

***We depend on key personnel to lead our business; the labor market is very dynamic in the wake of the Covid-19 pandemic.***

Our continued success will largely depend on our ability to attract, retain and develop a high caliber of talent and on the efforts and abilities of our executive officers and certain other key employees, particularly those with sales and sales management responsibilities to drive business growth, development and profitability. As we continue to grow our business, make acquisitions, expand our geographic scope and offer new products and services, we need the organizational talent necessary to ensure effective succession for executive officer and key employee roles in order to meet the growth, development and profitability goals of our business. Our operations could be materially and adversely affected if for any reason we were unable to attract, retain or develop such officers or key employees and successfully execute organizational change and management transitions at leadership levels. More generally, in the wake of the COVID-19 pandemic, expectations from qualified talent in many areas of the labor market have evolved. In light of this, if we are unable to attract and retain employees on terms and conditions that are consistent with our historical operating model, our business could be disrupted or our costs could increase, which may materially and adversely affect our business.

***Our significant non-U.S. operations expose us to global economic, political and legal risks that could impact our profitability.***

We have significant operations outside the United States, including joint ventures and other alliances. We conduct business in approximately 170 countries and, in 2021, approximately 48% of our net sales originated outside the United States. There are inherent risks in our international operations, including:

- exchange controls and currency restrictions;
- currency fluctuations and devaluations;
- tariffs and trade barriers;
- export duties and quotas;
- changes in the availability and pricing of raw materials, energy and utilities;
- changes in local economic conditions;
- changes in laws and regulations, including the imposition of economic or trade sanctions affecting international commercial transactions;
- impact from Brexit and the possibility of similar events in other EU member states;
- difficulties in managing international operations and the burden of complying with international and foreign laws;
- requirements to include local ownership or management in our business;
- economic and business objectives that differ from those of our joint venture partners;
- exposure to possible expropriation, nationalization or other government actions;
- restrictions on our ability to repatriate dividends from our subsidiaries;
- unsettled political conditions, military action, civil unrest, acts of terrorism, force majeure, war or other armed conflict; and
- countries whose governments have been hostile to U.S.-based businesses.

Changes in U.S. or foreign government policy on international trade, including the imposition or continuation of tariffs, could materially and adversely affect our business. In 2018, the U.S. imposed tariffs on certain imports from China and other countries, resulting in retaliatory tariffs by China and other countries. While the U.S. and China signed a Phase One trade agreement in January 2020, which included the suspension and rollback of tariffs, the U.S. Senate subsequently passed legislation in 2021 aimed at countering China's technical ambitions and similar legislation was introduced in the House in 2022. Any new tariffs imposed by the U.S., China or other countries or any additional retaliatory measures by any of these countries, could increase our costs, reduce our sales and earnings or otherwise have an adverse effect on our operations.

Also, because of uncertainties regarding the interpretation and application of laws and regulations and the enforceability of intellectual property and contract rights, we face risks in some countries that our intellectual property rights and contract rights would not be enforced by local governments. We are also periodically faced with the risk of economic uncertainty, which has impacted our business in some countries. Other risks in international business also include difficulties in staffing and managing local operations, including managing credit risk to local customers and distributors.

Further, our operations outside the United States require us to comply with a number of United States and non-U.S. laws and regulations, including anti-corruption laws such as the United States Foreign Corrupt Practices Act and the United Kingdom Bribery Act, as well as U.S. and non-U.S. economic sanctions regulations. We have internal policies and procedures relating to such laws and regulations; however, there is risk that such policies and procedures will not always protect us from the misconduct or reckless acts of employees or representatives, particularly in the case of recently acquired operations that may not have significant training in applicable compliance policies and procedures. Violations of such laws and regulations could result in disruptive investigations, significant fines and sanctions, which could have a material adverse effect on our consolidated results of operations, financial position or cash flows. In February 2022, following Russia's invasion of Ukraine, the U.S. and other countries announced sanctions against Russia. The sanctions announced by the U.S. and other countries against Russia to date include restrictions on selling or importing goods, services or technology in or from affected regions, travel bans and asset freezes impacting connected individuals and political, military, business and financial organizations in Russia, severing Russia's largest bank from the U.S. financial system, barring some Russian enterprises from raising money in the U.S. market and blocking the access of Russian banks to financial markets. The U.S. and other countries could impose wider sanctions and take other actions should the conflict further escalate. While it is difficult to anticipate the impact the sanctions announced to date may have on Ecolab, any further sanctions imposed or actions taken by the U.S. or other countries, and any retaliatory measures by Russia in response, such as restrictions on energy supplies from Russia to countries in the region, could increase our costs, reduce our sales and earnings or otherwise have an adverse effect on our operations.

Our overall success as a global business depends, in part, upon our ability to succeed in differing economic, social, legal and political conditions. We may not continue to succeed in developing and implementing policies and strategies that are effective in each location where we do business, which could have a material adverse effect on our consolidated results of operations, financial position or cash flows.

***Severe public health outbreaks may materially and adversely impact our business.***

Our business could be adversely affected by the effect of a public health epidemic. Besides the COVID-19 pandemic, the United States and other countries have experienced, and may experience in the future, public health outbreaks such as Zika virus, Avian Flu, SARS and H1N1 influenza. A prolonged occurrence of a contagious disease such as these could result in a significant downturn in the foodservice, hospitality and travel industries and also may result in health or other government authorities imposing restrictions on travel further impacting our end markets. Any of these events could result in a significant drop in demand for some of our products and services and materially and adversely affect our business. Uncertainty with respect to the impact on our financial results of the COVID-19 pandemic is discussed further in Management Discussion & Analysis located at Part II, Item 7, of this form 10-K under the heading "Global Economic and Political Environment."

## Strategic Risks

***If we are unsuccessful in executing on key business initiatives, including restructurings and our Enterprise Resource Planning ("ERP") system upgrades, our business could be materially and adversely affected***.

We continue to execute key business initiatives, including restructurings and investments to develop business systems, as part of our ongoing efforts to improve our efficiency and returns. In particular, we are undertaking the Institutional Advancement Program and Accelerate 2020 plan to simplify and automate processes and tasks, reduce complexity and management layers, consolidate facilities and focus on key long term growth areas by leveraging technology and structural improvements as discussed under Note 3 entitled "Special (Gains) and Charges" of this Form 10-K. Additionally, we are continuing implementation of our ERP system upgrades, which are expected to continue in phases over the next several years. These upgrades, which include sales, supply chain and certain finance functions, are expected to improve the efficiency of certain financial and related transactional processes. These upgrades involve complex business process design and a failure of certain of these processes could result in business disruption. If the projects in which we are investing or the initiatives which we are pursuing are not successfully executed, our consolidated results of operations, financial position or cash flows could materially and adversely be affected.

***Our growth depends upon our ability to compete successfully with respect to value, innovation and customer support.***

We have numerous global, national, regional and local competitors. Our ability to compete depends in part on providing high quality and high value-added products, technology and service. We must also continue to identify, develop and commercialize innovative, profitable and high value-added products for niche applications and commercial digital applications. We have made significant investments in commercial digital product offerings, and our culture and expertise must continue to evolve to develop, support and profitably deploy commercial digital offerings, which are becoming an increasingly important part of our business. There can be no assurance that we will be able to accomplish our technology development goals or that technological developments by our competitors will not place certain of our products, technology or services at a competitive disadvantage in the future. In addition, certain of the new products that we have under development will be offered in markets in which we do not currently compete, and there can be no assurance that we will be able to compete successfully in those new markets. If we fail to introduce new technologies or commercialize our digital offerings on a timely and profitable basis, we may lose market share and our consolidated results of operations, financial position or cash flows could be materially and adversely affected.

***Consolidation of our customers and vendors could materially and adversely affect our results.***

Customers and vendors in the foodservice, hospitality, travel, healthcare, energy, life sciences, food processing and pulp and paper industries, as well as other industries we serve, have consolidated in recent years and that trend may continue. This consolidation could have a material adverse impact on our ability to retain customers and on our pricing, margins and consolidated results of operations.

***We enter into multi-year contracts with customers that could impact our results.***

Our multi-year contracts with some of our customers include terms affecting our pricing flexibility. There can be no assurance that these restraints will not have a material adverse impact on our margins and consolidated results of operations.

***We may not realize the anticipated benefits of the Purolite acquisition.***

We recently acquired Purolite, which operates in the highly regulated life sciences, pharma and biopharma industries and has extensive international operations which complicate integration execution. If we have difficulty integrating Purolite operations or lose key employees or customers, our business could be materially and adversely affected.

***If we are unsuccessful in integrating acquisitions, our business could be materially and adversely affected***.

As part of our long-term strategy, we seek to acquire complementary businesses. There can be no assurance that we will find attractive acquisition candidates or succeed at effectively managing the integration of acquired businesses into existing businesses. If the underlying business performance of such acquired businesses deteriorates, the expected synergies from such transactions do not materialize or we fail to successfully integrate new businesses into our existing businesses, our consolidated results of operations, financial position or cash flows could be materially and adversely affected.

## Legal, Regulatory & Compliance Risks

***Our business depends on our ability to comply with laws and governmental regulations and meet our contractual commitments and failure to do so could materially and adversely impact our business; and we may be materially and adversely affected by changes in laws and regulations*.**

Our business is subject to numerous laws and regulations relating to the environment, including evolving climate change standards, and to the manufacture, storage, distribution, sale and use of our products as well as to the conduct of our business generally, including employment and labor laws and anti-corruption laws. Compliance with these laws and regulations exposes us to potential financial liability and increases our operating costs. A violation of these laws and regulations could expose us to financial liability that may have a material adverse effect on our results of operations and cash flows. Regulation of our products and operations continues to increase with more stringent standards, causing increased costs of operations and potential for liability if a violation occurs. The potential cost to us relating to environmental and product registration laws and regulations is uncertain due to factors such as the unknown magnitude and type of possible contamination and clean-up costs, the complexity and evolving nature of laws and regulations, and the timing and expense of compliance. Changes to current laws (including tax laws), regulations and policies could impose new restrictions, costs or prohibitions on our current practices which would have a material adverse effect on our consolidated results of operations, financial position or cash flows. Changes to labor and employment laws and regulations, as well as related rulings by courts and administrative bodies, could materially and adversely affect our operations and expose us to potential financial liability.

Defense of litigation, particularly certain types of actions such as antitrust, patent infringement, personal injury, product liability, breach of contract, wage hour and class action lawsuits, can be costly and time consuming even if ultimately successful, and if not successful could have a material adverse effect on our consolidated results of operations, financial position or cash flows.

***A chemical spill or release could materially and adversely impact our business.***

As a manufacturer and supplier of chemical products, there is a potential for chemicals to be accidentally spilled, released or discharged, either in liquid or gaseous form, during production, transportation, storage or use. Such a release could result in environmental contamination as well as a human or animal health hazard. Accordingly, such a release could have a material adverse effect on our consolidated results of operations, financial position or cash flows.

***Potential indemnification liabilities pursuant to the separation and split-off of our Upstream Energy business could materially and adversely affect our business and financial statements.***

With respect to the separation and subsequent split-off of our Upstream Energy business, we entered into a separation and distribution agreement with ChampionX Holding Inc. and ChampionX Corporation (f/k/a Apergy Corporation and taken together with ChampionX Holding Inc., “ChampionX”) as well as certain other agreements to govern the separation and related transactions and our relationship with ChampionX going forward. These agreements provide for specific indemnity and certain other obligations of each party and could lead to disputes between ChampionX and us. If we are required to indemnify ChampionX under the circumstances set forth in these agreements, we may be subject to substantial related liabilities. In addition, with respect to the liabilities for which ChampionX has agreed to indemnify us under these agreements, there can be no assurance that the indemnity rights we have against ChampionX will be sufficient to protect us against the full amount of such liabilities, or that ChampionX will be able to fully satisfy its indemnification obligations. Each of these risks could negatively affect our business and our consolidated results of operations, financial position or cash flows could be materially and adversely affected.

***Extraordinary events may significantly impact our business.***

The occurrence of (a) litigation or claims, (b) the loss or insolvency of a major customer or distributor, (c) repeated or prolonged federal government shutdowns or similar events, (d) war (including acts of terrorism or hostilities which impact our markets), (e) natural or manmade disasters, (f) water shortages or (g) severe weather conditions affecting our operations or the energy, foodservice, hospitality and travel industries may have a material adverse effect on our business.

While we have a diverse customer base and no customer or distributor constitutes 10 percent or more of our consolidated revenues, we do have customers and independent, third-party distributors, the loss of which could have a material adverse effect on our consolidated results of operations or cash flows for the affected earnings periods.

Government shutdowns can have a material adverse effect on our consolidated results of operations or cash flows by disrupting or delaying new product launches, renewals of registrations for existing products and receipt of import or export licenses for raw materials or products.

War (including acts of terrorism or hostilities), natural or manmade disasters, water shortages or severe weather conditions affecting the energy, foodservice, hospitality, travel, health care, food processing, pulp and paper, mining, steel and other industries can cause a downturn in the business of our customers, which in turn can have a material adverse effect on our consolidated results of operations, financial position or cash flows. In particular, the U.S. Gulf Coast is a region with significant refining, petrochemicals and chemicals operations which provide us raw materials, as well as being an important customer base for our Downstream and Water operating segments. Hurricanes or other severe weather events impacting the Gulf Coast, such as the winter freeze in Texas and the Gulf Coast in February 2021, can materially and adversely affect our ability to obtain raw materials at reasonable cost, or at all, and could adversely affect our business with our customers in the region.

## Financial Risks

***If the separation and split-off of our Upstream Energy business or certain internal transactions undertaken in anticipation of the divestiture are determined to be taxable in whole or in part, we and our stockholders may incur significant tax liabilities.***

In connection with the separation and split-off of our Upstream Energy business that was consummated on June 3, 2020, we obtained opinions of outside tax counsel that the related merger and exchange offer will qualify as tax-free transactions to us and our stockholders, except to the extent that cash was paid to Ecolab stockholders in lieu of fractional shares. We have not sought or obtained a ruling from the Internal Revenue Service (IRS) on the tax consequences of these transactions. An opinion of counsel is not binding on the IRS or the courts, which may disagree with the opinion. Even if the merger and exchange offer otherwise qualified as tax-free transactions, they may become taxable to us if certain events occur that affect either Ecolab or ChampionX Corporation. While ChampionX Corporation has agreed not to take certain actions that could cause the transactions not to qualify as tax-free transactions and is generally obligated to indemnify us against any tax consequences if it breaches this agreement, the potential tax liabilities could have a material adverse effect on us if we were not entitled to indemnification or if the indemnification obligations were not fulfilled. If the merger or exchange offer were determined to be taxable, we could be subject to a substantial tax liability, and each U.S. holder of our common stock who participated in the exchange offer could be treated as exchanging the Ecolab shares surrendered for ChampionX Corporation shares in a taxable transaction.

***Changes in tax laws and unanticipated tax liabilities could materially and adversely affect the taxes we pay and our profitability.***

We are subject to income and other taxes in the United States and foreign jurisdictions, and our operations, plans and results are affected by tax and other initiatives around the world. In particular, we are affected by the impact of changes to tax laws or related authoritative interpretations in the United States. While the ultimate adoption of new tax legislation is uncertain, it is possible that any such legislation may include increases to the tax rates at which income of U.S. companies would be taxed. We are also subject to changes in tax law outside the United States and actions taken with respect to tax-related matters by associations such as the Organization for Economic Co-operation and Development ("OECD"), which represents a coalition of member countries, and the European Commission which influence tax policies in countries where we operate. For example, approximately 140 countries have agreed to the OECD's two-pillar base erosion and profit shifting project ("BEPS"). This framework, which is expected to be implemented in some countries beginning in 2023, is focused on a number of issues, including shifting taxing rights on income from residence countries to source countries and establishing a minimum 15% global tax rate. Some of the BEPS and related proposals, if enacted into law in the United States and in the foreign countries where we do business, could increase the burden and costs of our tax compliance, the amount of taxes we incur in those jurisdictions and our global effective tax rate. In addition, we are impacted by settlements of pending or any future adjustments proposed by the IRS or other taxing authorities in connection with our tax audits, all of which will depend on their timing, nature and scope. Increases in income tax rates, changes in income tax laws or unfavorable resolution of tax matters could have a material adverse impact on our financial results.

***Future events may impact our deferred tax position, including the utilization of foreign tax credits and undistributed earnings of international affiliates that are considered to be reinvested indefinitely.***

We evaluate the recoverability of deferred tax assets and the need for deferred tax liabilities based on available evidence. This process involves significant management judgment about assumptions that are subject to change from period to period based on changes in tax laws or variances between future projected operating performance and actual results. We are required to establish a valuation allowance for deferred tax assets if we determine, based on available evidence at the time the determination is made, that it is more likely than not that some portion or all of the deferred tax assets will not be realized. In making this determination, we evaluate all positive and negative evidence as of the end of each reporting period. Future adjustments (either increases or decreases), to the deferred tax asset valuation allowance are determined based upon changes in the expected realization of the net deferred tax assets. The realization of the deferred tax assets ultimately depends on the existence of sufficient taxable income in either the carry-back or carry-forward periods under the tax law. Due to significant estimates used to establish the valuation allowance and the potential for changes in facts and circumstances, it is reasonably possible that we will be required to record adjustments to the valuation allowance in future reporting periods. Changes to the valuation allowance or the amount of deferred tax liabilities could have a material adverse effect on our consolidated results of operations or financial position. Further, should we change our assertion regarding the permanent reinvestment of the undistributed earnings of international affiliates, a deferred tax liability may need to be established.

***Our indebtedness may limit our operations and our use of our cash flow, and any failure to comply with the covenants that apply to our indebtedness could materially and adversely affect our liquidity and financial statements.***

As of December 31, 2021, we had approximately $8.8 billion in outstanding indebtedness, with approximately $1.7 billion in the form of floating rate debt. Our debt level and related debt service obligations may have negative consequences, including:

- requiring us to dedicate significant cash flow from operations to the payment of principal and interest on our debt, which reduces the funds we have available for other purposes such as acquisitions and capital investment;
- reducing our flexibility in planning for or reacting to changes in our business and market conditions;
- exposing us to interest rate risk since a portion of our debt obligations are at variable rates. For example, a one percentage point increase in the average interest rate on our floating rate debt at December 31, 2021 would increase future interest expense by approximately $17 million per year; and

- increasing our cost of funds and materially and adversely affecting our liquidity and access to the capital markets should we fail to maintain the credit ratings assigned to us by independent rating agencies.

If we add new debt, the risks described above could increase.

***We incur significant expenses related to the amortization of intangible assets and may be required to report losses resulting from the impairment of goodwill or other assets recorded in connection with the Nalco transaction and other acquisitions.***

We expect to continue to complete selected acquisitions and joint venture transactions in the future. In connection with acquisition and joint venture transactions, applicable accounting rules generally require the tangible and intangible assets of the acquired business to be recorded on the balance sheet of the acquiring company at their fair values. Intangible assets other than goodwill are required to be amortized over their estimated useful lives and this expense may be significant. Any excess in the purchase price paid by the acquiring company over the fair value of tangible and intangible assets of the acquired business is recorded as goodwill. If it is later determined that the anticipated future cash flows from the acquired business may be less than the carrying values of the assets and goodwill of the acquired business, the assets or goodwill may be deemed to be impaired. In this case, the acquiring company may be required under applicable accounting rules to write down the value of the assets or goodwill on its balance sheet to reflect the extent of the impairment. This write-down of assets or goodwill is generally recognized as a non-cash expense in the statement of operations of the acquiring company for the accounting period during which the write down occurs. As of December 31, 2021, we had goodwill of $8.1 billion which is maintained in various reporting units, including goodwill from the Nalco and Purolite transactions. If we determine that any of the assets or goodwill recorded in connection with the Nalco transaction or any other prior or future acquisitions or joint venture transactions have become impaired, we will be required to record a loss resulting from the impairment. Impairment losses could be significant and could have a material adverse effect on our consolidated results of operations and financial position.

## Item 1B. Unresolved Staff Comments.

We have no unresolved comments from the staff of the Securities and Exchange Commission.

## Item 2. Properties.

Our manufacturing philosophy is to manufacture products wherever an economic, process or quality assurance advantage exists or where proprietary manufacturing techniques dictate in-house production. Currently, most products that we sell are manufactured at our facilities. We position our manufacturing locations and warehouses in a manner to permit ready access to our customers.

Our manufacturing facilities produce chemical products as well as medical devices and equipment for all of our operating segments, although Pest Elimination purchases the majority of their products and equipment from outside suppliers. Our chemical production process consists of blending purchased raw materials into finished products in powder, liquid, and solid form. Additionally, intermediates from reaction chemistries are used in some of the blends and are also packaged directly into finished goods. Our devices and equipment manufacturing operations consist of producing chemical product dispensers and injectors and other mechanical equipment, medical devices, dishwasher racks, related sundries, dish machine refurbishment and water monitoring and maintenance equipment system from purchased components and subassemblies.

The following table profiles our more significant physical properties with approximately 70,000 square feet or more with ongoing production activities, as well as certain other facilities important in terms of specialization and sources of supply. In general, manufacturing facilities located in the United States serve our U.S. markets and facilities located outside of the United States serve our international markets. However, most of the United States facilities do manufacture products for export.

**PLANT PROFILES**

| Location | Approximate Size (Sq. Ft.) | Segment | Majority Owned or Leased |
|---|---|---|---|
| Joliet, IL USA | 610,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Asheville, NC USA | 478,000 | Global Industrial, Global Healthcare & Life Sciences | Leased |
| Tai Cang, CHINA | 468,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Hongzhou, CHINA | 430,125 | Global Healthcare & Life Sciences | Owned |
| Sainghin, FRANCE | 360,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Mandras, GREECE | 355,435 | Global Industrial, Global Healthcare & Life Sciences | Owned |
| Victoria, ROMANIA | 343,605 | Global Healthcare & Life Sciences | Owned |

| Location | Approximate Size (Sq. Ft.) | Segment | Majority Owned or Leased |
|---|---|---|---|
| South Beloit, IL USA | 313,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences, Other | Owned |
| Jianghai, CHINA | 296,000 | Global Industrial | Owned |
| Chalons, FRANCE | 280,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Clearing, IL USA | 270,000 | Global Industrial, Global Healthcare & Life Sciences, Other (Colloidal) | Owned |
| Nanjing, CHINA | 240,000 | Global Industrial | Owned |
| Garland, TX USA | 239,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Philadelphia, PA USA | 232,000 | Global Healthcare & Life Sciences | Owned |
| Martinsburg, WV USA | 228,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Elwood City, PA USA | 222,000 | Global Industrial | Owned |
| Weavergate, UNITED KINGDOM | 222,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Celra, SPAIN | 218,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Greensboro, NC USA | 193,000 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Owned |
| Fresno, TX USA | 192,000 | Global Industrial | Owned |
| Santiago, CHILE | 188,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Las Americas, DOMINICAN REPUBLIC | 182,000 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Owned |
| Jacksonville, FL USA | 181,000 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Leased |
| Garyville, LA USA | 178,000 | Global Industrial | Owned |
| Gul Lane, SINGAPORE | 169,000 | Global Industrial | Owned |
| Nieuwegein, NETHERLANDS | 168,000 | Global Institutional & Specialty, Global Industrial | Owned |
| La Romana, DOMINICAN REPUBLIC | 160,000 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Leased |
| Middleton, UNITED KINGDOM | 157,575 | Global Industrial, Global Healthcare & Life Sciences | Owned |
| Tessenderlo, BELGIUM | 153,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Cheltenham, AUSTRALIA | 145,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Suzano, BRAZIL | 142,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| McDonough, GA USA | 141,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Darra, AUSTRALIA | 138,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Burlington, ON CANADA | 136,000 | Global Industrial | Owned |
| Eagan, MN USA | 133,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences, Other | Owned |
| Huntington, IN USA | 127,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Rozzano, ITALY | 126,000 | Global Institutional & Specialty, Global Industrial | Owned |
| City of Industry, CA USA | 125,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Mississauga, ON CANADA | 120,000 | Global Institutional & Specialty, Global Industrial | Leased |
| Elk Grove Village, IL USA | 115,000 | Global Institutional & Specialty | Leased |
| Biebesheim, GERMANY | 109,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Fort Worth, TX USA | 101,000 | Global Institutional & Specialty | Leased |
| Johannesburg, SOUTH AFRICA | 100,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Andover, UNITED KINGDOM | 99,762 | Global Industrial, Global Healthcare & Life Sciences | Owned |
| Pilar, ARGENTINA | 96,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Hamilton, NEW ZEALAND | 96,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Konnagar, INDIA | 88,000 | Global Industrial | Owned |

| Location | Approximate Size (Sq. Ft.) | Segment | Majority Owned or Leased |
|---|---|---|---|
| Kwinana, AUSTRALIA | 87,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Yangsan, KOREA | 85,000 | Global Industrial | Owned |
| Cuautitlan, MEXICO | 76,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Barueri, BRAZIL | 75,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Leased |
| Citereup, INDONESIA | 74,000 | Global Industrial | Owned |
| Mullingar, IRELAND | 74,000 | Global Institutional & Specialty, Global Industrial | Leased |
| Mosta, MALTA | 73,000 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Leased |
| Aubagne, FRANCE | 65,000 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Leased |
| Siegsdorf, GERMANY | 56,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |
| Verona, ITALY | 55,000 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Owned |
| Guangzhou, CHINA | 55,000 | Global Institutional & Specialty, Global Industrial | Owned |
| Navanakorn, THAILAND | 53,000 | Global Institutional & Specialty, Global Industrial | Leased |
| Lerma, MEXICO | 49,000 | Global Industrial | Owned |
| Maribor, SLOVENIA | 46,400 | Global Institutional & Specialty, Global Industrial | Owned |
| Leeds, UNITED KINGDOM | 25,000 | Global Institutional & Specialty | Owned |
| Baglan, UNITED KINGDOM | 24,400 | Global Institutional & Specialty, Global Healthcare & Life Sciences | Leased |
| Noda, JAPAN | 22,000 | Global Institutional & Specialty, Global Industrial, Global Healthcare & Life Sciences | Owned |

Generally, our manufacturing facilities are adequate to meet our existing in-house production needs. We continue to invest in our plant sites to maintain viable operations and to add capacity as necessary to meet business imperatives.

Most of our manufacturing plants also serve as distribution centers. In addition, we operate distribution centers around the world, most of which are leased, and utilize third party logistics service providers to facilitate the distribution of our products and services.

Our corporate headquarters is comprised of a 17-story building that we own in St. Paul, Minnesota. We also own a 90-acre campus in Eagan, Minnesota that houses a significant research and development center, a data center and training facilities as well as several of our administrative functions. We also have a significant business presence in Naperville, Illinois, where our Water and Paper operating segments maintain their principal administrative offices and research center, as well as in Greensboro, North Carolina, where our Specialty operating segment maintains its principal administrative offices and a research center. Our Downstream operating segment leases administrative and research facilities in Sugar Land, Texas and maintains additional Company-owned research facilities in Fresno, Texas.

Significant regional administrative and/or research facilities are located in Campinas, Brazil; Leiden, Netherlands; and Pune, India, which we own, and in Dubai, UAE; Monheim, Germany; Singapore; Shanghai, China; and Zurich, Switzerland, which we lease. We also have a network of small leased sales offices in the United States and, to a lesser extent, in other parts of the world.

## Item 3. Legal Proceedings.

Discussion of legal proceedings is incorporated by reference from Part II, Item 8, Note 16, “Commitments and Contingencies,” of this Form 10-K and should be considered an integral part of Part I, Item 3, “Legal Proceedings.”

Discussion of other environmental-related legal proceedings is incorporated by reference from Part I, Item 1 above, under the heading “Environmental and Regulatory Considerations.”

## Item 4. Mine Safety Disclosures.

Not applicable.

# PART II

## Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

***Market Information***

Our common stock is listed on the New York Stock Exchange under the symbol "ECL." Our common stock is also traded on an unlisted basis on certain other United States exchanges.

***Holders***

On January 31, 2022, we had 5,185 holders of record of our Common Stock.

***Issuer Purchases of Equity Securities***

| Period | Total number of shares purchased (1) | Average price paid per share (2) | Total number of shares purchased as part of publicly announced plans or programs (3) | Maximum number of shares that may yet be purchased under the plans or programs (3) |
|---|---|---|---|---|
| October 1-31, 2021 | 129,385 | $212.9777 | 128,312 | 5,850,187 |
| November 1-30, 2021 | 1,658 | 227.1901 | - | 5,850,187 |
| December 1-31, 2021 | 3,948 | 221.9420 | - | 5,850,187 |
| Total | 134,991 | $213.4145 | 128,312 | 5,850,187 |

(1) Includes 6,679 shares reacquired from employees and/or directors to satisfy the exercise price of stock options or shares surrendered to satisfy statutory tax obligations under our stock incentive plans.

(2) The average price paid per share includes brokerage commissions associated with publicly announced plan purchases plus the value of such other reacquired shares.

(3) As announced on February 24, 2015, our Board of Directors authorized the repurchase of up to 20,000,000 shares. Subject to market conditions, we expect to repurchase all shares under these authorizations, for which no expiration date has been established, in open market or privately negotiated transactions, including pursuant to Rule 10b5-1 and accelerated share repurchase program.

## Item 6. [Reserved].

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

The following management discussion and analysis ("MD&A") provides information that we believe is useful in understanding our operating results, cash flows and financial condition. We provide quantitative information about the material sales drivers including the impact of changes in volume and pricing and the effect of acquisitions and changes in foreign currency at the corporate and reportable segment level. We also provide quantitative information regarding special (gains) and charges, discrete tax items and other significant factors we believe are useful for understanding our results. Such quantitative drivers are supported by comments meant to be qualitative in nature. Qualitative factors are generally ordered based on estimated significance.

The discussion should be read in conjunction with the consolidated financial statements and related notes included in this Form 10-K. Our consolidated financial statements are prepared in accordance with U.S. GAAP. This discussion contains various Non-GAAP Financial Measures and also contains various forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. We refer readers to the statements and information set forth in the sections entitled "Non-GAAP Financial Measures" at the end of this MD&A, and "Forward-Looking Statements" and "Risk Factors" within Items 1 and 1A of this Form 10-K. We also refer readers to the tables within the section entitled "Results of Operations" of this MD&A for reconciliation information of Non-GAAP measures to U.S. GAAP.

### Comparability of Results

***Purolite acquisition***

On December 1, 2021, we acquired Purolite for total consideration of $3.7 billion in cash. Purolite is a leading and fast-growing global provider of high-end ion exchange resins for the separation and purification of solutions for pharmaceutical and industrial applications. Headquartered in King of Prussia, Pennsylvania, Purolite operates in more than 30 countries. Purolite is reported within our Life Sciences operating segment. Acquisition and integration charges are recorded within special (gains) and charges.

In addition, the remaining impacts of the Purolite acquisition including operating results, acquisition-related amortization and interest expense related to the transaction have also been excluded from adjusted results.

***ChampionX Transaction***

On June 3, 2020, we completed the previously announced separation of our Upstream Energy business (the "ChampionX business") in a Reverse Morris Trust transaction (the "Transaction") through the split-off of ChampionX Holding Inc. ("ChampionX"), formed by Ecolab as a wholly owned subsidiary to hold the ChampionX Business, followed immediately by the merger of ChampionX (the "Merger") with a wholly owned subsidiary of ChampionX Corporation (f/k/a Apergy Corporation, "Apergy").

The ChampionX business met the criteria to be reported as discontinued operations because the separation of ChampionX was a strategic shift in business that had a major effect on our operations and financial results. Therefore, we report the historical results of ChampionX, including the results of operations, cash flows, and related assets and liabilities, as discontinued operations for all periods presented herein. Unless otherwise noted, the accompanying MD&A has been revised to reflect the ChampionX business as discontinued operations and prior year balances have been revised accordingly to reflect continuing operations only.

***Comparability of Reportable Segments***

Effective in the first quarter of 2020, and in anticipation of the separation of the Upstream Energy business, we created the Upstream and Downstream operating segments from the Global Energy operating segment, which was also a reportable segment. Subsequent to the separation of ChampionX, we no longer report the Upstream Energy segment, which previously held the ChampionX business.

The Downstream operating segment has been aggregated into the Global Industrial reportable segment. Also, in the first quarter of 2020, we announced leadership changes which allow for shared oversight and focus on the Healthcare and Life Sciences operating segments and established the Global Healthcare & Life Sciences reportable segment. This segment is comprised of the Healthcare operating segment which was previously aggregated in the Global Institutional reportable segment and the Life Sciences operating segment which was previously aggregated in the Global Industrial reportable segment. Additionally, the Textile Care operating segment, which is now being reported in Other, had previously been aggregated in the Global Industrial reportable segment. We also renamed the Global Institutional reportable segment to the Global Institutional & Specialty reportable segment. We made other immaterial changes, including the movement of certain customers and cost allocations between reportable segments.

***Impact of Acquisitions and Divestitures***

Acquisition adjusted growth rates exclude the results of our acquired businesses from the first twelve months post acquisition, the results of our divested businesses from the twelve months prior to divestiture and the Venezuelan results of operations from all comparable periods. As part of the separation, we also entered into a Master Cross Supply and Product Transfer agreement with ChampionX to provide, receive or transfer certain products for a period up to 36 months. Sales of product to ChampionX under this agreement are recorded in product and equipment sales in the Corporate segment along with the related cost of sales. These transactions are removed from the consolidated results as part of the calculation of the impact of acquisitions and divestitures.

***Fixed Currency Foreign Exchange Rates***

Management evaluates the sales and operating income performance of our non-U.S. dollar functional currency international operations based on fixed currency exchange rates, which eliminate the impact of exchange rate fluctuations on our international operations. Fixed currency amounts are updated annually at the beginning of each year based on translation into U.S. dollars at foreign currency exchange rates established by management, with all periods presented using such rates. Public currency rate data provided within the "Segment Performance" section of this MD&A reflect amounts translated at actual public average rates of exchange prevailing during the corresponding period and is provided for informational purposes only.

## EXECUTIVE SUMMARY

In 2021, we delivered strong sales performance in an environment where COVID-19 infections impacted business activity and further disrupted global supply chains which together, impacted the global recovery. Delivered product cost inflation and other supply constraints increased significantly but we undertook extraordinary measures to assure our customers were supplied with our critical products and services. Double-digit sales growth in the Institutional & Specialty and Other segments along with strong Industrial segment growth more than offset the Healthcare & Life Sciences segment's decline versus a very strong gain last year. Accelerating pricing and higher volume more than offset significantly higher delivered product costs and supply constraints, including the impact of Texas Freeze and Hurricane Ida, and the comparison to lower variable compensation last year.

***Sales***

Reported sales increased 8% to $12.7 billion in 2021 from $11.8 billion in 2020. When measured in fixed rates of foreign currency exchange, fixed currency sales increased 6% compared to the prior year. Acquisition adjusted fixed currency sales increased 5% compared to the prior year.

***Gross Margin***

Our reported gross margin was 40.2% of sales for 2021, compared to our 2020 reported gross margin of 41.4%. Excluding the impact of special (gains) and charges and impacts from the Purolite transaction included in cost of sales from both 2021 and 2020, our adjusted gross margin was 40.9% in 2021 and 41.8% in 2020.

***Operating Income***

Reported operating income increased 15% to $1.6 billion in 2021, compared to $1.4 billion in 2020. Adjusted operating income, excluding the impact of special (gains) and charges and the impacts of the Purolite transaction, increased 11% in 2021. When measured in fixed rates of foreign currency exchange, adjusted fixed currency operating income increased 8% in 2021.

***Earnings from Continuing Operations Attributable to Ecolab Per Common Share (“EPS”)***

Reported continuing operations diluted EPS increased 17% to $3.91 in 2021 compared to $3.33 in 2020. Special (gains) and charges had an impact on both years. Special (gains) and charges in 2021 include COVID-19 related charges, restructuring charges, debt refinancing charges, acquisition and integration charges, and litigation and other charges. Special (gains) and charges in 2020 include debt refinancing charges, restructuring charges, disposal and impairment charges, Healthcare product recall charges, acquisition and integration charges, COVID-19 related charges, and litigation and other charges. Special (gains) and charges in 2019 were driven primarily by the impact of restructuring charges, discrete tax items, acquisition and integration charges and litigation and other charges. The impact of the Purolite transaction was $0.02 per share dilutive to reported earnings per share from continuing operations (excluding special charges) as sales since its December 1, 2021 acquisition were more than offset by acquisition-related amortization and interest expense. Adjusted continuing operations diluted EPS, which exclude the impact of special (gains) and charges, the impacts of the Purolite transaction and discrete tax items increased 17% to $4.69 in 2021 compared to $4.02 in 2020.

***Balance Sheet***

We remain committed to maintaining “A” range ratings metrics over the long-term, supported by our current credit ratings of A-/A3/A- by Standard & Poor’s, Moody’s Investor Services and Fitch, respectively. Our strong balance sheet has allowed us continued access to capital at attractive rates.

***Net Debt to EBITDA***

Our net debt to earnings before interest, taxes, depreciation and amortization (“EBITDA”) was 3.4 and 2.4 for 2021 and 2020, respectively. We view these ratios as important indicators of the operational and financial health of our organization. See the “Net Debt to EBITDA” table on page 44 for reconciliation information.

***Cash Flow***

Cash flow from continuing operations operating activities was $2.1 billion in 2021 compared to $1.7 billion in 2020. We continued to generate strong cash flow from operations, allowing us to fund our ongoing operations, investments in our business, acquisitions, debt repayments, pension obligations and return cash to our shareholders through share repurchases and dividend payments.

***Dividends***

We increased our quarterly cash dividend 6% in December 2021, bringing annual dividends declared to $1.95 per share. The increase represents our 30th consecutive annual dividend rate increase and the 85th consecutive year we have paid cash dividends. Our outstanding dividend history reflects our long term growth and development, strong cash flows, solid financial position and confidence in our business prospects for the years ahead.

## CRITICAL ACCOUNTING ESTIMATES

Our consolidated financial statements are prepared in accordance with U.S. GAAP. We have adopted various accounting policies to prepare the consolidated financial statements in accordance with U.S. GAAP. Our significant accounting policies are disclosed in Note 2 of the Notes to the Consolidated Financial Statements (“Notes”).

Preparation of our consolidated financial statements, in conformity with U.S. GAAP, requires us to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Estimates are considered to be critical if they meet both of the following criteria: (1) the estimate requires assumptions to be made about matters that are highly uncertain at the time the accounting estimate is made, and (2) different estimates that we reasonably could have used for the accounting estimate in the current period, or changes in the accounting estimate that are reasonably likely to occur from period to period, have a material impact on the presentation of our financial condition or results of operations.

In March 2020, COVID-19 was declared a pandemic by the World Health Organization. As the impact of the pandemic continues to evolve, estimates and assumptions about future events and their effects cannot be determined with certainty and therefore require judgment. These estimates and assumptions may change in future periods and will be recognized in the consolidated financial information as new events occur and additional information becomes known. To the extent actual results differ materially from those estimates and assumptions, our future financial statements could be affected.

Besides estimates that meet the “critical” estimate criteria, we make many other accounting estimates in preparing our financial statements and related disclosures. All estimates, whether or not deemed critical, affect reported amounts of assets, liabilities, revenues or expenses as well as disclosures of contingent assets and liabilities. Estimates are based on experience and other information available prior to the issuance of the financial statements. Materially different results can occur as circumstances change and additional information becomes known, even from estimates not deemed critical. Our critical accounting estimates include the following:

### Revenue Recognition

Revenue is measured as the amount of consideration expected to be received in exchange for transferring goods or providing service. Revenue from product and sold equipment is recognized when obligations under the terms of a contract with the customer are satisfied, which generally occurs with the transfer of the product or delivery of the equipment. Revenue from service and leased equipment is recognized when the services are provided, or the customer receives the benefit from the leased equipment, which is over time. Service revenue is recognized over time utilizing an input method and aligns with when the services are provided. Typically, revenue is recognized over time using costs incurred to date because the effort provided by the field selling and service organization represents services provided, which corresponds with the transfer of control. Revenue for leased equipment is accounted for under Topic 842 Leases and recognized on a straight-line basis over the length of the lease contract.

Our revenue policies do not provide for general rights of return. We record estimated reductions to revenue for customer programs and incentive offerings including pricing arrangements, promotions and other volume-based incentives based primarily on historical experience and anticipated performance over the contract period. Depending on market conditions, we may increase customer incentive offerings, which could reduce gross profit margins over the term of the incentive. We also record estimated reserves for product returns and credits based on specific circumstances and credit conditions. We record an allowance for uncollectible accounts based on our estimates of expected future credit losses.

The revenue standard can be applied to a portfolio of contracts with similar characteristics if it is reasonable that the effects of applying the standard at the portfolio would not be significantly different than applying the standard at the individual contract level. We apply the portfolio approach primarily within each operating segment by geographical region. Application of the portfolio approach was focused on those characteristics that have the most significant accounting consequences in terms of their effect on the timing of revenue recognition or the amount of revenue recognized. We determined the key criteria to assess with respect to the portfolio approach, including the related deliverables, the characteristics of the customers and the timing and transfer of goods and services, which most closely aligned within the operating segments. In addition, the accountability for the business operations, as well as the operational decisions on how to go to market and the product offerings, are performed at the operating segment level. For additional information on revenue recognition, refer to Note 18.

### Litigation and Environmental Liabilities

Our business and operations are subject to extensive environmental laws and regulations governing, among other things, air emissions, wastewater discharges, the use and handling of hazardous substances, waste disposal and the investigation and remediation of soil and groundwater contamination. Some risk of environmental liability is inherent in our operations.

We record liabilities related to pending litigation, environmental claims and other contingencies when a loss is probable and can be reasonably estimated. Estimates used to record such liabilities are based on our best estimate of probable future costs. We record the amounts that represent the points in the range of estimates that we believe are most probable or the minimum amount when no amount within the range is a better estimate than any other amount. Potential insurance reimbursements generally are not anticipated in our accruals for environmental liabilities or other insured losses. Expected insurance proceeds are recorded as receivables when recovery is deemed certain. While the final resolution of litigation and environmental contingencies could result in amounts different than current accruals, and therefore have an impact on our consolidated financial results in a future reporting period, we believe the ultimate outcome will not have a significant impact on our consolidated financial position. For additional information on our commitments and contingencies, refer to Note 16.

### Actuarially Determined Liabilities

***Pension and Postretirement Healthcare Benefit Plans***

The measurement of our pension and postretirement benefit obligations are dependent on a variety of assumptions determined by management and used by our actuaries. These assumptions affect the amount and timing of future contributions and expenses.

The significant assumptions used in developing the required estimates are the discount rate, expected return on assets, projected salary and health care cost increases and mortality table.

- The discount rate assumptions for our U.S. plans are assessed using a yield curve constructed from a subset of bonds yielding greater than the median return from a population of non-callable, corporate bond issues that have an average rating of AA when averaging available Moody’s Investor Services, Standard & Poor’s and Fitch ratings. The discount rate is calculated by matching the plans’ projected cash flows to the bond yield curve. For 2021 and 2020, we measured service and interest costs by applying the specific spot rates along that yield curve to the plans' liability cash flows. We believe this approach provides a more precise measurement of service and interest costs by aligning the timing of the plans' liability cash flows to the corresponding spot rates on the yield curve. In determining our U.S. pension obligations for 2021, our weighted-average discount rate increased to 2.86% from 2.48% at year-end 2020. In determining our U.S. postretirement health care obligation for 2021, our weighted-average discount rate increased to 2.75% from 2.37% at year-end 2020.

- The expected rate of return on plan assets reflects asset allocations, investment strategies and views of investment advisors, and represents our expected long-term return on plan assets. Our weighted-average expected return on U.S. plan assets used in determining the U.S. pension and U.S. postretirement health care expenses was 7.00% for 2021, 7.25% for 2020 and 7.25% for 2019.

- Projected salary and health care cost increases are based on our long-term actual experience, the near-term outlook and assumed inflation. Our weighted-average projected salary increase used in determining the U.S. pension expenses was 4.03% for 2021, 2020 and 2019.

- For postretirement benefit measurement purposes as of December 31, 2021, the annual rates of increase in the per capita cost of covered health care were assumed to be 6.75% for pre-65 costs and 7.25% for post-65 costs. The rates are assumed to decrease each year until they reach 4.5% in 2029 and remain at those levels thereafter.

- In determining our U.S. pension and U.S. postretirement health care obligation for 2021, we utilized the most recent mortality table, MP-2021 projection scale (applied to the Pri-2012 mortality table).

The effects of actual results differing from our assumptions, as well as changes in assumptions, are reflected in the unrecognized actuarial loss and amortized over future periods and, therefore, will generally affect our recognized expense in future periods. Significant differences in actual experience or significant changes in assumptions may materially affect future pension and other postretirement obligations and expense. The unrecognized net actuarial loss on our U.S. qualified and non-qualified pension plans decreased to $397 million as of December 31, 2021 from $691 million as of December 31, 2020 (both before tax), primarily due to current year net actuarial gains.

The effect of a decrease in the discount rate or decrease in the expected return on assets assumption as of December 31, 2021, on the December 31, 2021 defined benefit obligation and 2022 expense is shown below, assuming no changes in benefit levels and no amortization of gains or losses for our significant U.S. plans. Expense amounts reflect the accounting for actuarial gains as a component of other comprehensive income and recognition of the impacts into income over the remaining service period:

| | Effect on U.S. Pension Plans | | |
|---|---|---|---|
| (millions) | Assumption Change | Increase in Recorded Obligation | Higher 2022 Expense |
| Discount rate | -0.25 pts | $65.6 | $3.3 |
| Expected return on assets | -0.25 pts | N/A | 5.3 |

| | Effect on U.S. Postretirement Health Care Benefits Plans | | |
|---|---|---|---|
| (millions) | Assumption Change | Increase in Recorded Obligation | Higher 2022 Expense |
| Discount rate | -0.25 pts | $4.4 | $0.1 |
| Expected return on assets | -0.25 pts | N/A | - |

Our international pension obligations and underlying plan assets represent approximately one third of our global pension plans, with the majority of the amounts held in the U.K. and Eurozone countries. We use assumptions similar to our U.S. plan assumptions to measure our international pension obligations, however, the assumptions used vary by country based on specific local country requirements and information.

Refer to Note 17 for further discussion concerning our accounting policies, estimates, funded status, contributions and overall financial positions of our pension and postretirement plan obligations.

***Self-Insurance***

Globally we have insurance policies with varying deductible levels for property and casualty losses. We are insured for losses in excess of these deductibles, subject to policy terms and conditions and have recorded both a liability and an offsetting receivable for amounts in excess of these deductibles. We are self-insured for health care claims for eligible participating employees, subject to certain deductibles and limitations. We determine our liabilities for claims on an actuarial basis.

## Income Taxes

Judgment is required to determine the annual effective income tax rate, deferred tax assets and liabilities, valuation allowances recorded against net deferred tax assets and uncertain tax positions.

***Effective Income Tax Rate***

Our effective income tax rate is based on annual income, statutory tax rates and tax planning available in the various jurisdictions in which we operate. Our annual effective income tax rate includes the impact of reserve provisions. We recognize the amount of tax benefit that is greater than 50% likely of being realized upon settlement with a taxing authority. We adjust these reserves in light of changing facts and circumstances.

Tax regulations require items to be included in our tax returns at different times than the items are reflected in our financial statements. As a result, the effective income tax rate reflected in our financial statements differs from that reported in our tax returns. Some of these differences are permanent, such as expenses that are not deductible on our tax return, and some are temporary differences, such as depreciation expense.

***Deferred Tax Assets and Liabilities and Valuation Allowances***

Deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and tax bases of assets and liabilities, applying enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. Based on the evaluation of available evidence, both positive and negative, we recognize tax assets, such as net operating loss carryforwards and tax credit carryforwards, to the extent that realizing these benefits is considered to be more likely than not. Relevant factors in determining the realizability of deferred tax assets include historical results, sources of future taxable income, the expected timing of the reversal of temporary differences, tax planning strategies and the expiration dates of the various tax attributes.

***Uncertain Tax Positions***

A number of years may elapse before a particular tax matter, for which we have established a liability for uncertain tax position, is audited and finally resolved. The number of tax years with open tax audits varies depending on the tax jurisdiction. The Internal Revenue Service (“IRS”) has completed examinations of our U.S. federal income tax returns through 2016 and the years 2017 and 2018 are currently under audit. In addition to the U.S. federal examinations, we have ongoing audit activity in several U.S. state and foreign jurisdictions.

The tax positions we take are based on our interpretations of tax laws and regulations in the applicable federal, state and international jurisdictions. We believe our tax returns properly reflect the tax consequences of our operations, and our liabilities for uncertain tax positions are appropriate and sufficient for the positions taken. Because of the uncertainty of the final outcome of these examinations, we have reserved for potential reductions of tax benefits (including related interest and penalties) for amounts that do not meet the more-likely-than-not thresholds for recognition and measurement as required by authoritative guidance. The liability for uncertain tax positions is reviewed throughout the year, taking into account new legislation, regulations, case law and audit results. Settlement of any particular issue could result in offsets to other balance sheet accounts, cash payments or receipts and/or adjustments to tax expense. Liabilities for uncertain tax positions are presented in the Consolidated Balance Sheets within other non-current liabilities. Our gross liability for uncertain tax positions was $25 million and $21 million as of December 31, 2021 and 2020, respectively. For additional information on income taxes refer to Note 13.

## Long-Lived Assets, Intangible Assets and Goodwill

***Long-Lived and Amortizable Intangible Assets***

Long-lived and amortizable intangible assets acquired are recorded on the acquisition date at their respective fair values based on the fair value requirements defined in U.S. GAAP. This requires us to make significant estimates and assumptions relating to the present value of its future cash flows, such as growth rates, royalty rates or discount rates.

We review our long-lived and amortizable intangible assets, the net value of which was $6.8 billion and $5.3 billion as of December 31, 2021 and 2020, respectively, for impairment when significant events or changes in business circumstances indicate that the carrying value of the assets may not be recoverable. Such circumstances may include a significant decrease in the market price of an asset or asset group, a significant adverse change in the manner in which asset or asset groups are being used or history of operating or cash flow losses associated with the use of the asset or asset group. Impairment losses could occur when the carrying amount of an asset or asset group exceeds the anticipated future undiscounted cash flows expected to result from the use of the asset or asset group and its eventual disposition. The amount of the impairment loss to be recorded, if any, is calculated as the excess of the asset’s or assets group’s carrying amount over its estimated fair value.

We use the straight-line method to recognize amortization expense related to our amortizable intangible assets, including our customer relationships. We consider various factors when determining the appropriate method of amortization for our customer relationships, including projected sales data, customer attrition rates and length of key customer relationships.

Globally, we have a broad customer base. Our retention rate of significant customers has aligned with our acquisition assumptions, including the customer bases acquired from our Nalco, Anios, CID Lines and Purolite transactions, which make up the majority of our unamortized customer relationships. Our historical retention rate, coupled with our consistent track record of keeping long-term relationships with our customers, supports our expectation of consistent sales generation for the foreseeable future from the acquired customer bases. If our customer retention rates or other post-acquisition operational activities change materially, we would evaluate the financial impact and significances of the events given rise to the change which could result in impairment of our customer relationship intangible assets, or absent an impairment, an acceleration of amortization.

In addition, we periodically reassess the estimated remaining useful lives of our long-lived and amortizable intangible assets. Changes to estimated useful lives would impact the amount of depreciation and amortization expense recorded in earnings. We have experienced no significant changes in the carrying amount or estimated remaining useful lives of our long-lived or amortizable intangible assets.

***Goodwill and Indefinite Life Intangible Assets***

We had total goodwill of $8.1 billion and $6.0 billion as of December 31, 2021 and 2020, respectively. We test our goodwill for impairment at the reporting unit level on an annual basis during the second quarter. Our reporting units are aligned with our eleven operating segments.

For our annual 2021 goodwill impairment assessment, we completed a quantitative impairment assessment for each of our eleven reporting units using discounted cash flow analyses that incorporated assumptions, including future operating performance, long-term growth, and discount rates. Our goodwill impairment assessments for 2021 indicated the estimated fair values of each of our reporting units exceeded the carrying amounts of the respective reporting units by a significant margin. We assess the need to test our reporting units for impairment during interim periods between our scheduled annual assessments when significant events or changes in business circumstances indicate that it is more likely than not that the carrying amount of a reporting unit may be higher than its fair value. Additionally, no events noted during the second half of 2021 indicated a need to update any of our analyses or conclusions reached in the second quarter of 2021 for any of our eleven reporting units. There has been no impairment of goodwill in any of the periods presented.

The Nalco trade name is our only indefinite life intangible asset. During the second quarter of 2021, we completed our annual impairment assessment of the Nalco trade name using the relief from royalty discounted cash flow method, which incorporates assumptions, including future sales projections, royalty rates and discount rates. Our Nalco tradename impairment assessment for 2021 indicated the estimated fair value of the Nalco trade name exceeded its $1.2 billion carrying amount by a significant margin. There has been no impairment of the Nalco trade name intangible since it was acquired.

## RESULTS OF OPERATIONS

### Net Sales

| | | | | Percent Change | |
|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 |
| Product and equipment sales | $10,153.3 | $9,466.6 | $10,129.0 | | |
| Service and lease sales | 2,579.8 | 2,323.6 | 2,433.0 | | |
| Reported GAAP net sales | 12,733.1 | 11,790.2 | 12,562.0 | 8 % | (6)% |
| Impact of Purolite on net sales | 12.0 | - | - | | |
| Non-GAAP adjusted net sales | 12,721.1 | 11,790.2 | 12,562.0 | 8 % | (6)% |
| Effect of foreign currency translation | 111.7 | 332.1 | 241.2 | | |
| Non-GAAP adjusted fixed currency sales | $12,832.8 | $12,122.3 | $12,803.2 | 6 % | (5)% |

The percentage components of the year-over-year sales change are shown below:

| (percent) | 2021 | 2020 |
|---|---|---|
| Volume | 3 % | (9)% |
| Price changes | 2 | 2 |
| Acquisition adjusted fixed currency sales change | 5 | (7) |
| Acquisitions & divestitures | 1 | 2 |
| Fixed currency sales change | 6 | (5) |
| Foreign currency translation | 2 | (1) |
| Reported GAAP net sales change | 8 % | (6)% |

Amounts do not necessarily sum due to rounding.

### Cost of Sales ("COS") and Gross Profit Margin ("Gross Margin")

| (millions/percent) | 2021 COS | 2021 Gross Margin | 2020 COS | 2020 Gross Margin | 2019 COS | 2019 Gross Margin |
|---|---|---|---|---|---|---|
| Product and equipment cost of sales | $6,100.9 | | $5,481.3 | | $5,617.5 | |
| Service and lease cost of sales | 1,514.9 | | 1,424.5 | | 1,428.3 | |
| Reported GAAP COS and gross margin | 7,615.8 | 40.2 % | 6,905.8 | 41.4 % | 7,045.8 | 43.9 % |
| Special (gains) and charges | 93.9 | | 48.2 | | 38.5 | |
| Impact of Purolite on COS | 7.6 | | - | | - | |
| Non-GAAP adjusted COS and gross margin | $7,514.3 | 40.9 % | $6,857.6 | 41.8 % | $7,007.3 | 44.2 % |

Our COS values and corresponding gross margin are shown above. Our gross margin is defined as sales less cost of sales divided by sales.

Our reported gross margin was 40.2%, 41.4%, and 43.9% for 2021, 2020, and 2019, respectively. Our 2021, 2020 and 2019 reported gross margins were negatively impacted by special (gains) and charges of $93.9 million, $48.2 million, and $38.5 million, respectively. Special (gains) and charges items impacting COS are shown within the "Special (Gains) and Charges" table below.

Excluding the impact of special (gains) and charges and the impacts of the Purolite transaction, our 2021 adjusted gross margin was 40.9% compared against a 2020 adjusted gross margin of 41.8%. The decrease primarily reflected increased pricing and higher volumes which were more than offset by significantly higher delivered product costs and supply constraints, including the impact of the Texas Freeze and Hurricane Ida.

Excluding the impact of special (gains) and charges, our adjusted gross margin was 41.8% and 44.2% for 2020 and 2019, respectively. The decrease primarily reflected the impact of lower volume, reduced operating leverage and unfavorable business mix, which more than offset pricing.

### Selling, General and Administrative Expenses ("SG&A")

| (percent) | 2021 | 2020 | 2019 |
|---|---|---|---|
| SG&A Ratio | 26.8 % | 28.1 % | 28.3 % |

The decreased SG&A ratio (SG&A expenses as a percentage of reported net sales) comparing 2021 against 2020 was driven primarily by higher net sales, cost savings initiatives and reduction in bad debt, partially offset by higher variable compensation compared to last year. The decreased SG&A ratio comparing 2020 against 2019 was driven primarily by lower incentive compensation, discretionary spend reductions and cost savings initiatives which offset the effects of lower sales.

### Special (Gains) and Charges

Special (gains) and charges reported on the Consolidated Statements of Income included the following items:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Cost of sales | | | |
| Restructuring activities | $24.7 | $7.4 | $20.4 |
| Acquisition and integration activities | 4.2 | 3.9 | 7.6 |
| COVID-19 activities, net | 64.7 | 12.5 | - |
| Other | 0.3 | 24.4 | 10.5 |
| Cost of sales subtotal | 93.9 | 48.2 | 38.5 |
| | | | |
| Special (gains) and charges | | | |
| Restructuring activities | 11.9 | 71.4 | 93.2 |
| Acquisition and integration activities | 29.9 | 8.5 | 5.6 |
| Disposal and impairment activities | - | 41.4 | - |
| COVID-19 activities, net | 42.4 | 23.6 | - |
| Other | 18.4 | 34.7 | 21.4 |
| Special (gains) and charges subtotal | 102.6 | 179.6 | 120.2 |
| | | | |
| Operating income subtotal | 196.5 | 227.8 | 158.7 |
| | | | |
| Other (income) expense | 37.2 | 0.4 | 9.5 |
| Interest expense, net | 33.1 | 83.8 | 0.2 |
| | | | |
| Total special (gains) and charges | $266.8 | $312.0 | $168.4 |

For segment reporting purposes, special (gains) and charges are not allocated to reportable segments, which is consistent with our internal management reporting.

***Restructuring Activities***

Restructuring activities are primarily related to the Institutional Advancement Program and Accelerate 2020, both of which are described below. These activities have been included as a component of cost of sales, special (gains) and charges, and other (income) expense on the Consolidated Statements of Income. Restructuring liabilities have been classified as a component of other current and other noncurrent liabilities on the Consolidated Balance Sheets.

Further details related to our restructuring charges are included in Note 3.

*Institutional Advancement Program*

We approved a restructuring plan in 2020 focused on the Institutional business ("the Institutional Plan") which is intended to enhance our Institutional sales and service structure and allow the sales team to capture share and penetration while maximizing service effectiveness by leveraging our ongoing investments in digital technology. In February 2021, we expanded the Institutional Plan, and expect that these restructuring charges will be completed by 2023, with total anticipated costs of $65 million ($50 million after tax) or $0.17 per diluted share. The costs are expected to be primarily cash expenditures for severance and facility closures. We also anticipate non-cash charges related to equipment disposals. Actual costs may vary from these estimates depending on actions taken.

In 2021, we recorded total restructuring charges of $12.6 million ($10.2 million after tax) or $0.04 per diluted share, primarily related to severance, disposals of equipment and office closures. We have recorded $47.8 million ($36.6 million after tax), or $0.13 per diluted share of cumulative restructuring charges under the Institutional Plan. The liability related to the Institutional Plan was $5.1 million as of December 31, 2021. The majority of the pretax charges represent net cash expenditures which are expected to be paid over a period of a few months to several quarters which continue to be funded from operating activities.

The Institutional Plan has delivered $41 million of cumulative cost savings with estimated annual cost savings of $50 million in continuing operations by 2024.

*Accelerate 2020*

During 2018, we formally commenced a restructuring plan Accelerate 2020 ("the Plan"), to leverage technology and system investments and organizational changes. The goal of the Plan is to further simplify and automate processes and tasks, reduce complexity and management layers, consolidated facilities and focus on key long-term growth areas by further leveraging technology and structural improvements. During 2020, we expanded the Plan for additional costs and savings to further leverage the technology and structural improvements. Following the establishment of the separate Institutional Plan, we now expect that the restructuring activities will be completed by the end of 2022, with total anticipated costs of $255 million ($195 million after tax), or $0.67 per diluted share, over this period of time, when revised for continuing operations. Costs are expected to be primarily cash expenditures for severance costs and some facility closure costs relating to team reorganizations. Actual costs may vary from these estimates depending on actions taken.

We recorded restructuring charges of $5.3 million ($6.2 million after tax) or $0.02 per diluted share in 2021. The liability related to the Plan was $32.7 million as of the end of the year. We have recorded $244.5 million ($190.0 million after tax), or $0.66 per diluted share, of cumulative restructuring charges under the Plan. The majority of the pretax charges represent net cash expenditures which are expected to be paid over a period of a few months to several quarters which continue to be funded from operating activities.

The Plan has delivered $300 million of cumulative cost savings with estimated annual cost savings of $315 million in continuing operations by 2022.

*Other Restructuring Activities*

During 2021, we incurred restructuring charges of $18.7 million ($17.0 million after tax), or $0.06 per diluted share, related to other immaterial restructuring activity. The charges primarily related to severance and asset write-offs.

During 2020, we incurred restructuring charges of $1.8 million ($1.2 million after tax), or less than $0.01 per diluted share, related to other immaterial restructuring plan. The charges are comprised of severance, facility closure costs, including asset disposals, and consulting fees.

During 2019, net restructuring gains related to restructuring plans entered into prior to 2019 were $1.5 million ($1.1 million after tax) or less than $0.01 per diluted share.

The restructuring liability balance for all other restructuring plans excluding Accelerate 2020 and the Institutional Plan were $4.6 million and $5.9 million as of December 31, 2021 and 2020, respectively. The reduction in liability was driven primarily by severance payments. The remaining liability is expected to be paid over a period of a few months to several quarters and will continue to be funded from operating activities. Cash payments during 2021 related to all other restructuring plans excluding the Accelerate 2020 and Institutional Plan were $10.5 million.

***Acquisition and integration related costs***

Acquisition and integration costs reported in special (gains) and charges on the Consolidated Statements of Income in 2021 include $29.9 million ($23.5 million after tax) or $0.08 per diluted share. Charges are related to the Purolite Corporation (“Purolite”), Copal Invest NV, including its primary operating entity CID Lines (collectively, “CID Lines”), and Bioquell PLC (“Bioquell”) acquisitions and consist of integration costs and advisory and legal fees. Acquisition and integration costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2021 include $4.2 million ($3.3 million after tax) or $0.01 per diluted share and are related to the recognition of fair value step-up in the Purolite inventory. In conjunction with its acquisitions, we incurred $0.8 million ($0.6 million after tax), or less than $0.01 per diluted share, of special (gains) and charges reported in interest expense in 2021.

During 2020, acquisition and integration costs reported in special (gains) and charges on the Consolidated Statements of Income include $8.5 million ($6.9 million after tax) or $0.02 per diluted share. Charges are related to CID Lines, Bioquell and the Laboratoires Anios (“Anios”) acquisitions and consist of integration costs and advisory and legal fees. Acquisition and integration costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2020 include $3.9 million ($3.2 million after tax) or $0.01 per diluted share and are related to the recognition of fair value step-up in the CID Lines inventory, severance and the closure of a facility. In conjunction with our acquisitions, we incurred $0.7 million ($0.6 million after tax), or less than $0.01 per diluted share, of special (gains) and charges reported in interest expense in 2020.

During 2019, acquisition and integration costs reported in special (gains) and charges on the Consolidated Statements of Income include $5.6 million ($4.1 million after tax) or $0.01 per diluted share. Charges are primarily related to the Bioquell and Anios acquisitions and consist of integration costs, advisory and legal fees. Acquisition and integration costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2019 include $7.6 million ($5.6 million after tax) or $0.02 per diluted share and are related to recognition of fair value step-up in the Bioquell inventory and facility closure costs. In conjunction with our acquisitions, we incurred $0.2 million ($0.1 million after tax), or less than $0.01 per diluted share, of special (gains) and charges reported in interest expense in 2019.

***Disposal and impairment charges***

Disposal and impairment charges reported in special (gains) and charges on the Consolidated Statements of Income include $41.4 million ($41.5 million after tax) or $0.14 per diluted share in the 2020. During 2020, we recorded a $28.6 million ($28.6 million after tax) or $0.10 per diluted share impairment for a minority equity method investment due to the COVID-19 impact on the economic environment and the liquidity of the minority equity method investment. In addition, we recorded charges of $12.8 million ($12.9 million after tax) or $0.04 per diluted share related to the disposal of Holchem Group Limited (“Holchem”) for the loss on sale and related transaction fees during 2020. Further information related to the disposal is included in Note 4.

***COVID-19 activities***

Customer demand for sanitizer products surged at the outset of COVID-19. We worked hard to meet the rapidly increasing demand and sold the vast majority of the sanitizer inventory. However, COVID-19 variant-related delays of customer’s reopening and consumer activity resulted in a small portion of excess sanitizer inventory. We have recorded inventory reserves of $60 million during 2021 for excess sanitizer inventory and estimated disposal costs. During 2021 and 2020, we recorded charges of $36.8 million and $57.1 million, respectively, to protect the wages of certain employees directly impacted by the COVID-19 pandemic. We also recorded charges of $16.5 million and $2.4 million related to employee COVID-19 testing and related expenses during 2021 and 2020, respectively. In addition, we received subsidies and government assistance, which were recorded as a special (gain) of ($6.2) million and ($23.4) million during 2021 and 2020, respectively. COVID-19 pandemic charges are recorded in product and equipment cost of sales, service and lease cost of sales, and special (gains) and charges on the Consolidated Statements of Income. Total after tax net charges (gains) related to COVID-19 pandemic were $81.3 million or $0.28 per diluted share and $27.4 million or $0.09 per diluted share during 2021 and 2020, respectively.

***Other operating activities***

During 2021, 2020 and 2019, we recorded special charges of $0.3 million ($0.2 million after tax) or less than $0.01 per diluted share, $24.4 million ($16.0 million after tax) or $0.06 per diluted share and $10.5 million ($7.1 million after tax) or $0.02 per diluted share, respectively, recorded in product and equipment cost of sales on the Consolidated Statements of Income primarily related to a Healthcare product recall in Europe.

Other special charges of $18.4 million ($14.1 million after tax) or $0.05 per diluted share in 2021, $34.7 million ($33.9 million after tax) or $0.12 per diluted share recorded in 2020 and $21.4 million ($16.2 million after tax), or $0.06 per diluted share recorded in 2019 relate primarily to a specific legal reserve and related legal charges, partially offset by a litigation settlement in 2019, which are recorded in special (gains) and charges on the Consolidated Statements of Income. We also recorded during 2020 a $7.2 million or $0.02 per diluted share, special charge related to the separation of ChampionX as a tax expense on the Consolidated Statements of Income.

***Other (income) expense***

During 2021, we incurred settlement expense recorded in other (income) expense on the Consolidated Statements of Income of $37.2 million ($28.7 million after tax), or $0.10 per diluted share related to U.S. pension plan lump-sum payments to retirees.

During 2020 and 2019, we recorded other expense of $0.4 million ($0.3 million after tax) or less than $0.01 per diluted share and $9.5 million ($7.2 million after tax) or $0.02 per diluted share, respectively, related to pension curtailments and settlements for ChampionX separation and Accelerate 2020. These charges have been included as a component of other (income) expense on the Consolidated Statements of Income.

***Interest expense, net***

During 2021 and 2020, we recorded special charges of $32.3 million ($28.4 million after tax) or $0.10 per diluted share and $83.1 million ($64.0 million after tax) or $0.22 per diluted share, respectively, in interest expense on the Consolidated Statements of Income related to debt refinancing charges. In addition, during 2021, 2020 and 2019, an immaterial amount of interest expense was recorded due to acquisition and integration costs.

## Operating Income and Operating Income Margin

| | | | | Percent Change | |
|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 |
| Reported GAAP operating income | $1,598.6 | $1,395.7 | $1,845.2 | 15 % | (24) % |
| Special (gains) and charges | 196.5 | 227.8 | 158.7 | | |
| Impact of Purolite on operating income | 3.8 | - | - | | |
| Non-GAAP adjusted operating income | 1,798.9 | 1,623.5 | 2,003.9 | 11 | (19) |
| Effect of foreign currency translation | 18.9 | 52.8 | 37.2 | | |
| Non-GAAP adjusted fixed currency operating income | $1,817.8 | $1,676.3 | $2,041.1 | 8 % | (18)% |

| (percent) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Reported GAAP operating income margin | 12.6 % | 11.8 % | 14.7 % |
| Non-GAAP adjusted operating income margin | 14.1 % | 13.8 % | 16.0 % |
| Non-GAAP adjusted fixed currency operating income margin | 14.2 % | 13.8 % | 15.9 % |

Our operating income and corresponding operating income margin are shown in the previous tables. Operating income margin is defined as operating income divided by sales.

Our reported operating income increased 15% when comparing 2021 to 2020 primarily driven by increased pricing and higher volume which more than offset significantly higher delivered product costs and supply constraints, including the impact of the Texas Freeze and Hurricane Ida and higher variable compensation compared to last year. Our reported operating income decreased 24% when comparing 2020 to 2019 primarily due to the overall negative impact of the COVID-19 pandemic on results, which yielded lower sales and reduced operating leverage, unfavorable business mix, more than offsetting cost savings, favorable pricing and higher variable compensation. Our reported operating income for 2021, 2020 and 2019 was impacted by special (gains) and charges. Excluding the impact of special (gains) and charges and the impacts of the Purolite transaction, 2021 adjusted operating income increased 11% when compared to 2020 adjusted operating income and 2020 adjusted operating income decreased 19% when compared to 2019 adjusted operating income.

## Other (Income) Expense

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Reported GAAP other (income) expense | ($33.9) | ($55.9) | ($77.0) |
| Special (gains) and charges | 37.2 | 0.4 | 9.5 |
| Non-GAAP adjusted other (income) expense | ($71.1) | ($56.3) | ($86.5) |

Our reported other income was $33.9 million, $55.9 million and $77.0 million in 2021, 2020 and 2019, respectively. Excluding the impact of settlements and curtailments recorded in special (gains) and charges during 2021, 2020 and 2019, our adjusted other income was $71.1 million, $56.3 million and $86.5 million, respectively, reflecting lower interest costs associated with future payments of employee pension obligations.

## Interest Expense, Net

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Reported GAAP interest expense, net | $218.3 | $290.2 | $190.7 |
| Special (gains) and charges | 33.1 | 83.8 | 0.2 |
| Impact of Purolite on interest expense | 3.5 | - | - |
| Non-GAAP adjusted interest expense, net | $181.7 | $206.4 | $190.5 |

Our reported net interest expense totaled $218.3 million, $290.2 million and $190.7 million during 2021, 2020 and 2019, respectively.

We incurred $33.1 million ($29.0 million after tax), or $0.10 per diluted share, $83.8 million ($64.6 million after tax), or $0.22 per diluted share and $0.2 million ($0.1 million after tax), or less than $0.01 per diluted share, of interest expense special charges in conjunction with our debt refinancing and acquisitions during 2021, 2020 and 2019, respectively.

Adjusted for special (gains) and charges and the Purolite transaction, the decrease in interest expense when comparing 2021 against 2020 was driven primarily by a reduction in average debt levels and average interest rates. The increase in our 2020 adjusted net interest expense compared to 2019 was driven primarily by higher outstanding debt.

### Provision for Income Taxes

The following table provides a summary of our tax rate:

| (percent) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Reported GAAP tax rate | 19.1 % | 15.2 % | 16.7 % |
| Tax rate impact of: | | | |
| Special (gains) and charges | 0.1 | 0.7 | 0.6 |
| Discrete tax items | (0.3) | 3.8 | 3.0 |
| Purolite tax impacts | - | - | - |
| Non-GAAP adjusted tax rate | 18.9 % | 19.7 % | 20.3 % |

Our reported tax rate was 19.1%, 15.2%, and 16.7%, for 2021, 2020 and 2019, respectively. The change in our tax rate includes the tax impact of special (gains) and charges and discrete tax items, which have impacted the comparability of our historical reported tax rates, as amounts included in our special (gains) and charges are derived from tax jurisdictions with rates that vary from our tax rate, and discrete tax items are not necessarily consistent across periods. The tax impact of special (gains) and charges and discrete tax items will likely continue to impact comparability of our reported tax rate in the future.

We recognized net tax expense of $5.8 million related to discrete tax items during 2021. This included a non-cash deferred tax expense of $25.1 million associated with transferring certain intangible property between affiliates. Share-based compensation excess tax benefit was $29.1 million. The amount of this tax benefit is subject to variation in stock price and award exercises. The remaining discrete tax expense of $9.8 million was primarily related to the filing of federal, state, and foreign tax returns and other income tax adjustments including the impact of changes in tax law, audit settlements and other changes in estimates.

We recognized a total net benefit related to discrete tax items of $55.8 million during 2020. The tax benefit related to share-based compensation excess tax benefit contributed $57.3 million. We recorded changes in reserves in non-U.S. and U.S. jurisdictions due to audit settlements and expiration of statutes of limitations which resulted in a $9.8 million tax benefit. Additionally, we recognized a net tax expense of $11.3 million primarily related to the filing of the prior year federal, state and foreign tax returns and other income tax adjustments.

We recognized total net benefit related to discrete tax items of $57.7 million during 2019. Share-based compensation excess tax benefit contributed $42.3 million in 2019. We recognized $15.6 million tax benefit related to changes in local tax law, which primarily includes $30.4 million benefit due to the passage of the Swiss Tax Reform and AHV Financing Act, a Swiss federal tax law, offset by a tax expense of $10.2 million due to the release of the final Treasury Regulation governing taxation of foreign dividends. We recorded changes in reserves in non-U.S. and U.S. jurisdictions due to audit settlements and statutes of limitations which resulted in a $13.8 million tax benefit. We finalized the 2015 and 2016 IRS audit, which also resulted in discrete tax expense of $11.0 million. The remaining discrete tax expense was primarily related to changes in estimates in non-U.S. jurisdictions.

The change in our adjusted tax rates from 2019 to 2021 was primarily driven by global tax planning projects and geographic income mix. Future comparability of our adjusted tax rate may be impacted by various factors, including but not limited to other changes in global tax rules, further tax planning projects and geographic income mix.

### Net Income from Discontinued Operations, net of tax

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Reported GAAP net (loss) income from discontinued operations, net of tax | $- | ($2,172.5) | $133.3 |
| Adjustments: | | | |
| Special (gains) and charges | - | 2,210.7 | 74.3 |
| Discrete tax net expense (benefit) | - | 22.7 | (0.7) |
| Non-GAAP adjusted net income from discontinued operations, net of tax | $- | $60.9 | $206.9 |

Special charges reported in discontinued operations consist primarily of ChampionX separation charges.

### Net Income from Continuing Operations Attributable to Ecolab

| (millions) | 2021 | 2020 | 2019 | Percent Change 2021 | Percent Change 2020 |
|---|---|---|---|---|---|
| Reported GAAP net income from continuing operations attributable to Ecolab | $1,129.9 | $967.4 | $1,425.6 | 17 % | (32)% |
| Adjustments: | | | | | |
| Special (gains) and charges, after tax | 213.5 | 254.1 | 128.3 | | |
| Discrete tax net (benefit) expense | 5.8 | (55.8) | (57.7) | | |
| Impact of Purolite on net income | 5.6 | - | - | | |
| Non-GAAP adjusted net income from continuing operations attributable to Ecolab | $1,354.8 | $1,165.7 | $1,496.2 | 16 % | (22)% |

### Diluted EPS from Continuing Operations

| (dollars) | 2021 | 2020 | 2019 | Percent Change 2021 | Percent Change 2020 |
|---|---|---|---|---|---|
| Reported GAAP diluted EPS from continuing operations | $ 3.91 | $ 3.33 | $ 4.87 | 17 % | (32)% |
| Adjustments: | | | | | |
| Special (gains) and charges, after tax | 0.74 | 0.88 | 0.45 | | |
| Discrete tax net (benefit) expense | 0.02 | (0.19) | (0.20) | | |
| Impact of Purolite on diluted EPS | 0.02 | - | - | | |
| Non-GAAP adjusted diluted EPS from continuing operations | $4.69 | $ 4.02 | $ 5.12 | 17 % | (21)% |

Per share amounts do not necessarily sum due to rounding.

Currency translation had an favorable $0.11 impact on reported and adjusted diluted EPS when comparing 2021 to 2020 and unfavorable $0.05 impact when comparing 2020 to 2019.

## SEGMENT PERFORMANCE

The non-U.S. dollar functional currency international amounts included within our reportable segments are based on translation into U.S. dollars at the fixed currency exchange rates established by management for 2021. The difference between the fixed currency exchange rates and the actual currency exchange rates is reported as "effect of foreign currency translation" in the following tables. All other accounting policies of the reportable segments are consistent with U.S. GAAP and the accounting policies described in Note 2. Additional information about our reportable segments is included in Note 19.

Fixed currency net sales and operating income for 2021, 2020 and 2019 for our reportable segments are shown in the following tables.

**Net Sales**

| | | | | Percent Change | |
|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 |
| Global Industrial | $6,304.9 | $6,048.2 | $6,087.9 | 4 % | (1)% |
| Global Institutional & Specialty | 3,978.2 | 3,629.0 | 4,477.2 | 10 | (19) |
| Global Healthcare & Life Sciences | 1,195.4 | 1,241.1 | 1,017.6 | (4) | 22 |
| Other | 1,226.9 | 1,103.4 | 1,220.5 | 11 | (10) |
| Corporate | 139.4 | 100.6 | - | 39 | 100 |
| Subtotal at fixed currency | 12,844.8 | 12,122.3 | 12,803.2 | 6 | (5) |
| Effect of foreign currency translation | (111.7) | (332.1) | (241.2) | | |
| Total reported net sales | $12,733.1 | $11,790.2 | $12,562.0 | 8 % | (6)% |

**Operating Income**

| | | | | Percent Change | |
|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 |
| Global Industrial | $1,031.0 | $1,123.1 | $921.3 | (8)% | 22 % |
| Global Institutional & Specialty | 556.9 | 324.0 | 945.8 | 72 | (66) |
| Global Healthcare & Life Sciences | 160.9 | 218.3 | 129.2 | (26) | 69 |
| Other | 187.3 | 132.8 | 169.7 | 41 | (22) |
| Corporate | (318.6) | (349.7) | (283.6) | (9) | 23 |
| Subtotal at fixed currency | 1,617.5 | 1,448.5 | 1,882.4 | 12 | (23) |
| Effect of foreign currency translation | (18.9) | (52.8) | (37.2) | | |
| Total reported operating income | $1,598.6 | $1,395.7 | $1,845.2 | 15 % | (24)% |

The following tables reconcile the impact of acquisitions and divestitures within our reportable segments.

| | Year ended December 31 | | | | | |
|---|---|---|---|---|---|---|
| **Net Sales** | 2021 | | | 2020 | | |
| (millions) | Fixed Currency | Impact of Acquisitions and Divestitures | Acquisition Adjusted | Fixed Currency | Impact of Acquisitions and Divestitures | Acquisition Adjusted |
| Global Industrial | $6,304.9 | (65.9) | $6,239.0 | $6,048.2 | (37.1) | $6,011.1 |
| Global Institutional & Specialty | 3,978.2 | (14.2) | 3,964.0 | 3,629.0 | - | 3,629.0 |
| Global Healthcare & Life Sciences | 1,195.4 | (44.5) | 1,150.9 | 1,241.1 | (1.2) | 1,239.9 |
| Other | 1,226.9 | - | 1,226.9 | 1,103.4 | - | 1,103.4 |
| Corporate | 139.4 | (139.4) | - | 100.6 | (100.6) | - |
| Subtotal at fixed currency | 12,844.8 | (264.0) | 12,580.8 | 12,122.3 | (138.9) | 11,983.4 |
| Effect of foreign currency translation | (111.7) | | | (332.1) | | |
| Total reported net sales | $12,733.1 | | | $11,790.2 | | |

| **Operating Income** | 2021 | | | 2020 | | |
|---|---|---|---|---|---|---|
| (millions) | Fixed Currency | Impact of Acquisitions and Divestitures | Acquisition Adjusted | Fixed Currency | Impact of Acquisitions and Divestitures | Acquisition Adjusted |
| Global Industrial | $1,031.0 | (3.4) | $1,027.6 | $1,123.1 | (2.6) | $1,120.5 |
| Global Institutional & Specialty | 556.9 | 2.2 | 559.1 | 324.0 | - | 324.0 |
| Global Healthcare & Life Sciences | 160.9 | 10.2 | 171.1 | 218.3 | (0.2) | 218.1 |
| Other | 187.3 | - | 187.3 | 132.8 | - | 132.8 |
| Corporate | (122.1) | - | (122.1) | (121.9) | - | (121.9) |
| Non-GAAP adjusted fixed currency operating income | 1,814.0 | 9.0 | 1,823.0 | 1,676.3 | (2.8) | 1,673.5 |
| Special (gains) and charges | 196.5 | | | 227.8 | | |
| Subtotal at fixed currency | 1,617.5 | | | 1,448.5 | | |
| Effect of foreign currency translation | (18.9) | | | (52.8) | | |
| Total reported operating income | $1,598.6 | | | $1,395.7 | | |

## Global Industrial

| | 2021 | 2020 | 2019 |
|---|---|---|---|
| Sales at fixed currency (millions) | **$6,304.9** | $6,048.2 | $6,087.9 |
| Sales at public currency (millions) | **6,237.8** | 5,867.1 | 5,978.8 |
| Volume | **2 %** | (3)% | |
| Price changes | **2 %** | 2 % | |
| Acquisition adjusted fixed currency sales change | **4 %** | (1)% | |
| Acquisitions and divestitures | **- %** | 1 % | |
| Fixed currency sales change | **4 %** | (1)% | |
| Foreign currency translation | **2 %** | (1)% | |
| Public currency sales change | **6 %** | (2)% | |
| Operating income at fixed currency (millions) | **$1,031.0** | $1,123.1 | $921.3 |
| Operating income at public currency (millions) | **1,016.3** | 1,086.8 | 901.6 |
| Fixed currency operating income change | **(8)%** | 22 % | |
| Fixed currency operating income margin | **16.4 %** | 18.6 % | 15.1 % |
| Acquisition adjusted fixed currency operating income change | **(8)%** | 22 % | |
| Acquisition adjusted fixed currency operating income margin | **16.5 %** | 18.6 % | * |
| Public currency operating income change | **(6)%** | 21 % | |

* Not meaningful
Amounts do not necessarily sum due to rounding.

***Net Sales***

Fixed currency sales for Global Industrial increased in 2021 as strong growth in Paper and Water, led by recovering market conditions, strong pricing and new business wins, along with a good growth in Food & Beverage, were offset by a decrease in Downstream sales growth. The 2020 sales decrease was impacted by regional declines in North America and Asia Pacific, partially offset by growth in all other regions.

At an operating segment level, ***Water*** fixed currency sales increased 6% in 2021 as strong new business wins and accelerating pricing leveraged recovering markets. Water fixed currency sales decreased 2% in 2020. Light industry water treatment sales had solid growth in 2021 and modest growth in 2020 led by good gains in food & beverage, light manufacturing and data centers. Heavy industry sales recorded a strong increase in 2021 driven by primary metals and were moderately lower in 2020, impacted by lower end market demand. ***Food & Beverage*** fixed currency sales increased 3% (2% acquisition adjusted) in 2021 primarily reflecting accelerating pricing, recovering markets and new business wins. Globally, we realized strong growth in beverage, brewing and modest growth in dairy. Fixed currency sales increased 5% (3% acquisition adjusted) in 2020, as share gains and pricing more than offset generally flat industry trends. ***Downstream*** fixed currency sales decreased 3% and 8% in 2021 and 2020, respectively, due to lower demand from COVID and impacts from the Texas freeze and Hurricane Ida impacts in 2021, while substantial reductions in transportation fuel demand and additive use hurt 2020 results. ***Paper*** fixed currency sales increased 11% in 2021 driven by increased pricing, strong new business wins, and increased ecommerce activity. Fixed currency sales were flat in 2020 despite softer industrial containerboard market conditions which reduced volumes in major regions.

***Operating Income***

Fixed currency operating income and fixed currency operating income margins for Global Industrial decreased in 2021 and increased in 2020 when compared to prior periods.

Acquisition adjusted fixed currency operating income margins decreased 2.1 percentage points in 2021 compared to 2020, as the 1.8 percentage point positive impact from accelerating pricing was more than offset by the 3.4 percentage point negative impact of significantly higher delivered product costs and supply constraints, including the impact of Texas Freeze and Hurricane Ida. Acquisition adjusted fixed currency operating income margins increased in 2020, as the favorable impacts of cost savings, pricing, lower delivered product costs and lower variable compensation more than offset the negative impact of lower volume.

## Global Institutional & Specialty

| | 2021 | 2020 | 2019 |
|---|---|---|---|
| Sales at fixed currency (millions) | $3,978.2 | $3,629.0 | $4,477.2 |
| Sales at public currency (millions) | 3,955.9 | 3,562.5 | 4,416.1 |
| Volume | 7 % | (21)% | |
| Price changes | 2 % | 2 % | |
| Acquisition adjusted fixed currency sales change | 9 % | (20)% | |
| Acquisitions and divestitures | - % | 1 % | |
| Fixed currency sales change | 10 % | (19)% | |
| Foreign currency translation | 1 % | - % | |
| Public currency sales change | 11 % | (19)% | |
| Operating income at fixed currency (millions) | $556.9 | $324.0 | $945.8 |
| Operating income at public currency (millions) | 554.7 | 320.1 | 936.8 |
| Fixed currency operating income change | 72 % | (66)% | |
| Fixed currency operating income margin | 14.0 % | 8.9 % | 21.1 % |
| Acquisition adjusted fixed currency operating income change | 73 % | (66)% | |
| Acquisition adjusted fixed currency operating income margin | 14.1 % | 8.9 % | * |
| Public currency operating income change | 73 % | (66)% | |

* Not meaningful
Amounts do not necessarily sum due to rounding.

***Net Sales***

Fixed currency sales for Global Institutional & Specialty increased in 2021 driven by strong growth in the Institutional operating segment reflecting recovering markets, new business wins including gains from the Ecolab Science Certified programs, innovation and accelerating pricing and decreased in 2020 driven by a significant decline in the Institutional business due to the impact of the COVID-19 pandemic.

At an operating segment level, ***Institutional*** fixed currency sales increased 15% in 2021, driven by strong growth in the Institutional operating segment reflecting recovering markets in the U.S. and Europe, new business wins including gains from the Ecolab Science Certified programs, innovation and accelerating pricing. Fixed currency sales decreased 27% in 2020, reflecting strong hand and surface hygiene sales that were more than offset by the negative effects of mandated reductions for in-unit dining and domestic and international travel that significantly reduced foot traffic at full-service restaurants, occupancy rates at hotels and customer visits to other entertainment facilities through the year. ***Specialty*** fixed currency sales decreased 3% in 2021, as modest quickservice sales growth were more than offset by lower food retail sales. Quickservice sales showed a modest gain as new business wins more than offset impacts of COVID-19 restrictions and labor shortages. Food retail sales declined versus the strong sanitizer demand in 2020 and customer labor shortages that has resulted in reduced in-store services and associated product usage. Fixed currency sales increased 8% (5% acquisition adjusted) in 2020, as strong food retail sales growth, benefiting from continued expanded cleaning protocols and frequency in the grocery stores in response to the COVID-19 pandemic and new customer additions, was partially offset by moderately lower quickservice sales, which saw strong hand and surface sanitizer sales more than offset by COVID-19 pandemic related impacts on restaurant volumes.

***Operating Income***

Fixed currency operating income for our Global Institutional & Specialty segment increased in 2021 and decreased in 2020 when compared to prior periods. Fixed currency operating income margins increased in 2021 after decreasing in 2020.

Acquisition adjusted fixed currency operating income margins increased 5.2 percentage points during 2021, as the 6.9 percentage point positive impact from higher volume, accelerating pricing, and favorable mix more than offset the 2.4 percentage point negative impact of the comparison to lower variable compensation last year and higher delivered product costs. Acquisition adjusted fixed currency operating income margins decreased during 2020 as margins were negatively impacted from volume declines, unfavorable mix and higher bad debt expense, which more than offset the positive impact of cost savings.

## Global Healthcare & Life Sciences

| | 2021 | 2020 | 2019 |
|---|---|---|---|
| Sales at fixed currency (millions) | **$1,195.4** | $1,241.1 | $1,017.6 |
| Sales at public currency (millions) | **1,181.6** | 1,185.5 | 974.1 |
| Volume | **(9)%** | 18 % | |
| Price changes | **2 %** | 1 % | |
| Acquisition adjusted fixed currency sales change | **(7)%** | 19 % | |
| Acquisitions and divestitures | **3 %** | 2 % | |
| Fixed currency sales change | **(4)%** | 21 % | |
| Foreign currency translation | **4 %** | - % | |
| Public currency sales change | **0 %** | 21 % | |
| Operating income at fixed currency (millions) | **$160.9** | $218.3 | $129.2 |
| Operating income at public currency (millions) | **159.2** | 205.7 | 121.6 |
| Fixed currency operating income change | **(26)%** | 69 % | |
| Fixed currency operating income margin | **13.5 %** | 17.6 % | 12.7 % |
| Acquisition adjusted fixed currency operating income change | **(22)%** | 67 % | |
| Acquisition adjusted fixed currency operating income margin | **14.9 %** | 17.6 % | * |
| Public currency operating income change | **(23)%** | 69 % | |

* Not meaningful
Amounts do not necessarily sum due to rounding.

***Net Sales***

Fixed currency sales decreased for Global Healthcare & Life Sciences in 2021 compared to a strong 2020 year when sales benefited from strong COVID-19 related demand and increased in 2020 as growth was driven by volume and pricing gains.

At an operating segment level, ***Healthcare*** fixed currency sales decreased 5% (8% acquisition adjusted) in 2021 reflecting the comparison against strong 2020 COVID-19 related hand and surface disinfection sales as well as softer elective surgical procedures activity in 2021 due to the rise in COVID variants during the year. Fixed currency sales increased 18% (16% acquisition adjusted) in 2020. Strong COVID-19 pandemic related hand and surface disinfection sales growth more than offset the unfavorable effects of delayed elective surgical procedures. ***Life Sciences*** fixed currency sales decreased 5% (4% acquisition adjusted) in 2021 as accelerating pricing was more than offset by volume declines versus the very strong 2020 driven by extraordinary COVID-19 demand last year. Fixed currency sales increased 35% in 2020, led by strong demand for biodecontamination units, business wins and pricing in our cleaning and disinfection programs for both the pharmaceutical and personal care markets, with strong growth in Europe and moderate North America gains.

***Operating Income***

Fixed currency operating income for our Global Healthcare & Life Sciences segment decreased in 2021 and increased in 2020 when compared to prior periods. Fixed currency operating income margins decreased in 2021 and increased in 2020.

Acquisition adjusted fixed currency operating income margins decreased 2.7 percentage points in 2021, as the 1.8 percentage point positive impact from accelerating pricing was more than offset by the 3.5 percentage point negative impact of volume declines due to strong comparison against last year. Acquisition adjusted fixed currency operating income margins increased in 2020 driven by strong volume gains, reduced discretionary spending and pricing, partially offset by negative impact of higher delivered product costs.

## Other

| | 2021 | 2020 | 2019 |
|---|---|---|---|
| Sales at fixed currency (millions) | $1,226.9 | $1,103.4 | $1,220.5 |
| Sales at public currency (millions) | 1,218.6 | 1,075.1 | 1,193.0 |
| Volume | 9 % | (11)% | |
| Price changes | 2 % | 2 % | |
| Acquisition adjusted fixed currency sales change | 11 % | (10)% | |
| Acquisitions and divestitures | - % | - % | |
| Fixed currency sales change | 11 % | (10)% | |
| Foreign currency translation | 2 % | - % | |
| Public currency sales change | 13 % | (10)% | |
| Operating income at fixed currency (millions) | $187.3 | $132.8 | $169.7 |
| Operating income at public currency (millions) | 186.2 | 130.2 | 165.2 |
| Fixed currency operating income change | 41 % | (22)% | |
| Fixed currency operating income margin | 15.3 % | 12.0 % | 13.9 % |
| Acquisition adjusted fixed currency operating income change | 41 % | (21)% | |
| Acquisition adjusted fixed currency operating income margin | 15.3 % | 12.0 % | * |
| Public currency operating income change | 43 % | (21)% | |

* Not meaningful
Amounts do not necessarily sum due to rounding.

***Net Sales***

Fixed currency sales for Other increased in 2021 led by strong growth in Pest Elimination as it benefited from new business wins and a recovering market. Fixed currency sales decreased in 2020 with declines in sales results mostly impacting North America and Europe.

At an operating segment level, ***Pest Elimination*** fixed currency sales increased 11% in 2021 reflecting strong growth in food and beverage plants, restaurants and hospitality markets. Fixed currency sales decreased 2% in 2020 with sales growth in food and beverage plants, grocery stores and healthcare facilities offset by the impact of lower restaurant and hospitality volumes impacted by the COVID-19 pandemic due to partial or full customer closures along with limited vendor access. ***Textile Care*** fixed currency sales increased 10% in 2021 and decreased 27% in 2020. ***Colloidal Technologies Group*** fixed currency sales increased 16% in 2021 and decreased 18% in 2020.

***Operating Income***

Fixed currency operating income in Other increased in 2021 and decreased in 2020 as compared to the prior year. Fixed currency operating income margins increased in 2021 and declined in 2020.

Acquisition adjusted fixed currency operating income margins in Other increased 3.3 percentage points in 2021, as the 4.4 percentage point positive impact from higher volume and increased pricing more than offset the 1.1 percentage point negative impact of the comparison to lower variable compensation last year. Acquisition adjusted fixed currency operating income margins in Other decreased in 2020 reflecting lower volume and unfavorable mix negatively impacted margins, which more than offset positive impact of cost savings and pricing.

## Corporate

Consistent with our internal management reporting, Corporate amounts in the table on page 39 include sales to ChampionX in accordance with the long-term supply agreement entered into with the Transaction post-separation, as discussed in Note 5, intangible asset amortization specifically from the Nalco merger and special (gains) and charges that are not allocated to our reportable segments. Items included within special (gains) and charges are shown in the table on page 33.

## FINANCIAL POSITION, CASH FLOW AND LIQUIDITY

### Financial Position

Total assets were $21.2 billion as of December 31, 2021, compared to total assets of $18.1 billion as of December 31, 2020.

Total liabilities were $14.0 billion as of December 31, 2021, compared to total liabilities of $11.9 billion as of December 31, 2020. Total debt was $8.8 billion as of December 31, 2021 and $6.7 billion as of December 31, 2020. See further discussion of our debt activity within the “Liquidity and Capital Resources” section of this MD&A.

Our net debt to EBITDA is shown in the following table. EBITDA is a non-GAAP measure discussed further in the “Non-GAAP Financial Measures” section of this MD&A.

| | 2021 | 2020 | 2019 |
|---|---|---|---|
| (ratio) | | | |
| Net debt to EBITDA | 3.4 | 2.4 | 2.3 |
| (millions) | | | |
| Total debt | $8,758.2 | $6,686.6 | $6,353.6 |
| Cash | 359.9 | 1,260.2 | 118.8 |
| Net debt | $8,398.3 | $5,426.4 | $6,234.8 |
| Net income including noncontrolling interest | $1,144.0 | $984.8 | $1,442.9 |
| Provision for income taxes | 270.2 | 176.6 | 288.6 |
| Interest expense, net | 218.3 | 290.2 | 190.7 |
| Depreciation | 604.4 | 594.3 | 569.1 |
| Amortization | 238.7 | 218.4 | 206.2 |
| EBITDA | $2,475.6 | $2,264.3 | $2,697.5 |

### Cash Flows

***Operating Activities***

| | | | | Dollar Change | |
|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 |
| Cash provided by operating activities | $2,061.9 | $1,741.8 | $2,046.7 | $320.1 | ($304.9) |

We continue to generate strong cash flow from operations, amidst the COVID-19 pandemic, allowing us to fund our ongoing operations, acquisitions, investments in the business and pension obligations along with returning cash to our shareholders through dividend payments and share repurchases.

Cash provided by operating activities increased $320 million in 2021 compared to 2020, driven primarily by $159 million in increased net income, $94 million in higher tax expense accruals associated with higher income, and an increase in accruals for variable compensation, partially offset by $83 million of increased investment in working capital. Cash provided by operating activities decreased $305 million in 2020 compared to 2019, driven primarily by $458 million of lower net income due to the impact of COVID-19, partially offset by $160 million of improvement in working capital.

The impact on operating cash flows of pension and postretirement plan contributions, cash activity related to restructuring, cash paid for income taxes and cash paid for interest, are shown in the following table:

| | | | | Dollar Change | |
|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 |
| Pensions and postretirement plan contributions | $60.2 | $70.7 | $186.0 | ($10.5) | ($115.3) |
| Restructuring payments | 78.3 | 71.1 | 82.5 | 7.2 | (11.4) |
| Income tax payments | 275.7 | 366.9 | 337.4 | (91.2) | 29.5 |
| Interest payments | 208.7 | 262.5 | 189.4 | (53.8) | 73.1 |

***Investing Activities***

| (millions) | 2021 | 2020 | 2019 | Dollar Change 2021 | Dollar Change 2020 |
|---|---|---|---|---|---|
| Cash used for investing activities | ($4,579.7) | ($857.7) | ($1,129.6) | ($3,722.0) | $271.9 |

Cash used for investing activities is primarily impacted by the timing of business acquisitions and dispositions as well as from capital investments in the business.

Total cash paid for acquisitions, net of cash acquired and net of cash received from dispositions, in 2021, 2020 and 2019 was $3,924 million, $371 million and $385 million, respectively. Our acquisitions and divestitures are discussed further in Note 4. We continue to target strategic business acquisitions which complement our growth strategy and expect to continue to make capital investments and acquisitions in the future to support our long-term growth.

We continue to make capital investments in the business, including merchandising and customer equipment and manufacturing facilities. Total capital expenditures were $643 million, $489 million and $731 million in 2021, 2020 and 2019, respectively.

***Financing Activities***

| (millions) | 2021 | 2020 | 2019 | Dollar Change 2021 | Dollar Change 2020 |
|---|---|---|---|---|---|
| Cash provided by (used for) financing activities | $1,603.2 | ($340.2) | ($1,346.6) | $1,943.4 | $1,006.4 |

Our cash flows from financing activities primarily reflect the issuances and repayment of debt, common stock repurchases, proceeds from common stock issuances related to our equity incentive programs and dividend payments.

We issued $2,800 million par value and received $2,775 million in proceeds of long-term debt and repaid $900 million of long-term debt in 2021. We issued $1,850 million par value and received $1,856 million in proceeds of long-term debt and repaid $1,570 million of long-term debt in 2020. We repaid $401 million of long-term debt in 2019. The proceeds received from the debt issuances were used for the Purolite acquisition, repayment of outstanding debt, repayment of commercial paper and general corporate purposes. In addition, we issued $394 million of commercial paper and notes payable in 2021 and repaid $66 million and $252 million in 2020 and 2019, respectively.

Shares are repurchased for the purpose of partially offsetting the dilutive effect of our equity compensation plans and stock issued in acquisitions, to manage our capital structure and to efficiently return capital to shareholders. We repurchased a total of $107 million, $146 million, and $354 million of shares in 2021, 2020 and 2019, respectively.

The impact on financing cash flows of commercial paper and notes payable repayments, long-term debt borrowings and long-term debt repayments, are shown in the following table:

| (millions) | 2021 | 2020 | 2019 | Dollar Change 2021 | Dollar Change 2020 |
|---|---|---|---|---|---|
| Net issuances (repayments) of commercial paper and notes payable | $393.6 | ($65.5) | ($252.0) | $459.1 | $186.5 |
| Long-term debt borrowings | 2,775.0 | 1,855.9 | — | 919.1 | 1,855.9 |
| Long-term debt repayments | (1,017.9) | (1,570.0) | (400.6) | 552.1 | (1,169.4) |

In December 2021, we increased our quarterly dividend rate by 6%. This represents the 30th consecutive year we have increased our dividend. We have paid dividends on our common stock for 85 consecutive years. We paid dividends of $566 million, $561 million and $553 million in 2021, 2020 and 2019, respectively. Cash dividends declared per share of common stock, by quarter, for each of the last three years were as follows:

| | First Quarter | Second Quarter | Third Quarter | Fourth Quarter | Year |
|---|---|---|---|---|---|
| 2021 | $0.48 | $0.48 | $0.48 | $0.51 | $1.95 |
| 2020 | $0.47 | $0.47 | $0.47 | $0.48 | $1.89 |
| 2019 | $0.46 | $0.46 | $0.46 | $0.47 | $1.85 |

## Liquidity and Capital Resources

We currently expect to fund all of our cash requirements which are reasonably foreseeable for the next twelve months, including scheduled debt repayments, new investments in the business, share repurchases, dividend payments, possible business acquisitions and pension and postretirement contributions with cash from operating activities, and as needed, additional short-term and/or long-term borrowings. We continue to expect our operating cash flow to remain strong.

As of December 31, 2021, we had $360 million of cash and cash equivalents on hand, of which $181 million was held outside of the U.S. As of December 31, 2020, we had $1,260 million of cash and cash equivalents on hand, of which $59 million was held outside of the U.S. We will continue to evaluate our cash position in light of future developments.

As of December 31, 2021, we had a $2.0 billion multi-year credit facility, which expires in April 2026. The credit facility has been established with a diverse syndicate of banks and supports our U.S. and Euro commercial paper programs. The maximum aggregate amount of commercial paper that may be issued under our U.S. commercial paper program and our Euro commercial paper program may not exceed $2.0 billion. At year end, we had $400 million outstanding commercial paper under our U.S. program and no commercial paper outstanding on our Euro program. There were no borrowings under our credit facility as of December 31, 2021 or 2020. As of December 31, 2021, both programs were rated A-2 by Standard & Poor's, P-2 by Moody's and F-1 by Fitch.

We had a $305 million term credit agreement which we drew on and repaid $303 million during the second quarter of 2020. The credit agreement expired in June 2020.

Additionally, we have uncommitted credit lines with major international banks and financial institutions. These credit lines support our daily global funding needs, primarily our global cash pooling structures. We have $118 million of bank supported letters of credit, surety bonds and guarantees outstanding in support of our commercial business transactions. We do not have any other significant unconditional purchase obligations or commercial commitments.

As of December 31, 2021, Standard & Poor's and Fitch both rated our long-term credit at A- (stable outlook) and Moody's rated our long-term credit at A3 (stable outlook). A reduction in our credit ratings could limit or preclude our ability to issue commercial paper under our current programs or could also adversely affect our ability to renew existing, or negotiate new, credit facilities in the future and could increase the cost of these facilities.

We are in compliance with our debt covenants and other requirements of our credit agreements and indentures.

A schedule of our various obligations as of December 31, 2021 are summarized in the following table:

| | | Payments Due by Period | | | |
|---|---|---|---|---|---|
| (millions) | Total | Less Than 1 Year | 2-3 Years | 4-5 Years | More Than 5 Years |
| Notes payable | $ 8 | $ 8 | | | |
| One-time transition tax | 83 | | 13 | 70 | |
| Long-term debt | 8,347 | 2 | 1,150 | 1,396 | 5,799 |
| Operating leases | 450 | 138 | 157 | 74 | 81 |
| Interest* | 3,644 | 234 | 456 | 418 | 2,536 |
| Total | $ 12,532 | $ 382 | $ 1,776 | $ 1,958 | $ 8,416 |

* Interest on variable rate debt was calculated using the interest rate at year end 2021.

As of December 31, 2021, our gross liability for uncertain tax positions was $25 million. We are not able to reasonably estimate the amount by which the liability will increase or decrease over an extended period of time or whether a cash settlement of the liability will be required. Therefore, these amounts have been excluded from the schedule of contractual obligations.

We do not have required minimum cash contribution obligations for our qualified pension plans in 2021. We are required to fund certain international pension benefit plans in accordance with local legal requirements. We estimate contributions to be made to our international plans will approximate $49 million in 2022. These amounts have been excluded from the schedule of contractual obligations.

We lease certain sales and administrative office facilities, distribution centers, research and manufacturing facilities and other equipment under longer-term operating leases. Vehicle leases are generally shorter in duration. Vehicle leases have residual value requirements that have historically been satisfied primarily by the proceeds on the sale of the vehicles.

### Market Risk

We enter into contractual arrangements (derivatives) in the ordinary course of business to manage foreign currency exposure and interest rate risks. We do not enter into derivatives for speculative or trading purposes. Our use of derivatives is subject to internal policies that provide guidelines for control, counterparty risk, and ongoing monitoring and reporting, and is designed to reduce the volatility associated with movements in foreign exchange and interest rates on our income statement and cash flows.

We enter into foreign currency forward contracts to hedge certain intercompany financial arrangements, and to hedge against the effect of exchange rate fluctuations on transactions related to cash flows denominated in currencies other than U.S. dollars. We use net investment hedges as hedging instruments to manage risks associated with our investments in foreign operations. As of December 31, 2021, we had a total of €1,150 million senior notes designated as net investment hedges.

We enter into cross-currency swap derivative contracts to hedge certain Euro denominated exposures from our investments in certain of its Euro denominated functional currency subsidiaries. We use net investment hedges as hedging instruments to manage risks associated with our investments in foreign operations. As of December 31, 2021, we had €425 million of cross-currency swap derivative contracts outstanding designated as a net investment hedge.

We manage interest expense using a mix of fixed and floating rate debt. To help manage borrowing costs, we may enter into interest rate swap agreements. Under these arrangements, we agree to exchange, at specified intervals, the difference between fixed and floating interest amounts calculated by reference to an agreed-upon notional principal amount. As of December 31, 2021, we had $1,250 million of interest rate swaps outstanding.

Refer to Note 9 for further information on our hedging activity.

Based on a sensitivity analysis (assuming a 10% change in market rates) of our foreign exchange and interest rate derivatives and other financial instruments, changes in exchange rates or interest rates would increase/decrease our financial position and liquidity by approximately $278 million. The effect on our results of operations would be substantially offset by the impact of the hedged items.

## GLOBAL ECONOMIC AND POLITICAL ENVIRONMENT

#### COVID-19

In March 2020, the COVID-19 was declared a pandemic by the World Health Organization. The COVID-19 pandemic is continuing to affect major economic and financial markets and industries are facing the challenges with the economic conditions resulting from efforts to address the pandemic, including supply shortages, inflation and other challenges, such as those resulting from the introduction of vaccination mandates. While many government restrictions in the U.S. have eased throughout 2021, restrictions on activities continue in many other regions, particularly those where vaccination rates lag, continuing to impact consumer activity in those regions. Concerns remain that our markets could see a resurgence of cases triggering additional government mandated lockdowns or similar restrictions on activity, for example due to the emergence of a variant against which existing vaccines are not as effective or which may be more easily transmitted, particularly to those unvaccinated. These conditions have had and will continue to have a negative impact on market conditions and customer demand throughout the world.

We expect continued, if uneven, global economic recovery. We have also experienced continued substantial delivered product cost inflation. While we expect the challenges that affected us and the rest of the world in the fourth quarter to continue into the first quarter of 2022, assuming the rate of cost inflation and COVID impacts ease progressively in the second half of the year, we believe our continued actions should help us deliver improved results in 2022.

#### Global Economies

Approximately half of our sales are outside of the U.S. Our international operations subject us to changes in economic conditions and foreign currency exchange rates as well as political uncertainty in some countries which could impact future operating results.

Argentina has continued to experience negative economic trends, evidenced by multiple periods of increasing inflation rates, devaluation of the Argentine Peso, and increasing borrowing rates. Argentina is classified as a highly inflationary economy in accordance with U.S. GAAP, and the U.S. dollar is the functional currency for our subsidiaries in Argentina. During 2021, sales in Argentina represented less than 1% of our consolidated sales. Assets held in Argentina at the end of 2021 represented less than 1% of our consolidated assets.

In February 2022, the U.S. and the European Union responded to Russia's invasion of Ukraine by imposing various economic sanctions. The U.S. and other countries could impose wider sanctions or take further actions if the conflict escalates. While it is difficult to anticipate the impact the sanctions may have on Ecolab, any further sanctions imposed or actions taken by the U.S. or other countries, or any retaliatory measures by Russia in response, could increase our costs, reduce our sales and earnings or otherwise have an adverse effect on our operations. During 2021, net sales to Russia and Ukraine were approximately 1% of consolidated net sales.

## NEW ACCOUNTING PRONOUNCEMENTS

Information regarding new accounting pronouncements is included in Note 2.

## NON-GAAP FINANCIAL MEASURES

This MD&A includes financial measures that have not been calculated in accordance with U.S. GAAP. These non-GAAP measures include:

- Fixed currency sales
- Adjusted net sales
- Adjusted fixed currency sales
- Acquisition adjusted fixed currency sales
- Adjusted cost of sales
- Adjusted gross margin
- Fixed currency operating income
- Fixed currency operating income margin
- Adjusted operating income
- Adjusted operating income margin
- Adjusted fixed currency operating income
- Adjusted fixed currency operating income margin
- Acquisition adjusted fixed currency operating income
- Acquisition adjusted fixed currency operating income margin
- Adjusted other (income) expense
- Adjusted interest expense, net
- EBITDA
- Adjusted tax rate
- Adjusted net income from discontinued operations, net of tax
- Adjusted net income from continuing operations attributable to Ecolab
- Adjusted diluted EPS from continuing operations

We provide these measures as additional information regarding our operating results. We use these non-GAAP measures internally to evaluate our performance and in making financial and operational decisions, including with respect to incentive compensation. We believe that our presentation of these measures provides investors with greater transparency with respect to our results of operations and that these measures are useful for period-to-period comparison of results.

Our non-GAAP adjusted financial measure for net sales excludes Purolite sales. Our non-GAAP adjusted financial measures for cost of sales, gross margin, operating income, other (income) expense and interest expense exclude the impact of special (gains) and charges and (with the exception of other (income) expense) the impact of the Purolite transaction, and our non-GAAP measures for tax rate, net income from continuing operations attributable to Ecolab and diluted EPS from continuing operations further exclude the impact of discrete tax items. We include items within special (gains) and charges and discrete tax items that we believe can significantly affect the period-over-period assessment of operating results and not necessarily reflect costs and/or income associated with historical trends and future results. After tax special (gains) and charges are derived by applying the applicable local jurisdictional tax rate to the corresponding pre-tax special (gains) and charges.

EBITDA is defined as the sum of net income including non-controlling interest, provision for income taxes, net interest expense, depreciation and amortization. EBITDA is used in our net debt to EBITDA ratio, which we view as important indicators of the operational and financial health of our organization.

We evaluate the performance of our international operations based on fixed currency rates of foreign exchange. Fixed currency amounts included in this Form 10-K are based on translation into U.S. dollars at the fixed foreign currency exchange rates established by management at the beginning of 2021. We also provide our segment results based on public currency rates for international purposes.

Our reportable segments do not include the impact of intangible asset amortization from the Nalco merger or the impact of special (gains) and charges as these are not allocated to the Company's reportable segments.

Acquisition adjusted growth rates exclude the results of our acquired businesses from the first twelve months post acquisition, exclude the results of our divested businesses from the twelve months prior to divestiture and the Venezuelan results of operations from all comparable periods. In addition, as part of the separation, we also entered into a Master Cross Supply and Product Transfer agreement with ChampionX to provide, receive or transfer certain products for a period up to 36 months. Sales of product to ChampionX under this agreement are recorded in product and equipment sales in the Corporate segment along with the related cost of sales. These transactions are removed from the consolidated results as part of the calculation of the impact of acquisitions and divestitures.

These non-GAAP measures are not in accordance with, or an alternative to U.S. GAAP, and may be different from non-GAAP measures used by other companies. Investors should not rely on any single financial measure when evaluating our business. We recommend that investors view these measures in conjunction with the U.S. GAAP measures included in this MD&A and we have provided reconciliations of reported U.S. GAAP amounts to the non-GAAP amounts.

## Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

The discussion under the heading entitled "Market Risk" and “Global Economic and Political Environment” is incorporated by reference from Part II, Item 7 of this Form 10-K.

## Item 8. Financial Statements and Supplementary Data.

### REPORTS OF MANAGEMENT

**To our Shareholders:**

**Management’s Responsibility for Financial Statements**

Management is responsible for the integrity and objectivity of the consolidated financial statements. The statements have been prepared in accordance with accounting principles generally accepted in the United States of America and, accordingly, include certain amounts based on management’s best estimates and judgments.

The Board of Directors, acting through its Audit Committee composed solely of independent directors, is responsible for determining that management fulfills its responsibilities in the preparation of financial statements and maintains internal control over financial reporting. The Audit Committee recommends to the Board of Directors the appointment of the Company’s independent registered public accounting firm, subject to ratification by the shareholders. It meets regularly with management, the internal auditors and the independent registered public accounting firm.

The independent registered public accounting firm has audited the consolidated financial statements included in this annual report and have expressed their opinion regarding whether these consolidated financial statements present fairly in all material respects our financial position and results of operation and cash flows as stated in their report presented separately herein.

**Management’s Report on Internal Control Over Financial Reporting**

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Under the supervision and with the participation of management, including the principal executive officer and principal financial officer, an evaluation of the design and operating effectiveness of internal control over financial reporting was conducted based on the 2013 framework in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on the evaluation under the framework in *Internal Control — Integrated Framework*, management concluded that internal control over financial reporting was effective as of December 31, 2021.

On December 1, 2021, the Company completed the acquisition of Purolite. Refer to Note 4 of the Notes to the Consolidated Financial Statements for additional information. Based on the Securities and Exchange Commission staff guidance companies may exclude acquisitions from their assessment of internal control over financial reporting during the first year of an acquisition and management elected to exclude Purolite from its assessment of internal control over financial reporting as of December 31, 2021. Purolite’s total assets and total revenues, excluded from management’s assessment, represent approximately 2% and less than 1%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2021.

The Company’s independent registered public accounting firm, PricewaterhouseCoopers LLP, has audited the effectiveness of the Company’s internal control over financial reporting as of December 31, 2021 as stated in their report which is included herein.

| | |
|---|---|
| Christophe Beck | Scott D. Kirkland |
| President and Chief Executive Officer | Chief Financial Officer |

## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

**To the Board of Directors and Shareholders of Ecolab Inc.**

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

We have audited the accompanying consolidated balance sheets of Ecolab Inc. and its subsidiaries (the "Company") as of December 31, 2021 and 2020, and the related consolidated statements of income, of comprehensive income, of equity and of cash flows for each of the three years in the period ended December 31, 2021, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

*Change in Accounting Principle*

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

***Basis for Opinions***

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

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

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

As described in Management's Report on Internal Control Over Financial Reporting, management has excluded Purolite Corporation ("Purolite") from its assessment of internal control over financial reporting as of December 31, 2021 because it was acquired by the Company in a purchase business combination during 2021. We have also excluded Purolite from our audit of internal control over financial reporting. Purolite is a wholly-owned subsidiary whose total assets and total revenues excluded from management's assessment and our audit of internal control over financial reporting represent approximately 2% and less than 1%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2021.

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

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

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

***Critical Audit Matters***

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

*Goodwill Impairment Assessment – Downstream Reporting Unit*

As described in Note 2 to the consolidated financial statements, the carrying value of goodwill was $8.1 billion as of December 31, 2021, a portion of which is allocated to the Downstream reporting unit. During the second quarter of 2021, management completed its annual goodwill impairment assessment for each of its eleven reporting units. The goodwill impairment assessment was completed using discounted cash flow analyses that incorporated assumptions, including future operating performance, long-term growth and discount rates. If the results of an annual or interim goodwill assessment demonstrate the carrying amount of a reporting unit is greater than its fair value, the Company will recognize an impairment loss for the amount by which the reporting unit's carrying amount exceeds its fair value, but not to exceed the carrying amount of goodwill assigned to that reporting unit.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment of the Downstream reporting unit is a critical audit matter are (i) the significant judgment by management when determining the fair value of the Downstream reporting unit; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumption related to the discount rate; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over management's valuation of the Downstream reporting unit. These procedures also included, among others (i) testing management's process for determining the fair value of the Downstream reporting unit; (ii) evaluating the appropriateness of the discounted cash flow analysis; and (iii) evaluating the reasonableness of the significant assumption used by management related to the discount rate. Evaluating management's significant assumption related to the discount rate involved evaluating whether the significant assumption used was reasonable considering the cost of capital of comparable businesses and relevant industry factors. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the discounted cash flow analysis and (ii) the reasonableness of the discount rate significant assumption.

*Acquisition of Purolite Corporation - Valuation of the U.S. customer relationships intangible asset*

As described in Note 4 to the consolidated financial statements, on December 1, 2021, the Company acquired Purolite for total consideration of $3,698 million in cash, net of cash acquired. The acquisition resulted in $900 million of customer relationships intangible assets being recorded, a significant portion of which is allocated to the U.S. customer relationships intangible asset. The fair values of the customer relationships intangible assets acquired were estimated using discounted cash flow analyses. Significant inputs and assumptions used in the customer relationship intangible asset valuations include projected revenues, contributory asset charges, tax savings due to amortization, income tax rates, customer attrition rates and discount rates.

The principal considerations for our determination that performing procedures relating to the valuation of the acquired U.S. customer relationships intangible asset from the acquisition of Purolite is a critical audit matter are (i) the significant judgment by management when determining the fair value of the acquired U.S. customer relationships intangible asset; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to projected revenues, contributory asset charges, the tax savings due to amortization, the income tax rate, the customer attrition rate, and the discount rate; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the acquisition accounting, including controls over management’s valuation of the U.S. customer relationships intangible asset. These procedures also included, among others (i) reading the purchase agreement; (ii) testing management’s process for determining the fair value of the U.S. customer relationships intangible asset; (iii) evaluating the appropriateness of the discounted cash flow analysis; (iv) testing the completeness and accuracy of the underlying data used in the discounted cash flow analysis; and (v) evaluating the reasonableness of the significant assumptions used by management related to projected revenues, contributory asset charges, the tax savings due to amortization, the income tax rate, the customer attrition rate, and the discount rate. Evaluating management’s significant assumptions related to projected revenues and the income tax rate involved evaluating whether the significant assumptions used by management were reasonable considering (i) the current and past performance of Purolite; (ii) the consistency with external market and industry data; and (iii) whether these significant assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the discounted cash flow analysis and (ii) the reasonableness of the significant assumptions related to contributory asset charges, the tax savings due to amortization, the customer attrition rate, and the discount rate.

/s/ PricewaterhouseCoopers LLP
Minneapolis, Minnesota
February 25, 2022

We have served as the Company’s auditor since 1970.

## CONSOLIDATED STATEMENTS OF INCOME

| (millions, except per share amounts) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Product and equipment sales | $10,153.3 | $9,466.6 | $10,129.0 |
| Service and lease sales | 2,579.8 | 2,323.6 | 2,433.0 |
| Net sales | 12,733.1 | 11,790.2 | 12,562.0 |
| Product and equipment cost of sales | 6,100.9 | 5,481.3 | 5,617.5 |
| Service and lease cost of sales | 1,514.9 | 1,424.5 | 1,428.3 |
| Cost of sales (including special charges (a)) | 7,615.8 | 6,905.8 | 7,045.8 |
| Selling, general and administrative expenses | 3,416.1 | 3,309.1 | 3,550.8 |
| Special (gains) and charges | 102.6 | 179.6 | 120.2 |
| Operating income | 1,598.6 | 1,395.7 | 1,845.2 |
| Other (income) expense (b) | (33.9) | (55.9) | (77.0) |
| Interest expense, net (c) | 218.3 | 290.2 | 190.7 |
| Income before income taxes | 1,414.2 | 1,161.4 | 1,731.5 |
| Provision for income taxes | 270.2 | 176.6 | 288.6 |
| Net income from continuing operations, including noncontrolling interest | 1,144.0 | 984.8 | 1,442.9 |
| Net income from continuing operations attributable to noncontrolling interest | 14.1 | 17.4 | 17.3 |
| Net income from continuing operations attributable to Ecolab | 1,129.9 | 967.4 | 1,425.6 |
| Net income (loss) from discontinued operations, net of tax (Note 5) (d) | - | (2,172.5) | 133.3 |
| Net income (loss) attributable to Ecolab | $1,129.9 | ($1,205.1) | $1,558.9 |
| Earnings (loss) attributable to Ecolab per common share | | | |
| Basic | | | |
| Continuing operations | $ 3.95 | $ 3.37 | $ 4.95 |
| Discontinued operations | $ - | ($ 7.57) | $ 0.46 |
| Earnings attributable to Ecolab | $ 3.95 | ($ 4.20) | $ 5.41 |
| Diluted | | | |
| Continuing operations | $ 3.91 | $ 3.33 | $ 4.87 |
| Discontinued operations | $ - | ($ 7.48) | $ 0.46 |
| Earnings attributable to Ecolab | $ 3.91 | ($ 4.15) | $ 5.33 |
| Weighted-average common shares outstanding | | | |
| Basic | 286.3 | 287.0 | 288.1 |
| Diluted | 289.1 | 290.3 | 292.5 |

(a) Cost of sales includes special charges of $91.9 in 2021, $39.3 in 2020, and $38.5 in 2019, which is included in product and equipment cost of sales. Cost of sales includes special charges of $2.0 in 2021 and $8.9 in 2020, which is included in service and lease cost of sales.
(b) Other (income) expense includes special charges of $37.2 in 2021, $0.4 in 2020 and $9.5 in 2019.
(c) Interest expense, net includes special charges of $33.1 in 2021, $83.8 in 2020, and $0.2 in 2019.
(d) Net income (loss) from discontinued operations, net of tax includes noncontrolling interest of $2.2 in 2020.

The accompanying notes are an integral part of the consolidated financial statements.

## CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Net income (loss) attributable to Ecolab | $1,129.9 | ($1,205.1) | $1,558.9 |
| Net income from continuing operations attributable to noncontrolling interest | 14.1 | 17.4 | 17.3 |
| Net income from discontinued operations attributable to noncontrolling interest | - | 2.2 | - |
| Net income (loss) attributable to Ecolab, including noncontrolling interest | $1,144.0 | ($1,185.5) | $1,576.2 |
| Other comprehensive income (loss), net of tax | | | |
| Foreign currency translation adjustments | | | |
| Foreign currency translation | (10.9) | 50.0 | (45.1) |
| Separation of ChampionX | - | 229.9 | - |
| Gain (loss) on net investment hedges | 51.6 | (87.7) | 31.4 |
| Total foreign currency translation adjustments | 40.7 | 192.2 | (13.7) |
| Derivatives and hedging instruments | 26.0 | (17.0) | (3.4) |
| Pension and postretirement benefits | | | |
| Current period net actuarial gain (loss) | 204.8 | (139.2) | (251.1) |
| Settlement charge | 26.7 | - | - |
| Pension and postretirement prior period service benefits | 1.9 | 5.1 | (0.3) |
| Amortization of net actuarial loss and prior period service credits, net | 56.3 | 56.0 | (0.2) |
| Total pension and postretirement benefits | 289.7 | (78.1) | (251.6) |
| Subtotal | 356.4 | 97.1 | (268.7) |
| Total comprehensive income (loss), including noncontrolling interest | 1,500.4 | (1,088.4) | 1,307.5 |
| Comprehensive income attributable to noncontrolling interest | 10.9 | 21.4 | 15.4 |
| Comprehensive income (loss) attributable to Ecolab | $1,489.5 | ($1,109.8) | $1,292.1 |

The accompanying notes are an integral part of the consolidated financial statements.

## CONSOLIDATED BALANCE SHEETS

| (millions, except per share amounts) | 2021 | 2020 |
|---|---|---|
| **ASSETS** | | |
| Current assets | | |
| Cash and cash equivalents | **$359.9** | $1,260.2 |
| Accounts receivable, net | **2,478.4** | 2,273.8 |
| Inventories | **1,491.8** | 1,285.2 |
| Other current assets | **357.0** | 298.2 |
| Total current assets | **4,687.1** | 5,117.4 |
| Property, plant and equipment, net | **3,288.5** | 3,124.9 |
| Goodwill | **8,063.9** | 6,006.9 |
| Other intangible assets, net | **4,224.1** | 2,977.0 |
| Operating lease assets | **396.8** | 423.8 |
| Other assets | **546.0** | 476.0 |
| Total assets | **$21,206.4** | $18,126.0 |
| **LIABILITIES AND EQUITY** | | |
| Current liabilities | | |
| Short-term debt | **$411.0** | $17.3 |
| Accounts payable | **1,384.2** | 1,160.6 |
| Compensation and benefits | **509.5** | 469.3 |
| Income taxes | **104.3** | 96.1 |
| Other current liabilities | **1,144.2** | 1,188.9 |
| Total current liabilities | **3,553.2** | 2,932.2 |
| Long-term debt | **8,347.2** | 6,669.3 |
| Postretirement health care and pension benefits | **894.2** | 1,226.2 |
| Deferred income taxes | **622.0** | 483.9 |
| Operating lease liabilities | **282.6** | 300.5 |
| Other liabilities | **254.1** | 312.4 |
| Total liabilities | **13,953.3** | 11,924.5 |
| Commitments and contingencies (Note 16) | | |
| Equity (a) | | |
| Common stock | **364.1** | 362.6 |
| Additional paid-in capital | **6,464.6** | 6,235.0 |
| Retained earnings | **8,814.5** | 8,243.0 |
| Accumulated other comprehensive loss | **(1,634.8)** | (1,994.4) |
| Treasury stock | **(6,784.2)** | (6,679.7) |
| Total Ecolab shareholders' equity | **7,224.2** | 6,166.5 |
| Noncontrolling interest | **28.9** | 35.0 |
| Total equity | **7,253.1** | 6,201.5 |
| Total liabilities and equity | **$21,206.4** | $18,126.0 |

(a) Common stock, 800.0 shares authorized, $1.00 par value, 286.9 shares outstanding at December 31, 2021 and 285.7 shares outstanding at December 31, 2020. Shares outstanding are net of treasury stock.

The accompanying notes are an integral part of the consolidated financial statements.

## CONSOLIDATED STATEMENTS OF CASH FLOWS

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| **OPERATING ACTIVITIES** | | | |
| Net income (loss) including noncontrolling interest | $1,144.0 | ($1,185.5) | $1,576.2 |
| Less: Net income (loss) from discontinued operations including noncontrolling interest | - | (2,170.3) | 133.3 |
| Net income from continuing operations including noncontrolling interest | $1,144.0 | $984.8 | $1,442.9 |
| Adjustments to reconcile net income to cash provided by operating activities: | | | |
| Depreciation | 604.4 | 594.3 | 569.1 |
| Amortization | 238.7 | 218.4 | 206.2 |
| Deferred income taxes | (1.1) | (45.8) | (22.1) |
| Share-based compensation expense | 89.5 | 82.1 | 84.0 |
| Pension and postretirement plan contributions | (60.2) | (70.7) | (186.0) |
| Pension and postretirement plan expense, net | 42.4 | 42.0 | 22.6 |
| Restructuring charges, net of cash paid | (41.7) | 7.8 | 29.9 |
| Debt refinancing | 29.4 | 77.1 | - |
| Other, net | 15.9 | 61.0 | 17.6 |
| Changes in operating assets and liabilities, net of effect of acquisitions: | | | |
| Accounts receivable | (178.2) | 155.6 | (173.1) |
| Inventories | (73.0) | (179.5) | 22.3 |
| Other assets | (92.9) | 42.3 | (70.4) |
| Accounts payable | 200.4 | 55.9 | 22.9 |
| Other liabilities | 144.3 | (283.5) | 80.8 |
| Cash provided by operating activities - continuing operations | 2,061.9 | 1,741.8 | 2,046.7 |
| Cash provided by operating activities - discontinued operations | - | 118.4 | 374.0 |
| Cash provided by operating activities | 2,061.9 | 1,860.2 | 2,420.7 |
| **INVESTING ACTIVITIES** | | | |
| Capital expenditures | (643.0) | (489.0) | (731.3) |
| Property and other assets sold | 12.2 | 5.3 | 7.5 |
| Acquisitions and investments in affiliates, net of cash acquired | (3,923.7) | (487.0) | (391.4) |
| Divestiture of businesses | - | 116.2 | 6.8 |
| Other, net | (25.2) | (3.2) | (21.2) |
| Cash used for investing activities - continuing operations | (4,579.7) | (857.7) | (1,129.6) |
| Cash provided by (used for) investing activities - discontinued operations | - | 443.2 | (69.5) |
| Cash used for investing activities | (4,579.7) | (414.5) | (1,199.1) |
| **FINANCING ACTIVITIES** | | | |
| Net issuances (repayments) of commercial paper and notes payable | 393.6 | (65.5) | (252.0) |
| Long-term debt borrowings | 2,775.0 | 1,855.9 | - |
| Long-term debt repayments | (1,017.9) | (1,570.0) | (400.6) |
| Reacquired shares | (106.6) | (146.2) | (353.7) |
| Dividends paid | (566.4) | (560.8) | (552.9) |
| Exercise of employee stock options | 143.5 | 241.5 | 186.8 |
| Debt refinancing | (29.4) | (77.1) | - |
| Other, net | 11.4 | (18.0) | 25.8 |
| Cash provided by (used for) financing activities - continuing operations | 1,603.2 | (340.2) | (1,346.6) |
| Cash used for financing activities - discontinued operations | - | (1.6) | (3.0) |
| Cash provided by (used for) financing activities | 1,603.2 | (341.8) | (1,349.6) |
| Effect of exchange rate changes on cash and cash equivalents | 14.3 | (30.1) | 20.4 |
| (Decrease) increase in cash and cash equivalents | (900.3) | 1,073.8 | (107.6) |
| Cash and cash equivalents, beginning of period - continuing operations | 1,260.2 | 118.8 | 243.2 |
| Cash and cash equivalents, beginning of period - discontinued operations | - | 67.6 | 50.8 |
| Cash and cash equivalents, beginning of period | 1,260.2 | 186.4 | 294.0 |
| Cash and cash equivalents, end of period - continuing operations | 359.9 | 1,260.2 | 118.8 |
| Cash and cash equivalents, end of period - discontinued operations | - | - | 67.6 |
| Cash and cash equivalents, end of period | $359.9 | $1,260.2 | $186.4 |
| **SUPPLEMENTAL CASH FLOW INFORMATION** | | | |
| Income taxes paid | $275.7 | $366.9 | $337.4 |
| Net interest paid | 208.7 | 262.5 | 189.4 |

Presentation of 2019 cash flow has been conformed to the current year presentation. There was no change to cash provided by or (used for) operating activities, investing activities or financial activities.

The accompanying notes are an integral part of the consolidated financial statements.

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## CONSOLIDATED STATEMENTS OF EQUITY

| | Year ended December 31, 2021, 2020 and 2019 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| (millions, except per share amounts) | Common Stock | Additional Paid-in Capital | Retained Earnings | AOCI (Loss) | Treasury Stock | Ecolab Shareholders' Equity | Non-Controlling Interest | Total Equity |
| Balance, December 31, 2018 | $357.0 | $5,633.2 | $8,909.5 | ($1,761.7) | ($5,134.8) | $8,003.2 | $50.4 | $8,053.6 |
| New accounting guidance adoption (a) | | | 58.4 | (61.2) | | (2.8) | | (2.8) |
| Net income | | | 1,558.9 | | | 1,558.9 | 17.3 | 1,576.2 |
| Comprehensive income (loss) activity | | | | (266.8) | | (266.8) | (1.9) | (268.7) |
| Cash dividends declared (b) | | | (533.1) | | | (533.1) | (25.1) | (558.2) |
| Changes in noncontrolling interests | | 0.2 | | | | 0.2 | (0.2) | 0.0 |
| Stock options and awards | 2.6 | 273.7 | | | 3.1 | 279.4 | | 279.4 |
| Reacquired shares | | | | | (353.7) | (353.7) | | (353.7) |
| Balance, December 31, 2019 | 359.6 | 5,907.1 | 9,993.7 | (2,089.7) | (5,485.4) | 8,685.3 | 40.5 | 8,725.8 |
| New accounting guidance adoption (c) | | | (4.3) | | | (4.3) | | (4.3) |
| Net (loss) income | | | (1,205.1) | | | (1,205.1) | 19.6 | (1,185.5) |
| Comprehensive income (loss) activity | | | | 95.3 | | 95.3 | 1.8 | 97.1 |
| Cash dividends declared (b) | | | (541.3) | | | (541.3) | (21.0) | (562.3) |
| Separation of ChampionX | | (8.5) | | | (1,051.4) | (1,059.9) | 3.4 | (1,056.5) |
| Changes in noncontrolling interests | | 17.6 | | | | 17.6 | (9.3) | 8.3 |
| Stock options and awards | 3.0 | 318.8 | | | 3.3 | 325.1 | | 325.1 |
| Reacquired shares | | | | | (146.2) | (146.2) | | (146.2) |
| Balance, December 31, 2020 | 362.6 | 6,235.0 | 8,243.0 | (1,994.4) | (6,679.7) | 6,166.5 | 35.0 | 6,201.5 |
| Net income | | | **1,129.9** | | | **1,129.9** | **14.1** | **1,144.0** |
| Comprehensive income (loss) activity | | | | **359.6** | | **359.6** | **(3.2)** | **356.4** |
| Cash dividends declared (b) | | | **(558.4)** | | | **(558.4)** | **(17.0)** | **(575.4)** |
| Stock options and awards | **1.5** | **229.6** | | | **2.1** | **233.2** | | **233.2** |
| Reacquired shares | | | | | **(106.6)** | **(106.6)** | | **(106.6)** |
| Balance, December 31, 2021 | **$364.1** | **$6,464.6** | **$8,814.5** | **($1,634.8)** | **($6,784.2)** | **$7,224.2** | **$28.9** | **$7,253.1** |

(a) In 2019, upon adoption of ASU 2018-02, Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, the Company reclassified stranded tax effects resulting from the Tax Cut and Jobs Act from accumulated other comprehensive income to retained earnings. Also, upon adoption of ASU 2016-02, Leases (Topic 842), the Company has established right-of-use assets and lease liabilities for operating leases and the cumulative effect of applying the standard is recognized in retained earnings at the beginning of the period adopted.

(b) Dividends declared per common share were $1.95, $1.89, and $1.85 in 2021, 2020 and 2019, respectively.

(c) In 2020, upon adoption of ASU 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments, the Company reclassified the cumulative effect of applying the standard to retained earnings at the beginning of the period adopted.

Refer to Note 2 for additional information regarding adoption of new accounting standards.

## COMMON STOCK ACTIVITY

| | 2021 | | 2020 | | 2019 | |
|---|---|---|---|---|---|---|
| Year ended December 31 | Common Stock | Treasury Stock | Common Stock | Treasury Stock | Common Stock | Treasury Stock |
| Shares, beginning of year | **362,553,443** | **(76,801,025)** | 359,569,234 | (71,159,472) | 356,958,100 | (69,243,979) |
| Stock options | **1,270,757** | **29,684** | 2,577,231 | 35,122 | 2,220,815 | 41,575 |
| Stock awards | **315,162** | **17,760** | 406,978 | 40,122 | 390,319 | 29,173 |
| Reacquired shares | **-** | **(502,132)** | - | (761,245) | - | (1,986,241) |
| Separation of ChampionX | **-** | **-** | - | (4,955,552) | - | - |
| Shares, end of year | **364,139,362** | **(77,255,713)** | 362,553,443 | (76,801,025) | 359,569,234 | (71,159,472) |

The accompanying notes are an integral part of the consolidated financial statements.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

### 1. NATURE OF BUSINESS

Ecolab is a global leader in water, hygiene and infection prevention solutions and services that protect people and vital resources. The Company delivers comprehensive solutions, data-driven insights and personalized service to advance food safety, maintain clean and safe environments, optimize water and energy use and improve operational efficiencies and sustainability for customers in the food, healthcare, hospitality and industrial markets in more than 170 countries.

The Company's cleaning and sanitizing programs and products and pest elimination services support customers in the foodservice, food and beverage processing, hospitality, healthcare, government and education, retail, textile care and commercial facilities management sectors. The Company's products and technologies are also used in water treatment, pollution control, energy conservation, refining, primary metals manufacturing, papermaking, mining and other industrial processes.

On June 3, 2020, the Company completed the separation of its Upstream Energy business (the "ChampionX business") in a Reverse Morris Trust transaction (the "Transaction") through the split-off of ChampionX Holding Inc. ("ChampionX"), formed by Ecolab as a wholly owned subsidiary to hold the ChampionX business, followed immediately by the merger (the "Merger") of ChampionX with a wholly owned subsidiary of ChampionX Corporation (f/k/a Apergy Corporation, "Apergy").

As discussed in Note 5 Discontinued Operations, during 2020, the ChampionX business met the criteria to be reported as discontinued operations because the separation of the ChampionX business was a strategic shift in business that had a major effect on the Company's operations and financial results. Therefore, the Company reported the historical results of ChampionX, including the results of operations, cash flows, and related assets and liabilities, as discontinued operations. Unless otherwise noted, the accompanying Notes to the Consolidated Financial Statements have all been revised to reflect the effect of the separation of ChampionX and all prior year balances have been revised accordingly to reflect continuing operations only.

Subsequent to the separation of ChampionX, effective the third quarter of 2020, the Company no longer reports the Upstream Energy segment, which previously held the ChampionX business. The Company is aligned into three reportable segments and Other.

Effective in the first quarter of 2020, and in anticipation of the separation of the Upstream Energy business, the Company created the Upstream and Downstream operating segments from the Global Energy operating segment, which was also a reportable segment. Subsequent to the separation of ChampionX, the Company no longer reports the Upstream Energy segment, which previously held the ChampionX business.

The Downstream operating segment has been aggregated into the Global Industrial reportable segment. Also, in the first quarter of 2020, the Company announced leadership changes which allow for shared oversight and focus on the Healthcare and Life Sciences operating segments and established the Global Healthcare & Life Sciences reportable segment. This segment is comprised of the Healthcare operating segment which was previously aggregated in the Global Institutional reportable segment and the Life Sciences operating segment which was previously aggregated in the Global Industrial reportable segment. Additionally, the Textile Care operating segment, which is now being reported in Other, had previously been aggregated in the Global Industrial reportable segment. The Company also renamed the Global Institutional reportable segment to the Global Institutional & Specialty reportable segment. The Company made other immaterial changes, including the movement of certain customers and cost allocations between reportable segments.

On December 1, 2021, the Company acquired Purolite for total consideration of $3.7 billion in cash, net of cash acquired. Purolite is a leading and fast-growing global provider of high-end ion exchange resins for the separation and purification of solutions, that is highly complementary to our current offering and critical to safe, high quality drug production and biopharma product purification in the life sciences industries. It also provides purification and separation solutions for critical industrial markets like microelectronics, nuclear power and food and beverage. Headquartered in King of Prussia, Pennsylvania, Purolite operates in more than 30 countries. Purolite is reported within our Life Sciences operating segment.

The Company is aligned into three reportable segments: Global Industrial, Global Institutional & Specialty, and Global Healthcare & Life Sciences as discussed in Note 19 Operating Segments and Geographical Information. Operating segments that were not aggregated and do not exceed the quantitative criteria to be separately reported have been combined into Other.

Except for the changes due to adoption of the new accounting standards, the Company has consistently applied the accounting policies to all periods presented in these consolidated financial statements.

## 2. SIGNIFICANT ACCOUNTING POLICIES

### Principles of Consolidation

The consolidated financial statements include the accounts of the Company and all subsidiaries in which the Company has a controlling financial interest. Investments in companies, joint ventures or partnerships in which the Company does not have control but has the ability to exercise significant influence over operating and financial decisions, are reported using the equity method of accounting. The alternative method of accounting is used in circumstance where the Company's investments in companies, joint ventures and partnerships neither provide it control or significant influence over the investee and for investments that do not have readily identifiable fair values. Investments accounted for under the alternative method are recorded at cost and adjusted for impairments, if any, or observable price changes of the same or similar securities issued by the investee. International subsidiaries are included in the financial statements on the basis of their U.S. GAAP November 30 fiscal year ends to facilitate the timely inclusion of such entities in the Company's consolidated financial reporting. All intercompany transactions and profits are eliminated in consolidation.

### Use of Estimates

The preparation of the Company's financial statements requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities as of the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from these estimates. The Company's critical accounting estimates include revenue recognition, actuarially determined liabilities, income taxes, long-lived assets, intangible assets and goodwill.

In March 2020, coronavirus 2019 ("COVID-19") was declared a pandemic by the World Health Organization. As the impact of the pandemic continues to evolve, estimates and assumptions about future events and their effects cannot be determined with certainty and therefore require judgment. These estimates and assumptions may change in future periods and will be recognized in the consolidated financial information as new events occur and additional information becomes known. To the extent actual results differ materially from those estimates and assumptions, the Company's future financial statements could be affected.

### Foreign Currency Translation

Financial position and reported results of operations of the Company's non-U.S. dollar functional currency international subsidiaries are measured using local currencies as the functional currency. Assets and liabilities of these operations are translated at the exchange rates in effect at each fiscal year end. The translation adjustments related to assets and liabilities that arise from changes in exchange rates from period to period are included in accumulated other comprehensive loss in shareholders' equity. Income statement accounts are translated at average rates of exchange prevailing during the year. As discussed in Note 19 Operating Segments and Geographic Information, the Company evaluates its international operations based on fixed rates of exchange; however, changes in exchange rates from period to period impact the amount of reported income from consolidated operations.

### Concentration of Credit Risk

Credit risk represents the accounting loss that would be recognized at the reporting date if counterparties failed to perform as contracted. The Company believes the likelihood of incurring material losses due to concentration of credit risk is minimal. The principal financial instruments subject to credit risk are as follows:

*Cash and Cash Equivalents* - The Company maintains cash deposits with major banks, which from time to time may exceed insured limits. The possibility of loss related to financial condition of major banks has been deemed minimal. Additionally, the Company's investment policy limits exposure to concentrations of credit risk and changes in market conditions.

*Accounts Receivable* - A large number of customers in diverse industries and geographies, as well as the practice of establishing reasonable credit lines, limits credit risk. Based on historical trends and experiences, the allowance for expected credit losses is adequate to cover expected credit risk losses.

*Foreign Currency and Interest Rate Contracts and Derivatives* - Exposure to credit risk is limited by internal policies and active monitoring of counterparty risks. In addition, the Company uses a diversified group of major international banks and financial institutions as counterparties. The Company does not anticipate nonperformance by any of these counterparties.

### Cash and Cash Equivalents

Cash equivalents include highly-liquid investments with a maturity of three months or less when purchased.

### Accounts Receivable and Allowance for Expected Credit Losses

Accounts receivable are carried at the invoiced amounts, less an allowance for expected credit losses, and generally do not bear interest. The Company's allowance for expected credit losses estimates the amount of expected future credit losses by analyzing accounts receivable balances by age and applying historical write-off and collection experience. The Company's estimates separately considered macroeconomic trends and specific circumstances and credit conditions of customer receivables. Account balances are written off against the allowance when it is determined the receivable will not be recovered.

The Company's allowance for the expected return of products shipped and credits related to pricing or quantities shipped of $19 million, $16 million, and $17 million as of December 31, 2021, 2020, and 2019, respectively. Returns and credit activity is recorded directly as a reduction to revenue.

The following table summarizes the activity in the allowance for expected credit losses:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Beginning balance | $68.4 | $38.8 | $36.9 |
| Adoption of new standard | - | 4.3 | - |
| Bad debt expense | 15.0 | 57.7 | 21.5 |
| Write-offs | (27.4) | (31.6) | (19.1) |
| Other (a) | (3.2) | (0.8) | (0.5) |
| Ending balance (b) | $52.8 | $68.4 | $38.8 |

(a) Other amounts are primarily the effects of changes in currency translations and acquired balances.
(b) The allowance for expected credit losses balances in 2021 and 2020 reflect increased reserves, primarily due to the Institutional customer base as a result of the COVID-19 pandemic.

## Inventory Valuations

Inventories are valued at the lower of cost or net realizable value. Certain U.S. inventory costs are determined on a last-in, first-out ("LIFO") basis. LIFO inventories represented 27% and 26% of consolidated inventories as of December 31, 2021 and 2020, respectively. All other inventory costs are determined using either the average cost or first-in, first-out ("FIFO") methods. Inventory values at FIFO, as shown in Note 6, approximate replacement cost.

## Property, Plant and Equipment

Property, plant and equipment assets are stated at cost. Merchandising and customer equipment consists principally of various dispensing systems for the Company's cleaning and sanitizing products, warewashing machines and process control and monitoring equipment. Certain dispensing systems capitalized by the Company are accounted for on a mass asset basis, whereby equipment is capitalized and depreciated as a group and written off when fully depreciated. The Company capitalizes both internal and external costs to develop or purchase computer software. Costs incurred for data conversion, training and maintenance associated with capitalized software are expensed as incurred. Expenditures for major renewals and improvements, which significantly extend the useful lives of existing plant and equipment, are capitalized and depreciated. Expenditures for repairs and maintenance are charged to expense as incurred. Upon retirement or disposition of plant and equipment, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is recognized in income.

Depreciation is charged to operations using the straight-line method over the assets' estimated useful lives ranging from 5 to 40 years for buildings and leasehold improvements, 3 to 20 years for machinery and equipment, 3 to 20 years for merchandising and customer equipment and 3 to 7 years for capitalized software. The straight-line method of depreciation reflects an appropriate allocation of the cost of the assets to earnings in proportion to the amount of economic benefits obtained by the Company in each reporting period. Depreciation expense was $604 million, $594 million and $569 million for 2021, 2020 and 2019, respectively.

## Goodwill and Other Intangible Assets

***Goodwill***

Goodwill arises from the Company's acquisitions and represents the excess purchase consideration transferred over the fair value of acquired net assets. The Company's reporting units are its operating segments. The Company assesses goodwill for impairment on an annual basis during the second quarter. If circumstances change or events occur that demonstrate it is more likely than not that the carrying amount of a reporting unit exceeds its fair value, the Company completes an interim goodwill assessment of that reporting unit prior to the next annual assessment. If the results of an annual or interim goodwill assessment demonstrate the carrying amount of a reporting unit is greater than its fair value, the Company will recognize an impairment loss for the amount by which the reporting unit's carrying amount exceeds its fair value, but not to exceed the carrying amount of goodwill assigned to that reporting unit.

During the second quarter of 2021, the Company completed its annual goodwill impairment assessment for each of its eleven reporting units using discounted cash flow analyses that incorporated assumptions, including future operating performance, long-term growth and discount rates. The Company's goodwill impairment assessment for 2021 indicated the estimated fair values of each of its reporting units exceeded the carrying amounts of the respective reporting units by significant margins. Additionally, no events noted during the second half of 2021 indicated a need to update any of the Company's analyses or conclusions reached in the second quarter of 2021 for any of its reporting units. There has been no impairment of goodwill in any of the periods presented.

The changes in the carrying amount of goodwill for each of the Company's reportable segments are as follows:

| (millions) | Global Industrial | Global Institutional & Specialty | Global Healthcare & Life Sciences | Other | Total |
|---|---|---|---|---|---|
| December 31, 2019 | $3,923.7 | $548.2 | $859.4 | $237.8 | $5,569.1 |
| Current year business combinations (a) | 275.7 | - | - | - | 275.7 |
| Prior year business combinations (b) | - | - | 0.6 | - | 0.6 |
| Dispositions | (47.6) | - | - | - | (47.6) |
| Effect of foreign currency translation | 136.1 | 15.9 | 49.8 | 7.3 | 209.1 |
| December 31, 2020 | $4,287.9 | $564.1 | $909.8 | $245.1 | $6,006.9 |
| Current year business combinations (a) | **6.9** | **17.2** | **2,123.2** | **-** | **2,147.3** |
| Prior year business combinations (b) | **(0.9)** | **-** | **-** | **-** | **(0.9)** |
| Effect of foreign currency translation | **(23.8)** | **(4.8)** | **(58.8)** | **(2.0)** | **(89.4)** |
| December 31, 2021 | **$4,270.1** | **$576.5** | **$2,974.2** | **$243.1** | **$8,063.9** |

(a) Represents goodwill associated with current and prior year acquisitions. For 2021, approximately $1,870 million of goodwill related to businesses acquired is expected to be tax deductible related to the acquisitions of Purolite and National Wiper Alliance, Inc. (refer to Footnote 4 for additional information). This amount of goodwill is subject to change in 2022 based on the finalization of purchase accounting for both transactions. For 2020, the goodwill related to businesses acquired is not tax deductible.

(b) Represents purchase price allocation adjustments for acquisitions deemed preliminary as of the end of the prior year.

***Other Intangible Assets***

The Nalco trade name is the Company's only indefinite life intangible asset, which is tested for impairment on an annual basis during the second quarter. During the second quarter of 2021, the Company completed its annual impairment assessment of the Nalco trade name using the relief from royalty discounted cash flow method, which incorporates assumptions, including future sales projections, royalty rates and discount rates. The Company's Nalco trade name impairment assessment for 2021 indicated the estimated fair value of the Nalco trade name exceeded its $1.2 billion carrying amount by a significant margin. Additionally, no events during the second half of 2021 indicated a need to update the Company's conclusions reached during the second quarter of 2021. There has been no impairment of the Nalco trade name intangible asset since it was acquired.

The Company's intangible assets subject to amortization include customer relationships, trademarks, patents and other technology primarily acquired through business acquisitions. The fair value of intangible assets acquired in business acquisitions are estimated primarily using discounted cash flow methods at the time of acquisition. Intangible assets are amortized on a straight-line basis over their estimated lives. The weighted-average useful life of amortizable intangible assets was 15 and 14 years as of December 31, 2021 and 2020, respectively.

The weighted-average useful life by type of amortizable asset at December 31, 2021 is as follows:

| (years) | |
|---|---|
| Customer relationships | 15 |
| Trademarks | 14 |
| Patents | 15 |
| Other technology | 12 |

The straight-line method of amortization reflects an appropriate allocation of the cost of the intangible assets to earnings in proportion to the amount of economic benefits obtained by the Company in each reporting period. The Company evaluates the remaining useful life of its intangible assets subject to amortization each reporting period to determine whether events and circumstances warrant a change to the estimated remaining period of amortization. If the estimate of an intangible asset's remaining useful life is changed, the remaining carrying amount of the intangible asset will be amortized prospectively over the revised remaining useful life. Total amortization expense related to other intangible assets during the last three years and future estimated amortization is as follows:

| (millions) | |
|---|---|
| 2019 | $ 206 |
| 2020 | 219 |
| 2021 | 239 |
| 2022 | 314 |
| 2023 | 309 |
| 2024 | 302 |
| 2025 | 295 |
| 2026 | 283 |

## Long-Lived Assets

The Company reviews its long-lived and amortizable intangible assets for impairment when significant events or changes in business circumstances indicate that the carrying amount of the assets, or asset group to which it is assigned, may not be recoverable. Such circumstances may include a significant decrease in the market price of an asset or asset group, a significant adverse change in the manner in which the asset or asset group is being used or history of cash flow losses associated with the use of an asset or asset group. Impairment losses could occur when the carrying amount of an asset or asset group exceeds the anticipated future undiscounted cash flows expected to result from the use of the asset or asset group and its eventual disposition. The amount of the impairment loss to be recorded, if any, is calculated by the excess of the asset's or asset group's carrying value over its fair value.

In addition, the Company periodically reassesses the estimated remaining useful lives of its long-lived assets. Changes to estimated useful lives would impact the amount of depreciation and amortization recorded in earnings. The Company has not experienced significant changes in the carrying amount or estimated remaining useful lives of its long-lived or amortizable intangible assets.

## Rental and Leases

***Change in Accounting Principle***

The Company adopted Accounting Standards Codification Topic 842 Leases prospectively on January 1, 2019. The adoption changed the manner in which the Company accounts for leases. The accounting policy and Note 14 have been revised for the change on a prospective basis.

***Lessee***

The Company determines whether a lease exists at the inception of the arrangement. In assessing whether a contract is or contains a lease, the Company evaluates whether the arrangement conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Company accounts for lease components separately from the nonlease components (e.g., common-area maintenance costs). Operating leases are recorded in operating lease assets, other current liabilities and operating lease liabilities in the Consolidated Balance Sheets.

Operating lease assets and operating lease liabilities are measured and recognized based on the present value of the future minimum lease payments over the estimated lease term at commencement date. The Company uses the rate implicit in the lease when available or determinable. When the rate implicit in the lease is not determinable, the Company uses its incremental borrowing rate based on the information available at commencement date to determine the present value of future payments. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. Variable lease payments are not included in the lease liability and are recognized as incurred. The Company identified real estate, vehicles and other equipment as the primary classes of leases. Certain leases with a similar class of underlying assets are accounted for as a portfolio of leases.

The Company does not record operating lease assets or liabilities for leases with terms of twelve months or less. Those lease payments will continue to be recognized in the Consolidated Statements of Income over the lease term as incurred.

Many of the Company's leases include options to renew or cancel, which are at the Company's sole discretion. Renewal terms can extend the lease term from one month to multiple years. The lease start date is when the asset is available for use and in possession of the Company. The lease end date, which includes any options to renew or cancel that are reasonably certain to be exercised, is based on the terms of the contract. The depreciable life of assets and leasehold improvements are limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain of exercise. The Company's lease agreements do not contain any material restrictive covenants.

***Lessor***

The Company accounts for lease and nonlease components separately. The nonlease components, such as product and service revenue, are accounted for under Topic 606 Revenue from Contracts with Customers, refer to Note 18 for more information. Revenue from leasing equipment is recognized on a straight-line basis over the life of the lease. Cost of sales includes the depreciation expense for assets under operating leases. The assets are depreciated over their estimated useful lives. Initial lease terms range from one year to five years and most leases include renewal options.

Lease contracts convey the right for the customer to control the equipment for a period of time as defined by the contract. There are no options for the customer to purchase the equipment and therefore the equipment remains the property of the Company at the end of the lease term. Refer to Note 14 for additional information regarding rental and leases.

### Income Taxes

Income taxes are recognized during the period in which transactions enter into the determination of financial statement income, with deferred income taxes provided for the tax effect of temporary differences between the carrying amount of assets and liabilities and their tax bases. The Company records a valuation allowance to reduce its deferred tax assets when uncertainty regarding their realizability exists. Relevant factors in determining the realizability of deferred tax assets include historical results, sources of future taxable income, the expected timing of the reversal of temporary differences, tax planning strategies and the expiration dates of the various tax attributes. The Company records liabilities for income tax uncertainties in accordance with the U.S. GAAP recognition and measurement criteria guidance. The Company has elected the period cost method and considers the estimated global intangible low taxed income (“GILTI”) impact in tax expense. The Company recognizes interest and penalties related to income tax uncertainties in our income tax provision.

Refer to Note 13 for additional information regarding income taxes.

### Share-Based Compensation

The Company measures compensation expense for share-based awards at fair value at the date of grant and recognizes compensation expense over the service period for awards expected to vest. The majority of grants to retirement eligible recipients (age 55 with required years of service) are recorded to expense using the non-substantive vesting method and are fully expensed over a six-month period following the date of grant. In addition, the Company includes a forfeiture estimate in the amount of compensation expense being recognized based on an estimate of the number of outstanding awards expected to vest.

All excess tax benefits or deficiencies are recognized as discrete income tax items on the Consolidated Statements of Income. The extent of excess tax benefits is subject to variation in stock price and stock option exercises. Refer to Note 12 for additional information regarding equity compensation plans.

### Restructuring Activities

The Company’s restructuring activities are associated with plans to enhance its efficiency, effectiveness and sharpen its competitiveness. These restructuring plans include net costs associated with significant actions involving employee-related severance charges, contract termination costs and asset write-downs and disposals. Employee termination costs are largely based on policies and severance plans, and include personnel reductions and related costs for severance, benefits and outplacement services. These charges are reflected in the quarter in which the actions are probable and the amounts are estimable, which typically is when management approves the associated actions. Contract termination costs include charges to terminate leases prior to the end of their respective terms and other contract termination costs. Asset write-downs and disposals include leasehold improvement write-downs, other asset write-downs associated with combining operations and disposal of assets. Refer to Note 3 for additional information regarding restructuring activities.

### Revenue Recognition

Revenue is measured as the amount of consideration expected to be received in exchange for transferring goods or providing service.

***Product and Sold Equipment***

Revenue from product and sold equipment is recognized when obligations under the terms of a contract with the customer are satisfied, which generally occurs with the transfer of the product or delivery of the equipment.

***Service and Lease Equipment***

Revenue from service and leased equipment is recognized when the services are provided, or the customer receives the benefit from the leased equipment, which is over time. Service revenue is recognized over time utilizing an input method and aligns with when the services are provided. Typically, revenue is recognized using costs incurred to date because the effort provided by the field selling and service organization represents services provided, which corresponds with the transfer of control. Revenue for leased equipment is accounted for under Topic 842 Leases and recognized on a straight-line basis over the length of the lease contract.

***Other Considerations***

Contracts with customers may include multiple performance obligations. For contracts with multiple performance obligations, the consideration is allocated between products and services based on their stand-alone selling prices. Stand-alone selling prices are generally based on the prices charged to customers or using an expected cost plus margin. Judgment is used in determining the amount of service that is embedded within the Company's contracts, which is based on the amount of time spent on the performance obligation activities. The level of effort, including the estimated margin that would be charged, is used to determine the amount of service revenue. Depending on the terms of the contract, the Company may defer the recognition of revenue when a future performance obligation has not yet occurred.

Taxes assessed by a governmental authority that are both imposed on, and concurrent with, a specific revenue-producing transaction, which are collected by the Company from a customer, are excluded from revenue. Shipping and handling costs associated with outbound freight are recognized in cost of sales when control over the product has transferred to the customer.

Other estimates used in recognizing revenue include allocating variable consideration to customer programs and incentive offerings, including pricing arrangements, promotions and other volume-based incentives at the time the sale is recorded. These estimates are based primarily on historical experience and anticipated performance over the contract period. Based on the certainty in estimating these amounts, they are included in the transaction price of the contracts and the associated remaining performance obligations. The Company recognizes revenue when collection of the consideration expected to be received in exchange for transferring goods or providing services is probable.

The Company's revenue policies do not provide for general rights of return. Estimates used in recognizing revenue include the delay between the time that products are shipped and when they are received by customers, when title transfers and the amount of credit memos issued in subsequent periods. Depending on market conditions, the Company may increase customer incentive offerings, which could reduce gross profit margins over the term of the incentive.

## Earnings Per Common Share

The difference in the weighted average common shares outstanding for calculating basic and diluted earnings attributable to Ecolab per common share is a result of the dilution associated with the Company's equity compensation plans. As noted in the table below, certain stock options and units outstanding under these equity compensation plans were not included in the computation of diluted earnings attributable to Ecolab per common share because they would not have had a dilutive effect.

The computations of the basic and diluted earnings attributable to Ecolab per share amounts were as follows:

| (millions, except per share) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Net income from continuing operations attributable to Ecolab | $1,129.9 | $967.4 | $1,425.6 |
| Net loss from discontinued operations | - | (2,172.5) | 133.3 |
| Net income (loss) attributable to Ecolab | $1,129.9 | ($1,205.1) | $1,558.9 |
| Weighted-average common shares outstanding | | | |
| Basic | 286.3 | 287.0 | 288.1 |
| Effect of dilutive stock options and units | 2.8 | 3.3 | 4.4 |
| Diluted | 289.1 | 290.3 | 292.5 |
| Earnings (loss) attributable to Ecolab per common share | | | |
| Basic EPS | | | |
| Continuing operations | $ 3.95 | $ 3.37 | $ 4.95 |
| Discontinued operations | $ - | ($ 7.57) | $ 0.46 |
| Earnings (loss) attributable to Ecolab | $ 3.95 | ($ 4.20) | $ 5.41 |
| Diluted EPS | | | |
| Continuing operations | $ 3.91 | $ 3.33 | $ 4.87 |
| Discontinued operations | $ - | ($ 7.48) | $ 0.46 |
| Earnings (loss) attributable to Ecolab | $ 3.91 | ($ 4.15) | $ 5.33 |
| Anti-dilutive securities excluded from the computation of diluted EPS | 1.9 | 1.9 | 1.1 |

Amounts do not necessarily sum due to rounding.

### Assets Held for Sale

Assets and liabilities are classified as held for sale and presented separately on the balance sheet when all of the following criteria for a plan of sale have been met: (1) management, having the authority to approve the action, commits to a plan to sell the assets; (2) the assets are available for immediate sale, in their present condition, subject only to terms that are usual and customary for sales of such assets; (3) an active program to locate a buyer and other actions required to complete the plan to sell the assets have been initiated; (4) the sale of the assets is probable and is expected to be completed within one year; (5) the assets are being actively marketed for a price that is reasonable in relation to their current fair value; and (6) actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or the plan will be withdrawn. The ChampionX business met the criteria to be held for sale immediately prior to the Separation. The ChampionX business was previously recorded in the Global Energy reportable segment, which became the Upstream Energy reportable segment beginning in 2020 and subsequently has been reported in discontinued operations. The assets and liabilities held for sale are recorded on the Company's Consolidated Balance Sheets as current assets of discontinued operations, long-term assets of discontinued operations, current liabilities of discontinued operations and long-term liabilities of discontinued operations, respectively.

### Discontinued Operations

Discontinued operations comprise those activities that were disposed of during the period or which were classified as held for sale at the end of the period and represent a strategic shift that has or will have a major effect on the Company's operations and financial results. The ChampionX business met the criteria to be reported as discontinued operations because it was a strategic shift in business that had a major effect on the Company's operations and financial results. The ChampionX business is presented on the Consolidated Statements of Income as discontinued operations. Refer to Note 5, Discontinued Operations, for additional information.

### Other Significant Accounting Policies

The following table includes a reference to additional significant accounting policies that are described in other notes to the financial statements, including the note number:

| Policy | Note |
|---|---|
| Fair value measurements | 8 |
| Derivatives and hedging transactions | 9 |
| Share-based compensation | 12 |
| Research and development expenditures | 15 |
| Legal contingencies | 16 |
| Pension and post-retirement benefit plans | 17 |
| Reportable segments | 19 |

### New Accounting Pronouncements

**Standards that are not yet adopted:**

| Standard | Date of Issuance | Description | Required Date of Adoption | Effect on the Financial Statements |
|---|---|---|---|---|
| ASU 2020-04 - Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting<br>ASU 2021-01 - Reference Rate Reform (Topic 848): Scope | March 2020 | LIBOR, a widely used reference rate for pricing financial products is scheduled to be discontinued on December 31, 2021. This standard provides optional expedients and exceptions if certain criteria are met when accounting for contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued because of reference rate reform. | Application of guidance is optional until the options and expedients expire on December 31, 2022. | The Company has not elected any expedients and adoption of this standard is not expected to have a material impact on the Company's financial statements. |
| ASU 2021-08 - Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers | October 2021 | Update to improve the accounting for acquired revenue contracts with customers in a business combination by addressing diversity in practice and inconsistency related to the recognition of an acquired contract liability and payment terms and their effect on subsequent revenue recognized by the acquirer. | January 1, 2023 | The Company is currently evaluating any potential future impacts on the Company's financial statements. |
| ASU 2021 -10 - Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance | November 2021 | Update to increase the transparency of government assistance including the disclosure of the types of assistance, an entity's accounting for the assistance, and the effect of the assistance on an entity's financial statements. | January 1, 2022 | The Company is currently evaluating any potential future impacts on the Company's financial statements. |

### Standards that were adopted:

| Standard | Date of Issuance | Description | Date of Adoption | Effect on the Financial Statements |
|---|---|---|---|---|
| ASU 2019-12 - Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes | December 2019 | Simplifies the accounting for income taxes by removing certain exceptions to the general principles related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period and recognition of deferred tax liabilities for outside basis differences. The new standard also simplifies the accounting for franchise taxes and enacted changes in tax laws or rates and clarifies the accounting for transactions that result in a step-up in the basis of goodwill. | January 1, 2021 | Adoption of this standard did not have a material impact on the Company's financial statements. |

No other new accounting pronouncement issued or effective has had or is expected to have a material impact on the Company's consolidated financial statements.

## 3. SPECIAL (GAINS) AND CHARGES

Special (gains) and charges reported on the Consolidated Statements of Income included the following:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Cost of sales | | | |
| Restructuring activities | $24.7 | $7.4 | $20.4 |
| Acquisition and integration activities | 4.2 | 3.9 | 7.6 |
| COVID-19 activities, net | 64.7 | 12.5 | - |
| Other | 0.3 | 24.4 | 10.5 |
| Cost of sales subtotal | 93.9 | 48.2 | 38.5 |
| Special (gains) and charges | | | |
| Restructuring activities | 11.9 | 71.4 | 93.2 |
| Acquisition and integration activities | 29.9 | 8.5 | 5.6 |
| Disposal and impairment activities | - | 41.4 | - |
| COVID-19 activities, net | 42.4 | 23.6 | - |
| Other | 18.4 | 34.7 | 21.4 |
| Special (gains) and charges subtotal | 102.6 | 179.6 | 120.2 |
| Operating income subtotal | 196.5 | 227.8 | 158.7 |
| Other (income) expense | 37.2 | 0.4 | 9.5 |
| Interest expense, net | 33.1 | 83.8 | 0.2 |
| Total special (gains) and charges | $266.8 | $312.0 | $168.4 |

For segment reporting purposes, special (gains) and charges are not allocated to reportable segments, which is consistent with the Company's internal management reporting.

***Restructuring Activities***

Restructuring activities are primarily related to the Institutional Advancement Program and Accelerate 2020, both of which are described below. These activities have been included as a component of cost of sales, special (gains) and charges and other (income) expense on the Consolidated Statements of Income. Restructuring liabilities have been classified as a component of other current and other noncurrent liabilities on the Consolidated Balance Sheets.

*Institutional Advancement Program*

The Company approved a restructuring plan in 2020 focused on the Institutional business ("the Institutional Plan") which is intended to enhance our Institutional sales and service structure and allow the sales team to capture share and penetration while maximizing service effectiveness by leveraging our ongoing investments in digital technology. In February 2021, the Company expanded the Institutional Plan, and expect that these restructuring charges will be completed by 2023, with total anticipated costs of $65 million ($50 million after tax). The costs are expected to be primarily cash expenditures for severance and facility closures. The Company also anticipates non-cash costs related to equipment disposals. Actual costs may vary from these estimates depending on actions taken.

Certain activities contemplated in this Institutional Plan were previously approved in 2020 and included as part of Accelerate 2020. These activities were reclassified to the Institutional Plan. During 2021 and 2020, the Company recorded restructuring charges of $12.6 million ($10.2 million after tax) and $35.2 million ($26.4 million after tax), respectively, primarily related to severance, disposals of equipment and office closures. The Company has recorded $47.8 million ($36.6 million after tax) of cumulative restructuring charges under the Institutional Plan. The liability related to the Institutional Plan was $5.1 million and $24.7 million as of December 31, 2021 and 2020, respectively, and is expected to be paid over a period of a few months to several quarters and will continue to be funded from operating activities.

Restructuring activity related to the Institutional Plan since inception of the underlying actions includes the following:

| (millions) | Employee Termination Costs | Asset Disposals | Other | Total |
|---|---|---|---|---|
| 2020 Activity | | | | |
| Recorded expense and accrual | $25.6 | $- | $9.6 | $35.2 |
| Net cash payments | (0.9) | - | (9.6) | (10.5) |
| Restructuring liability, December 31, 2020 | 24.7 | - | - | 24.7 |
| 2021 Activity | | | | |
| Recorded expense (income) and accrual | **(1.8)** | **8.5** | **5.9** | **12.6** |
| Net cash payments | **(19.0)** | **-** | **(4.7)** | **(23.7)** |
| Non-cash net charges | **-** | **(8.5)** | **-** | **(8.5)** |
| Restructuring liability, December 31, 2021 | **$3.9** | **$-** | **$1.2** | **$5.1** |

*Accelerate 2020*

During 2018, the Company formally commenced a restructuring plan Accelerate 2020 (“the Plan”), to leverage technology and systems investments and organizational changes. The goal of the Plan is to further simplify and automate processes and tasks, reduce complexity and management layers, consolidate facilities and focus on key long-term growth areas by further leveraging technology and structural improvements. During 2020, the Company expanded the Plan for additional costs and savings to further leverage the technology and structural improvements. Following the establishment of the separate Institutional Plan, the Company now expects that the restructuring activities will be completed by the end of 2022, with total anticipated costs of $255 million ($195 million after tax) when revised for continuing operations. The remaining costs are expected to be primarily cash expenditures for severance costs and some facility closure costs relating to team reorganizations. Actual costs may vary from these estimates depending on actions taken.

The Company recorded restructuring charges of $5.3 million ($6.2 million after tax), $41.8 million ($33.0 million after tax) and $113.0 million ($86.5 million after tax) in 2021, 2020 and 2019, respectively, primarily related to severance. Of these expenses, $0.3 million ($0.2 million after tax) and $2.0 million ($1.5 million after tax) during 2020 and 2019, respectively, is recorded in other (income) expense and related to pension settlements and curtailments. The liability related to this Restructuring Plan was $32.7 million and $71.8 million as of December 31, 2021 and 2020, respectively. The remaining liability is expected to be paid over a period of a few months to several quarters and will continue to be funded from operating activities. The Company has recorded $244.5 million ($190.0 million after tax) of cumulative restructuring charges under the Plan.

Restructuring activity related to the Plan since inception of the underlying actions includes the following:

| (millions) | Employee Termination Costs | Asset Disposals | Other | Total |
|---|---|---|---|---|
| Restructuring liability, December 31, 2018 | $57.5 | $- | $3.1 | $60.6 |
| 2019 Activity | | | | |
| Recorded expense | 102.3 | 0.2 | 10.5 | 113.0 |
| Net cash payments | (65.3) | 1.2 | (10.1) | (74.2) |
| Non-cash charges | - | (1.4) | (2.0) | (3.4) |
| Effect of foreign currency translation | (0.5) | - | - | (0.5) |
| Restructuring liability, December 31, 2019 | 94.0 | - | 1.5 | 95.5 |
| 2020 Activity | | | | |
| Recorded expense | 29.5 | 7.8 | 4.5 | 41.8 |
| Net cash payments | (56.8) | - | (1.0) | (57.8) |
| Non-cash charges | - | (7.8) | - | (7.8) |
| Effect of foreign currency translation | 0.1 | - | - | 0.1 |
| Restructuring liability, December 31, 2020 | 66.8 | - | 5.0 | 71.8 |
| 2021 Activity | | | | |
| Recorded expense | **4.3** | **0.3** | **0.7** | **5.3** |
| Net cash payments | **(39.1)** | **-** | **(5.0)** | **(44.1)** |
| Non-cash charges | **-** | **(0.3)** | **-** | **(0.3)** |
| Restructuring liability, December 31, 2021 | **$32.0** | **$-** | **$0.7** | **$32.7** |

*Other Restructuring Activities*

During 2021, the Company recorded restructuring charges of $18.7 million ($17.0 million after tax), related to other immaterial restructuring activity. The charges are primarily related to severance and asset write-offs. During 2020, the Company incurred restructuring charges of $1.8 million ($1.2 million after tax) related to other immaterial restructuring activity. The charges are comprised of severance, asset disposals, and consulting fees. During 2019, net restructuring gains related to restructuring plans entered into prior to 2018 were $1.5 million ($1.1 million after tax).

The restructuring liability balance for all other restructuring plans excluding Accelerate 2020 and the Institutional Plan was $4.6 million and $5.9 million as of December 31, 2021 and 2020, respectively. The reduction in liability was driven primarily by severance payments. The remaining liability is expected to be paid over a period of a few months to several quarters and will continue to be funded from operating activities. Cash payments during 2021 related to all other restructuring plans excluding the Accelerate 2020 and Institutional Plan were $10.5 million.

***Acquisition and integration related costs***

Acquisition and integration costs reported in special (gains) and charges on the Consolidated Statements of Income include $29.9 million ($23.5 million after tax) in 2021. Charges are related to the Purolite Corporation (“Purolite”), Copal Invest NV, including its primary operating entity CID Lines (collectively, “CID Lines”), and Bioquell PLC (“Bioquell”) acquisitions and consist of integration costs and advisory and legal fees. Acquisition and integration costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2021 include $4.2 million ($3.3 million after tax) and are related to the recognition of fair value step-up in the Purolite inventory. In conjunction with its acquisitions, the Company incurred $0.8 million ($0.6 million after tax) of special (gains) and charges reported in interest expense in 2021.

During 2020, acquisition and integration costs reported in special (gains) and charges on the Consolidated Statements of Income include $8.5 million ($6.9 million after tax). Charges are related to the CID Lines, Bioquell and the Laboratoires Anios (“Anios”) acquisitions and consist of integration costs and advisory and legal fees. Acquisition and integration costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2020 include $3.9 million ($3.2 million after tax) and are related to recognition of fair value step-up in CID Lines inventory, severance and the closure of a facility. In conjunction with its acquisitions, the Company incurred $0.7 million ($0.6 million after tax) of special (gains) and charges reported in interest expense in 2020.

During 2019, acquisition and integration costs reported in special (gains) and charges on the Consolidated Statements of Income include $5.6 million ($4.1 million after tax). Charges are primarily related to the Bioquell and Anios acquisitions and consist of integration costs, advisory and legal fees. Acquisition and integration costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2019 include $7.6 million ($5.6 million after tax) and are related to recognition of fair value step-up in the Bioquell inventory and facility closure costs. In conjunction with the acquisitions, the Company incurred $0.2 million ($0.1 million after tax) of special (gains) and charges reported in interest expense in 2019.

***Disposal and impairment charges***

Disposal and impairment charges reported in special (gains) and charges on the Consolidated Statements of Income include $41.4 million ($41.5 million after tax) in 2020. During 2020, the Company recorded a $28.6 million ($28.6 million after tax) impairment for a minority equity method investment due to the COVID-19 impact on the economic environment and the liquidity of the minority equity method investment. In addition, the Company recorded charges of $12.8 million ($12.9 million after tax) related to the disposal of Holchem Group Limited (“Holchem”) for the loss on sale and related transaction fees during 2020.

***COVID-19 activities***

Customer demand for sanitizer products surged at the outset of COVID-19. The Company worked hard to meet the rapidly increasing demand and sold the vast majority of the sanitizer inventory. However, COVID-19 variant-related delays of customer’s reopening and consumer activity resulted in a small portion of excess sanitizer inventory. The Company recorded inventory reserves of $60 million during 2021 for excess sanitizer inventory and estimated disposal costs. The Company recorded charges of $36.8 million and $57.1 million during 2021 and 2020, respectively, to protect the wages of certain employees directly impacted by the COVID-19 pandemic. The Company recorded charges related to the COVID-19 pandemic of $16.5 million and $2.4 million related to employee COVID-19 testing and related expenses during 2021 and 2020, respectively. In addition, the Company received subsidies and government assistance, which were recorded as a special (gain) of ($6.2) million and ($23.4) million during 2021 and 2020, respectively. COVID-19 pandemic charges are recorded in product and equipment cost of sales, service and lease cost of sales, and special (gains) and charges on the Consolidated Statements of Income. Total after tax net charges (gains) related to COVID-19 pandemic were $81.3 million and $27.4 million during 2021 and 2020, respectively.

***Other operating activities***

Other operating activities recorded in special charges of $0.3 million ($0.2 million after tax), $24.4 million ($16.0 million after tax) and $10.5 million ($7.1 million after tax), during 2021, 2020 and 2019, respectively, recorded in product and equipment cost of sales on the Consolidated Statements of Income primarily related to a Healthcare product recall in Europe.

Other operating activities recorded in special charges of $18.4 million ($14.1 million after tax) in 2021, $34.7 million ($33.9 million after tax) in 2020 and $21.4 million ($16.2 million after tax) in 2019 relate primarily to legal reserves and certain legal charges, which are recorded in special (gains) and charges on the Consolidated Statements of Income. The Company also recorded a $7.2 million special charge in 2020 related to the separation of ChampionX as a tax expense on the Consolidated Statements of Income.

***Other (income) expense***

During 2021, the Company incurred settlement expense of $37.2 million ($28.7 million after tax) related to U.S. pension plan lump-sum payments to retirees. During 2020 and 2019, the Company recorded other expense of $0.4 million ($0.3 million after tax) and $9.5 million ($7.2 million after tax) related to pension curtailments and settlements due to the ChampionX separation and Accelerate 2020. These charges have been included as a component of other (income) expense on the Consolidated Statements of Income.

***Interest expense, net***

During 2021 and 2020, the Company recorded special charges of $32.3 million ($28.4 million after tax) and $83.1 million ($64.0 million after tax), respectively, in interest expense on the Consolidated Statements of Income related to debt refinancing charges. During 2021, 2020 and 2019, an immaterial amount of interest expense was also recorded due to acquisition and integration costs.

## 4. ACQUISITIONS AND DISPOSITIONS

### Acquisitions

The Company makes business acquisitions that align with its strategic business objectives. The assets and liabilities of acquired businesses are recorded in the Consolidated Balance Sheets at fair value as of their acquisition date. The purchase price allocation is based on estimates of the fair value of assets acquired, liabilities assumed and consideration paid. Purchase consideration is reduced by the amount of cash or cash equivalents acquired. Acquisitions during 2021, 2020 and 2019 were not significant to the Company's consolidated financial statements; therefore, pro forma financial information is not presented.

***2021 Activity***

***Purolite Acquisition***

On December 1, 2021, the Company acquired Purolite for total consideration of $3,698 million in cash, net of cash acquired. Purolite is a leading and fast-growing global provider of resins for the separation and purification of solutions that is highly complementary to our current offering and critical to safe, high quality drug production and biopharma product purification in the life sciences industries. It also provides purification and separation solutions for critical industrial markets like microelectronics, nuclear power and food and beverage. Prior to acquisition, Purolite prepared its consolidated financial statements pursuant to the requirements of UK GAAP.

The Purolite acquisition has been accounted for as a business combination with the assets acquired and liabilities assumed recognized at fair value as of the acquisition date. The fair values of intangible assets acquired were estimated using discounted cash flow analyses appropriate for the nature of the asset that incorporated projections of future cash flows and other valuation assumptions. Significant inputs and assumptions used in our customer relationship intangible asset valuations include projected revenues, contributory asset charges, tax savings due to amortization, income tax rates, customer attrition rates and discount rates. Significant inputs and assumptions to our tradename and acquired asset intangible asset valuations include projected revenues, asset life cycle, royalty rates, tax saving due to amortization, income tax rates, discount rates and estimated useful lives. Fair value measurements of certain tangible assets, definite-lived intangible assets, lease right of use assets and liabilities, net pension liabilities, carry over tax attributes, deferred income taxes, income tax uncertainties, and goodwill are preliminary and subject to changes as the information necessary to complete the valuations are obtained and analyzed. Accordingly, purchase accounting for this transaction is not yet complete pending finalization of these valuations and completion of comprehensive accounting policy consistency review. The amounts recorded reflect the Company's best estimates as of December 31, 2021 and are subject to change.

The Company incurred certain transaction and integration costs associated with the acquisition that were expensed and are reflected in the Consolidated Statements of Income. Further information related to the Company's special (gains) and charges is included in Note 3.

The following table summarizes the preliminary value of Purolite assets acquired and liabilities assumed, net of cash acquired, as of the acquisition date:

| (millions) | 2021 |
|---|---|
| Tangible assets | $417.6 |
| Identifiable intangible assets | |
| Customer relationships | 900.0 |
| Trade names | 222.0 |
| Acquired technologies | 287.0 |
| Other assets | 4.4 |
| Total assets acquired | 1,831.0 |
| Goodwill | 2,014.0 |
| Total liabilities | 146.6 |
| Net consideration transferred to sellers | $3,698.4 |

Tangible assets acquired primarily consist of accounts receivable of $65.3 million, property, plant and equipment of $175.1 million and inventory of $163.4 million. Liabilities assumed primarily consist of deferred tax liabilities of $67.6 million and current liabilities of $62.0 million. Identified intangible assets primarily consist of customer relationships, trade names, and acquired technologies and are being amortized over average lives of 17, 14, and 14 years, respectively, with a weighted average life of 16 years.

Goodwill of $2,014.0 million arising from the acquisition consists largely of the synergies and economies of scale expected through adding complementary geographies and innovative products to our Life Sciences businesses. Purolite became part of the Global Healthcare & Life Sciences reportable segment. Approximately $1,810 million of goodwill is expected to be deductible for income tax purposes. The amount of tax deductible goodwill is subject to change as purchase accounting is finalized.

***Other Acquisitions***

On December 1, 2020, the Company acquired VanBaerle Hygiene AG (“VanBaerle”), a Switzerland-based business which sells cleaning products and related services to restaurants, long-term care facilities, hotels and laundries primarily for institutional applications. VanBaerle became part of the Global Institutional & Specialty reporting segment. The purchase price included immaterial amounts of holdback and contingent consideration, portions of which were settled prior to December 31, 2021. Unsettled amounts are recorded within other liabilities on the Consolidated Balance Sheets as of December 31, 2021.

On February 1, 2021, the Company acquired TechTex Holdings Limited (“TechTex”), a U.K.-based business which sells wet and dry wipes and other nonwovens products primarily for life sciences and healthcare applications. TechTex became part of the Global Healthcare & Life Sciences reporting segment. The purchase price included an immaterial holdback amount that was settled prior to December 31, 2021.

On July 1, 2021, the Company acquired National Wiper Alliance, Inc. (“NWA”), a U.S.-based business which sells wipes for healthcare and institutional applications. NWA became part of the Global Healthcare & Life Sciences reporting segment.

On September 1, 2021, the Company acquired EPN Water Col, Ltd. (“EPN”), a South Korean-based business which sells chemical products and manages installations at water treatment chemical injection facilities. EPN became part of the Global Industrial reporting segment.

Purchase accounting for the VanBearle acquisition was finalized in the fourth quarter of 2021 and no further purchase accounting adjustments will be recorded. The purchase accounting for acquisitions other than VanBaerle are preliminary and subject to change as the Company finalizes the valuation of certain tangible assets, definite-lived intangible assets, lease right of use assets and liabilities, carry over tax attributes, deferred income taxes, income tax uncertainties and goodwill. The Company does not expect any of the goodwill related to its acquisitions of VanBaerle, TechTex, or EPN to be tax deductible, whereas the goodwill arising from the acquisition of NWA is expected to be tax deductible.

***2020 Activity***

***CID Lines Acquisition***

During 2020, the Company acquired CID Lines for total consideration of $506.9 million in cash. CID Lines had annualized pre-acquisition sales of approximately $110 million and is a leading global provider of livestock biosecurity and hygiene solutions based in Belgium.

The CID Lines acquisition has been accounted for as a business combination with the assets acquired and liabilities assumed recognized at fair value as of the acquisition date. The Company incurred certain transaction and integration costs associated with the acquisition that were expensed and are reflected in the Consolidated Statements of Income. Further information related to the Company’s special (gains) and charges is included in Note 3.

The following table summarizes the preliminary value of CID Lines assets acquired and liabilities assumed as of the acquisition date:

| (millions) | 2020 |
|---|---|
| Tangible assets | $54.1 |
| Identifiable intangible assets | |
| Customer relationships | 147.5 |
| Trademarks | 58.6 |
| Acquired technologies and product registrations | 47.7 |
| Total assets acquired | 307.9 |
| Goodwill | 274.8 |
| Total liabilities | 97.2 |
| Net consideration transferred to sellers | $485.5 |

Tangible assets acquired primarily consist of accounts receivable of $30.1 million, property, plant and equipment of $7.7 million and inventory of $16.3 million. Liabilities assumed primarily consist of deferred tax liabilities of $64.8 million and current liabilities of $32.4 million. Identified intangible assets primarily consist of customer relationships, trademarks, and acquired technology and product registrations and are being amortized over average lives of 14, 14, and 16 years, respectively.

Goodwill of $274.8 million arising from the acquisition consists largely of the synergies and economies of scale expected through adding complementary geographies and innovative products to our Food and Beverage businesses. CID Lines became part of the Global Industrial reportable segment. None of the goodwill recognized from the acquisition is expected to be deductible for income tax purposes.

During 2021, the Company recorded purchase accounting adjustments that decreased goodwill recognized from the acquisition of CID Lines by $0.9 million. Purchase accounting was finalized in the second quarter of 2021 and no further purchase accounting adjustments will be recorded for the CID Lines acquisition.

***2019 Activity***

During 2019, the Company acquired Bioquell, a life sciences business which sells bio-decontamination products and services to the Life Sciences and Healthcare industries. This business is a part of the Global Healthcare & Life Sciences reportable segment. During 2018, the Company deposited $179.3 million (£140.5 million) in an escrow account that was released upon closing of the transaction in February 2019.

The Company also acquired Lobster Ink, a leading provider of end-to-end online customer training solutions. This acquired business became part of the Global Institutional & Specialty reportable segment. The purchase price included an earn-out based on the achievement of a revenue threshold in any of the three fiscal years following the acquisition. The acquisition date fair value of the earn-out was reflected in the overall purchase consideration exchanged for the acquisition and recorded as contingent consideration. There is no contingent consideration liability remaining as of December 31, 2021.

The Company also acquired Chemstar Corporation, a leading provider of cleaning and sanitizing products for the retail industry with a focus on cleaning chemicals and food safety. This acquired business became part of the Global Institutional & Specialty reportable segment.

The Company also acquired Gallay Medical & Scientific which sells, installs, and services medical equipment and associated chemistry primarily for hospitals, healthcare facilities, and dental clinics. The acquired business is a part of the Global Healthcare & Life Sciences reportable segment.

Pre-acquisition sales for the businesses acquired in 2019 were $134 million.

Purchase accounting for these acquisitions was finalized in 2020 resulting in insignificant purchase price adjustments being recorded.

***Acquisitions***

The components of the cash paid for other acquisitions, excluding the Purolite and CID Lines acquisitions (as further disclosed above), for 2021, 2020 and 2019, are shown in the following table:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Net tangible assets (liabilities) acquired | $5.2 | $- | ($8.0) |
| Identifiable intangible assets | | | |
| Customer relationships | 80.6 | - | 115.7 |
| Trademarks | 4.7 | - | 24.1 |
| Non-compete agreements | 3.0 | - | - |
| Other technology | 1.5 | - | 48.9 |
| Total intangible assets | 89.8 | - | 188.7 |
| Goodwill | 133.4 | - | 234.8 |
| Total aggregate purchase price | 228.4 | - | 415.5 |
| Acquisition-related liabilities and contingent consideration (a) | (4.4) | - | (24.1) |
| Net cash paid for acquisitions, including acquisition-related liabilities and contingent consideration | $224.0 | $- | $391.4 |

(a) Subsequent to the acquisitions, $1.4 in contingent consideration was remitted to the seller during 2021 and is included in investing activities on the Consolidated Statement of Cash Flows.

During 2020, the Company recorded purchase accounting adjustments associated with its 2019 acquisitions. As a result of these purchase accounting adjustments, the net intangible assets and goodwill recognized from these acquisitions increased by $0.9 million and $0.6 million, respectively. In conjunction with the finalization of its purchase accounting, the Company made $3.5 million of acquisition-related payments which primarily consisted of the release of holdback liabilities and payment of contingent consideration. The 2019 acquisition-related liabilities primarily consist of holdback liabilities and contingent considerations.

The weighted average useful lives of definite-lived intangible assets acquired from other acquisitions were 13,14, and 12 years as of December 31, 2021, 2020 and 2019, respectively.

### Dispositions

In the second quarter of 2020, the Company completed the sale of Holchem, a U.K. based supplier of hygiene and cleaning products and services for the food and beverage, foodservice and hospitality industries for total consideration of $106.6 million. Consideration consisted of $55.4 million of cash and the receipt of notes valued at $51.2 million from the acquirer. In the fourth quarter of 2020, all outstanding principal and interest on the notes was paid by the acquirer. After the recognition of transaction costs, the Company recognized an after-tax loss of $12.8 million, which was classified within special charges in the Consolidated Statements of Income. Annual sales of Holchem were approximately $55 million and were included in the Global Industrial reportable segment prior to disposition.

As discussed in Note 5, the ChampionX separation met the criteria to be reported as discontinued operations. No other dispositions were significant to the Company’s consolidated financial statements for 2021, 2020 or 2019.

## 5. DISCONTINUED OPERATIONS

On June 3, 2020, the Company effected the split-off of ChampionX through an offer to exchange (the "Exchange Offer") all shares of ChampionX common stock owned by Ecolab for outstanding shares of Ecolab common stock. In the Exchange Offer, which was oversubscribed, the Company accepted approximately 5.0 million shares of Ecolab common stock in exchange for approximately 122.2 million shares of ChampionX common stock. In the Merger, each outstanding share of ChampionX common stock was converted into the right to receive one share of Apergy common stock, and ChampionX survived the Merger as a wholly owned subsidiary of ChampionX Corporation. In connection with and in accordance with the terms of the Transaction, prior to the consummation of the Exchange Offer and the Merger, ChampionX distributed $527.4 million in cash to Ecolab.

The following is a summary of the assets and liabilities transferred to ChampionX as part of the separation:

| (millions) | |
|---|---|
| Assets: | |
| Cash and cash equivalent | $60.6 |
| Current assets | 810.5 |
| Non-current assets | 3,222.3 |
| | 4,093.4 |
| Liabilities: | |
| Current liabilities | 313.0 |
| Non-current liabilities | 293.7 |
| | 606.7 |
| Net assets distributed to ChampionX | ($3,486.7) |
| Fair value of shares exchanged | 1,051.4 |
| Cash received from ChampionX | 527.4 |
| Consideration received less net assets | (1,907.9) |
| ChampionX cumulative translation adjustment ("CTA") write-off | (229.9) |
| Loss on separation | ($2,137.8) |

The Company accounted for this transaction as a sale and recognized a loss based on ChampionX net assets exceeding the effective proceeds.

The ChampionX business, as discussed in Note 1, met the criteria to be reported as discontinued operations because the separation of the ChampionX business was a strategic shift in business that had a major effect on the Company's operations and financial results. The historical financial results of the ChampionX business are reflected in the Company's consolidated financial statements as discontinued operations, for all periods presented, and assets and liabilities were retrospectively reclassified as assets and liabilities of discontinued operations.

Summarized results of the Company's discontinued operations are as follows:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Product and equipment sales | $- | $858.9 | $2,109.9 |
| Service and lease sales | - | 99.6 | 234.4 |
| Net sales | - | 958.5 | 2,344.3 |
| Product and equipment cost of sales | - | 621.7 | 1,488.9 |
| Service and lease cost of sales | - | 80.4 | 188.7 |
| Cost of sales (including special charges) | - | 702.1 | 1,677.6 |
| Selling, general and administrative expenses | - | 180.5 | 406.7 |
| Special (gains) and charges | - | 2,221.7 | 91.4 |
| Operating income | - | (2,145.8) | 168.6 |
| Other (income) expense | - | 0.3 | 0.7 |
| Interest expense (income), net | - | 0.2 | 0.5 |
| Income before income taxes | - | (2,146.3) | 167.4 |
| Provision for income taxes | - | 24.0 | 34.1 |
| Net loss including noncontrolling interest | - | (2,170.3) | 133.3 |
| Net income attributable to noncontrolling interest | - | 2.2 | - |
| Net loss from discontinued operations, net of tax | $- | ($2,172.5) | $133.3 |

Special (gains) and charges of $2,221.7 million and $91.4 million in 2020 and 2019, respectively, primarily relate to the loss on sale, professional fees incurred to support the Transaction and restructuring charges specifically related to the ChampionX business. These charges have been included as a component of both cost of sales and special (gains) and charges in discontinued operations.

The Company also recognized discrete tax expense primarily related to friction costs associated with ChampionX separation activity of $22.7 million during 2020 that is allocated within discontinued operations tax expense.

In connection with the Transaction, the Company entered into agreements with ChampionX and Apergy to effect the separation and to provide a framework for the relationship following the separation, which included a Separation and Distribution Agreement, an Intellectual Property Matters Agreement, an Employee Matters Agreement, a Transition Services Agreement, and a Tax Matters Agreement. Transition services primarily involve the Company providing certain services to ChampionX related to general and administrative services for terms of up to 18 months following the separation. The amounts billed for transition services provided under the above agreements were $12.5 million and $14.3 million during 2021 and 2020, respectively.

The Company also entered into a Master Cross Supply and Product Transfer agreement with ChampionX to provide, receive or transfer certain products for a period up to 36 months. Sales of product to ChampionX under this agreement are recorded in product and equipment sales in the Corporate segment along with the related cost of sales, while purchases from ChampionX are recorded in inventory. Sales of product to ChampionX post-separation for 2021 and 2020 were $139.4 million and $99.7 million, respectively. As of December 31, 2021, the Company had an outstanding accounts receivable balance for sales of product to ChampionX of $17.9 million.

## 6. BALANCE SHEET INFORMATION

| (millions) | December 31 2021 | December 31 2020 |
|---|---|---|
| Accounts receivable, net | | |
| Accounts receivable | $2,549.9 | $2,358.1 |
| Allowance for expected credit losses and other accruals | (71.5) | (84.3) |
| Total | $2,478.4 | $2,273.8 |
| Inventories | | |
| Finished goods | $1,010.6 | $789.6 |
| Raw materials and parts | 596.1 | 511.2 |
| Inventories at FIFO cost | 1,606.7 | 1,300.8 |
| FIFO cost to LIFO cost difference | (114.9) | (15.6) |
| Total | $1,491.8 | $1,285.2 |
| Other current assets | | |
| Prepaid assets | $121.2 | $99.1 |
| Taxes receivable | 151.3 | 168.6 |
| Derivative assets | 61.4 | 3.2 |
| Other | 23.1 | 27.3 |
| Total | $357.0 | $298.2 |
| Property, plant and equipment, net | | |
| Land | $159.2 | $159.7 |
| Buildings and leasehold improvements | 1,134.1 | 1,060.0 |
| Machinery and equipment | 1,968.7 | 1,830.1 |
| Merchandising and customer equipment | 2,708.2 | 2,691.0 |
| Capitalized software | 884.6 | 820.8 |
| Construction in progress | 325.0 | 219.8 |
| | 7,179.8 | 6,781.4 |
| Accumulated depreciation | (3,891.3) | (3,656.5) |
| Total | $3,288.5 | $3,124.9 |
| Other intangible assets, net | | |
| Intangible assets not subject to amortization | | |
| Trade names | $1,230.0 | $1,230.0 |
| Intangible assets subject to amortization | | |
| Customer relationships | 3,444.6 | 2,530.9 |
| Trademarks | 561.1 | 348.0 |
| Patents | 496.3 | 492.5 |
| Other technology | 527.2 | 240.1 |
| | 5,029.2 | 3,611.5 |
| Accumulated amortization | | |
| Customer relationships | (1,440.9) | (1,319.1) |
| Trademarks | (170.3) | (155.0) |
| Patents | (269.3) | (244.6) |
| Other technology | (154.6) | (145.8) |
| | (2,035.1) | (1,864.5) |
| Net intangible assets subject to amortization | 2,994.1 | 1,747.0 |
| Total | $4,224.1 | $2,977.0 |
| Other assets | | |
| Deferred income taxes | $120.6 | $163.2 |
| Pension | 114.6 | 33.0 |
| Derivative asset | 29.4 | - |
| Other | 281.4 | 279.8 |
| Total | $546.0 | $476.0 |

| (millions) | December 31 2021 | December 31 2020 |
|---|---|---|
| Other current liabilities | | |
| Discounts and rebates | $341.1 | $304.1 |
| Dividends payable | 146.3 | 137.2 |
| Interest payable | 47.7 | 51.7 |
| Taxes payable, other than income | 154.2 | 151.8 |
| Derivative liabilities | - | 25.8 |
| Restructuring | 39.1 | 98.1 |
| Contract liability | 91.7 | 80.4 |
| Operating lease liabilities | 115.1 | 125.6 |
| Other | 209.0 | 214.2 |
| Total | $1,144.2 | $1,188.9 |
| | | |
| Accumulated other comprehensive income (loss) | | |
| Unrealized gain (loss) on derivative financial instruments, net of tax | $4.9 | ($21.1) |
| Unrecognized pension and postretirement benefit expense, net of tax | (632.8) | (935.2) |
| Cumulative translation, net of tax | (1,006.9) | (1,038.1) |
| Total | ($1,634.8) | ($1,994.4) |

## 7. DEBT AND INTEREST

### Short-term Debt

The following table provides the components of the Company's short-term debt obligations, along with applicable interest rates as of December 31, 2021 and 2020:

| | 2021 | | 2020 | |
|---|---|---|---|---|
| (millions) | Carrying Value | Average Interest Rate | Carrying Value | Average Interest Rate |
| Short-term debt | | | | |
| Commercial paper | $400.0 | 0.28 % | $- | - % |
| Notes payable | 8.5 | 7.95 % | 15.5 | 7.07 % |
| Long-term debt, current maturities | 2.5 | | 1.8 | |
| Total | $411.0 | | $17.3 | |

***Line of Credit***

As of December 31, 2021, the Company had in place a $2.0 billion multi-currency revolving credit facility which expires in April 2026. The credit facility has been established with a diverse syndicate of banks and supports the Company's U.S. and Euro commercial paper programs. There were no borrowings under the Company's credit facility as of December 31, 2021 and 2020.

The Company has $338 million of available bank supported letters of credit, surety bonds and guarantees available in support of its commercial business transactions of which $118 million is outstanding as of December 31, 2021.

During the fourth quarter of 2021, the Company utilized a $3.0 billion delayed draw term loan to fund the Purolite acquisition. The Company repaid the $3.0 billion during the fourth quarter of 2021 with no amounts outstanding at December 31, 2021.

The Company had a $305 million term credit agreement and drew on and repaid $303 million during the second quarter of 2020. The credit agreement expired in June 2020.

***Commercial Paper***

The Company's commercial paper program is used as a potential source of liquidity and consists of a $2.0 billion U.S. commercial paper program and a $2.0 billion Euro commercial paper program. The maximum aggregate amount of commercial paper that may be issued by the Company under its commercial paper programs may not exceed $2.0 billion.

The Company had $400 million outstanding commercial paper under its U.S. program as of December 31, 2021 and no outstanding commercial paper under its Euro or U.S. program as of December 31, 2020.

As of December 31, 2021, the Company's short-term borrowing program was rated A-2 by Standard & Poor's, P-2 by Moody's and F-1 by Fitch.

***Notes Payable***

The Company's notes payable consists of uncommitted credit lines with major international banks and financial institutions, primarily to support global cash pooling structures. As of December 31, 2021 and 2020, the Company had $8.5 million and $15.5 million, respectively, outstanding under these credit lines. Approximately $1,628 million and $1,734 million of these credit lines were available for use as of December 31, 2021 and 2020, respectively.

## Long-term Debt

The following table provides the components of the Company's long-term debt obligations, along with applicable interest rates as of December 31, 2021 and 2020:

| (millions) | Maturity by Year | 2021 Carrying Value | 2021 Stated Interest Rate | 2021 Effective Interest Rate | 2020 Carrying Value | 2020 Stated Interest Rate | 2020 Effective Interest Rate |
|---|---|---|---|---|---|---|---|
| Long-term debt | | | | | | | |
| Public notes (2021 principal amount) | | | | | | | |
| Five year 2017 senior notes ($500 million) | 2022 | $- | - % | - % | $498.6 | 2.38 % | 2.55 % |
| Seven year 2016 senior notes ($400 million) | 2023 | - | - % | - % | 399.0 | 3.25 % | 3.49 % |
| Two year 2021 senior notes ($500 million) | 2023 | 497.2 | 0.90 % | 1.19 % | - | - % | - % |
| Seven year 2016 senior notes (€575 million) | 2024 | 649.3 | 1.00 % | 1.19 % | 682.0 | 1.00 % | 1.18 % |
| Ten year 2015 senior notes (€575 million) | 2025 | 649.7 | 2.63 % | 2.87 % | 682.9 | 2.63 % | 2.85 % |
| Ten year 2016 senior notes ($750 million) | 2026 | 744.9 | 2.70 % | 2.89 % | 745.3 | 2.70 % | 2.93 % |
| Ten year 2017 senior notes ($500 million) | 2027 | 488.4 | 3.25 % | 2.89 % | 496.0 | 3.25 % | 3.37 % |
| Six Year 2021 senior notes ($500 million) | 2027 | 495.7 | 1.65 % | 1.84 % | - | - % | - % |
| Ten year 2020 senior notes ($698 million) | 2030 | 709.1 | 4.80 % | 4.06 % | 765.2 | 4.80 % | 4.64 % |
| Ten year 2020 senior notes ($600 million) | 2031 | 593.4 | 1.30 % | 1.39 % | 594.4 | 1.30 % | 1.34 % |
| Eleven year 2021 senior notes ($650 million) | 2032 | 644.0 | 2.13 % | 2.24 % | - | - % | - % |
| Thirty year 2011 senior notes ($389 million) | 2041 | 384.3 | 5.50 % | 5.63 % | 452.2 | 5.50 % | 5.56 % |
| Thirty year 2016 senior notes ($200 million) | 2046 | 197.2 | 3.70 % | 3.81 % | 246.4 | 3.70 % | 3.76 % |
| Thirty year 2017 senior notes ($484 million) | 2047 | 424.3 | 3.95 % | 4.80 % | 611.9 | 3.95 % | 4.16 % |
| Thirty year 2020 senior notes ($500 million) | 2050 | 490.4 | 2.13 % | 2.24 % | 490.1 | 2.13 % | 2.15 % |
| Thirty year 2021 senior notes ($850 million) | 2051 | 838.5 | 2.70 % | 2.78 % | - | - % | - % |
| Thirty-four year 2021 senior notes ($685 million) | 2055 | 535.3 | 2.75 % | 3.87 % | - | - % | - % |
| Finance lease obligations and other | | 8.0 | | | 7.1 | | |
| Total debt | | 8,349.7 | | | 6,671.1 | | |
| Long-term debt, current maturities | | (2.5) | | | (1.8) | | |
| Total long-term debt | | $8,347.2 | | | $6,669.3 | | |

***Public Notes***

In August 2021, the Company completed a private offering of a $300 million aggregate principal 34-year fixed rate notes with a coupon rate of 2.75% ("New 34-year Notes"). Immediately following the offering, the Company completed a private offering to exchange a portion of the outstanding senior notes due 2030, 2041, 2046, 2047 ("Old Notes"), for $385 million of New 34-year Notes. In connection with the exchange offering, $387 million of Old Notes were validly tendered and subsequently cancelled.

In December 2021, the Company issued $2.5 billion in notes to repay the $3.0 billion delayed draw term loan used to fund the Purolite acquisition. These notes were comprised of $500 million 0.9% notes due 2023, $500 million 1.65% notes due 2027, $650 million 2.125% notes due 2032, and $850 million 2.7% notes due 2051.

During the fourth quarter of 2021, pursuant to a registration rights agreement pertaining to the New 34-year Notes, the Company filed a registration statement regarding an offer to exchange each series of the New 34-year Notes for new issues of notes registered under the U.S. Securities Act of 1933, as amended. The registration statement was declared effective, and substantially all of the New 34-year Notes were exchanged. The terms of each series of the new notes are substantially identical to the terms of the applicable series of New 34-year Notes, except that the new notes are registered as mentioned above and the transfer restrictions and registration rights and related special interest provisions applicable to the New 34-year Notes do not apply to the new notes.

The New 34-year Notes bear a lower fixed coupon rate on an extended maturity date, compared with the Old Notes that were exchanged. There were no other significant changes to the terms between the Old Notes and the New 34-year Notes. The exchange was accounted for as a debt modification, and there were cash payments to the note holders of $118 million as a result of the exchange. Existing deferred financing costs associated with the Old Notes, as well as discounts associated with the New 34-year Notes aggregating $143 million, are being amortized over the term of the New 34-year Notes and recorded as interest expense.

In September 2021, the Company completed the retirement of the $500 million 2.375% Notes due 2022 and the $400 million 3.25% Notes due 2023 which was accounted for as a debt extinguishment. A make-whole premium of $25.0 million was expensed immediately and is reflected as a financing cash flow activity.

The Company's public notes may be redeemed by the Company at its option at redemption prices that include accrued and unpaid interest and a make-whole premium. Upon the occurrence of a change of control accompanied by a downgrade of the public notes below investment grade rating, within a specified time period, the Company would be required to offer to repurchase the public notes at a price equal to 101% of the aggregate principal amount thereof, plus any accrued and unpaid interest to the date of repurchase. The public notes are senior unsecured and unsubordinated obligations of the Company and rank equally with all other senior and unsubordinated indebtedness of the Company.

### Covenants and Future Maturities

The Company is in compliance with all covenants under the Company's outstanding indebtedness at December 31, 2021.

As of December 31, 2021, the aggregate annual maturities of long-term debt for the next five years were:

| (millions) | |
|---|---|
| 2022 | $ 2 |
| 2023 | 500 |
| 2024 | 650 |
| 2025 | 651 |
| 2026 | 745 |

### Net Interest Expense

Interest expense and interest income incurred during 2021, 2020 and 2019 were as follows:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Interest expense | $230.6 | $304.8 | $214.4 |
| Interest income | (12.3) | (14.6) | (23.7) |
| Interest expense, net | $218.3 | $290.2 | $190.7 |

Interest expense generally includes the expense associated with the interest on the Company's outstanding borrowings. Interest expense also includes the amortization of debt issuance costs and debt discounts, which are both recognized over the term of the related debt.

During 2021, the Company issued, exchanged and retired certain long-term debt, incurring debt refinancing charges of $32.3 million ($28.4 million after tax), which are included as a component of interest expense, net on the Consolidated Statements of Income.

During 2020, the Company retired certain long-term debt, and incurred debt refinancing charges of $83.1 million ($64.0 million after tax), which are included as a component of interest expense, net on the Consolidated Statements of Income.

## 8. FAIR VALUE MEASUREMENTS

The Company's financial instruments include cash and cash equivalents, accounts receivable, accounts payable, contingent consideration obligations, commercial paper, notes payable, foreign currency forward contracts, interest rate swap agreements, cross-currency swap derivative contracts and long-term debt.

Fair value is defined as the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants as of the measurement date. A hierarchy has been established for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring the most observable inputs be used when available. The hierarchy is broken down into three levels:

*Level 1* - Inputs are quoted prices in active markets that are accessible at the measurement date for identical assets or liabilities.
*Level 2* - Inputs include observable inputs other than quoted prices in active markets.
*Level 3* - Inputs are unobservable inputs for which there is little or no market data available.

The carrying amount and the estimated fair value for assets and liabilities measured on a recurring basis were:

| | December 31, 2021 | | | |
|---|---|---|---|---|
| (millions) | Carrying Amount | Fair Value Measurements | | |
| | | Level 1 | Level 2 | Level 3 |
| Assets | | | | |
| Foreign currency forward contracts | **$94.5** | **$-** | **$94.5** | **$-** |
| Interest rate swap agreements | **1.8** | **-** | **1.8** | **-** |
| Cross-currency swap derivative contracts | **9.4** | **-** | **$9.4** | **-** |
| Liabilities | | | | |
| Foreign currency forward contracts | **12.6** | **-** | **12.6** | **-** |
| Interest rate swap agreements | **10.1** | **-** | **10.1** | **-** |
| Cross-currency swap derivative contracts | **1.6** | **-** | **1.6** | **-** |

| | December 31, 2020 | | | |
|---|---|---|---|---|
| (millions) | Carrying Amount | Fair Value Measurements | | |
| | | Level 1 | Level 2 | Level 3 |
| Assets | | | | |
| Foreign currency forward contracts | $15.5 | $- | $15.5 | $- |
| Liabilities | | | | |
| Foreign currency forward contracts | 69.9 | - | 69.9 | - |

The carrying value of foreign currency forward contracts are at fair value, which are determined based on foreign currency exchange rates as of the balance sheet date and classified within Level 2. The carrying value of interest rate swap contracts are at fair value, which are determined based on current forward interest rates as of the balance sheet date and are classified within Level 2. The cross-currency swap derivative contract is used to partially hedge the Company's net investments in foreign operations against adverse movements in exchange rates between the U.S. dollar and the Euro. The carrying value of the cross-currency swap derivative contract is at fair value, which is determined based on the income approach with the relevant interest rates and foreign currency current exchange rates and forward curves as inputs as of the balance sheet date and is classified within Level 2. For purposes of fair value disclosure above, derivative values are presented gross. Further discussion of gross versus net presentation of the Company's derivatives within Note 9.

Contingent consideration obligations are recognized and measured at fair value at the acquisition date and thereafter until settlement or expiration. Contingent consideration is classified within Level 3 as the underlying fair value is determined using income-based valuation approaches appropriate for the terms and conditions of each respective contingent consideration. The consideration expected to be transferred is based on the Company's expectations of various financial measures. The ultimate payment of contingent consideration could deviate from current estimates based on the actual results of these financial measures. Contingent consideration during 2021, 2020 and 2019 were not significant to the Company's consolidated financial statements.

The carrying values of accounts receivable, accounts payable, cash and cash equivalents, commercial paper and notes payable approximate fair value because of their short maturities, and as such are classified within Level 1.

The fair value of long-term debt is based on quoted market prices for the same or similar debt instruments (classified as Level 2). The carrying amount and the estimated fair value of long-term debt, including current maturities, held by the Company were:

| | December 31, 2021 | | December 31, 2020 | |
|---|---|---|---|---|
| | Carrying Amount | Fair Value | Carrying Amount | Fair Value |
| Long-term debt, including current maturities | **$8,349.7** | **$9,085.3** | $6,671.1 | $7,704.4 |

## 9. DERIVATIVES AND HEDGING TRANSACTIONS

The Company uses foreign currency forward contracts, interest rate swap agreements, cross-currency swap derivative contracts and foreign currency debt to manage risks associated with foreign currency exchange rates, interest rates and net investments in foreign operations. The Company does not hold derivative financial instruments of a speculative nature or for trading purposes. The Company records derivatives as assets and liabilities on the balance sheet at fair value. Changes in fair value are recognized immediately in earnings unless the derivative qualifies and is designated as a hedge. Cash flows from derivatives are classified in the statement of cash flows in the same category as the cash flows from the items subject to designated hedge or undesignated (economic) hedge relationships. The Company evaluates hedge effectiveness at inception and on an ongoing basis. If a derivative is no longer expected to be effective, hedge accounting is discontinued.

The Company is exposed to credit risk in the event of nonperformance of counterparties for foreign currency forward exchange contracts and interest rate swap agreements. The Company monitors its exposure to credit risk by using credit approvals and credit limits and by selecting major global banks and financial institutions as counterparties. The Company does not anticipate nonperformance by any of these counterparties, and therefore, recording a valuation allowance against the Company's derivative balance is not considered necessary.

### Derivative Positions Summary

Certain of the Company's derivative transactions are subject to master netting arrangements that allow the Company to net settle contracts with the same counterparties. These arrangements generally do not call for collateral and as of the applicable dates presented in the following table, no cash collateral had been received or pledged related to the underlying derivatives.

The respective net amounts are included in other current assets, other assets, other current liabilities and other liabilities on the Consolidated Balance Sheets.

The following table summarizes the gross fair value and the net value of the Company's outstanding derivatives:

| | Derivative Assets | | Derivative Liabilities | |
|---|---|---|---|---|
| (millions) | **December 31 2021** | December 31 2020 | **December 31 2021** | December 31 2020 |
| Derivatives designated as hedging instruments | | | | |
| Foreign currency forward contracts | **$44.7** | $8.1 | **$2.6** | $54.3 |
| Interest rate swap agreements | **1.8** | - | **10.1** | - |
| Cross-currency swap derivative contracts | **9.4** | - | **1.6** | - |
| Derivatives not designated as hedging instruments | | | | |
| Foreign currency forward contracts | **49.8** | 7.4 | **10.0** | 15.6 |
| Gross value of derivatives | **105.7** | 15.5 | **24.3** | 69.9 |
| Gross amounts offset in the Consolidated Balance Sheets | **(14.9)** | (12.3) | **(14.9)** | (12.3) |
| Net value of derivatives | **$90.8** | $3.2 | **$9.4** | $57.6 |

The following table summarizes the notional values of the Company's outstanding derivatives:

| | Notional Values | |
|---|---|---|
| (millions) | **December 31 2021** | December 31 2020 |
| Foreign currency forward contracts | **$ 4,059** | $ 3,702 |
| Interest rate swap agreements | **1,250** | - |
| Cross-currency swap derivative contracts | **482** | - |

### Cash Flow Hedges

The Company utilizes foreign currency forward contracts to hedge the effect of foreign currency exchange rate fluctuations on forecasted foreign currency transactions, including inventory purchases and intercompany royalty, intercompany loans, management fee and other payments. These forward contracts are designated as cash flow hedges. The changes in fair value of these contracts are recorded in accumulated other comprehensive income (loss) ("AOCI") until the hedged items affect earnings, at which time the gain or loss is reclassified into the same line item in the Consolidated Statements of Income as the underlying exposure being hedged. Cash flow hedged transactions impacting AOCI are forecasted to occur within the next two years. For forward contracts designated as hedges of foreign currency exchange rate risk associated with forecasted foreign currency transactions, the Company excludes the changes in fair value attributable to time value from the assessment of hedge effectiveness. The initial value of the excluded component (i.e., the forward points) is amortized on a straight-line basis over the life of the hedging instrument and recognized in the same line item in the Consolidated Statements of Income as the underlying exposure being hedged for intercompany loans. For all other cash flow hedge types, the forward points are mark-to-market monthly and recognized in the same line item in the Consolidated Statements of Income as the underlying exposure being hedged. The difference between fair value changes of the excluded component and the amount amortized in the Consolidated Statements of Income is recorded in AOCI.

## Fair Value Hedges

The Company manages interest expense using a mix of fixed and floating rate debt. To help manage exposure to interest rate movements and to reduce borrowing costs, the Company may enter into interest rate swaps under which the Company agrees to exchange, at specified intervals, the difference between fixed and floating interest amounts calculated by reference to an agreed upon notional principal amount. The mark-to-market of these fair value hedges is recorded as gains or losses in interest (income) expense and is offset by the gain or loss of the underlying debt instrument, which also is recorded in interest (income) expense. These fair value hedges are highly effective and thus, there is no impact on earnings due to hedge ineffectiveness.

In March 2021, the Company entered into an interest rate swap agreement that converted $250 million of its 3.25% debt from a fixed interest rate to a floating interest rate. In July 2021, the Company entered into an interest rate swap agreement that converted the remaining $250 million of its 3.25% debt from a fixed interest rate to a floating interest rate. In September 2021, the Company entered into an interest rate swap agreement that converted $250 million of its 4.80% debt from a fixed interest rate to a floating interest rate. In October 2021, the Company entered into an interest rate swap agreement that converted $250 million of its 2.70% debt from a fixed interest rate to a floating interest rate. In December 2021, the Company entered into an interest rate swap agreement that converted $250 million of its 1.30% debt from a fixed interest rate to a floating interest rate. All of these interest rate swaps are designated as fair value hedges.

The following amounts were recorded in the Consolidated Balance Sheets related to cumulative basis adjustments for fair value hedges:

| Line item in which the hedged item is included | Carrying amount of the hedged liabilities | | | Cumulative amount of the fair value hedging adjustment included in the carrying amount of the hedged liabilities | | |
|---|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 | 2019 |
| Long-term debt | $1,235.6 | $- | $- | $12.1 | $- | $- |

## Net Investment Hedges

The Company designates its outstanding €1,150 million ($1,299 million as of year-end 2021) senior notes ("Euronotes") and related accrued interest as a hedge of its Euro denominated exposures from the Company's investments in certain of its Euro denominated functional currency subsidiaries. Certain Euro commercial paper was also designated as a hedge of existing foreign currency exposures and matured in the third quarter of 2020.

In July and December of 2021, the Company entered into a cross-currency swap derivative contracts with a notional amount of €300 million and €125 million, respectively, both maturing in 2030. The cross-currency swap derivative contracts are designated as net investment hedge of the Company's Euro denominated exposures from the Company's investments in certain of its Euro denominated functional currency subsidiaries. The cross-currency swap derivative contracts exchange fixed-rate payments in one currency for fixed-rate payments in another currency. As of December 31, 2021, the Company had a €425 million ($482 million) cross-currency swap derivative contract outstanding as a hedge of the Company's net investment in foreign operations. The changes in the spot rate of these instruments are recorded in AOCI in stockholders' equity, partially offsetting the foreign currency translation adjustment of the Company's related net investment that is also recorded in AOCI. Any ineffective portions of net investment hedges are reclassified from AOCI into earnings during the period of change. The interest income or expense from these swaps are recorded in interest expense on the accompanying Consolidated Statements of Income consistent with the classification of interest expense attributable to the underlying debt.

The revaluation gains and losses on the Euronotes and cross-currency swap derivative, which are designated and effective as hedges of the Company's net investments, have been included as a component of the cumulative translation adjustment account, and were as follows:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Revaluation gain (loss), net of tax: | | | |
| Euronotes | $45.3 | ($87.7) | $31.4 |
| Cross-currency swap derivative contracts | 6.3 | - | - |
| Total revaluation gain (loss), net of tax | $51.6 | ($87.7) | $31.4 |

### Derivatives Not Designated as Hedging Instruments

The Company also uses foreign currency forward contracts to offset its exposure to the change in value of certain foreign currency denominated assets and liabilities held at foreign subsidiaries, primarily receivables and payables, which are remeasured at the end of each period. Although the contracts are effective economic hedges, they are not designated as accounting hedges. Therefore, changes in the value of these derivatives are recognized immediately in earnings, thereby offsetting the current earnings effect of the related foreign currency denominated assets and liabilities.

### Effect of all Derivative Instruments on Income

The gain (loss) of all derivative instruments recognized in product and equipment cost of sales (“COS”), selling, general and administrative expenses (“SG&A”) and interest expense, net (“interest”) is summarized below:

| | 2021 | | | 2020 | | | 2019 | | |
|---|---|---|---|---|---|---|---|---|---|
| (millions) | COS | SG&A | Interest | COS | SG&A | Interest | COS | SG&A | Interest |
| Gain (loss) on derivatives in cash flow hedging relationship: | | | | | | | | | |
| Foreign currency forward contracts | | | | | | | | | |
| Amount of gain (loss) reclassified from AOCI to income | ($11.0) | $47.6 | $- | $10.1 | ($108.3) | $- | $15.4 | $39.5 | $- |
| Amount excluded from the assessment of effectiveness recognized in earnings based on changes in fair value | - | - | 21.0 | - | - | 27.5 | - | - | 28.7 |
| Interest rate swap agreements | | | | | | | | | |
| Amount of gain (loss) reclassified from AOCI to income | - | - | (2.3) | - | - | (2.4) | - | - | (0.9) |
| Gain (loss) on derivatives not designated as hedging instruments: | | | | | | | | | |
| Foreign currency forward contracts | | | | | | | | | |
| Amount of gain (loss) recognized in income (a) | - | 73.7 | - | - | (12.3) | - | - | 30.0 | (0.1) |
| Total gain (loss) of all derivative instruments | ($11.0) | $121.3 | $18.7 | $10.1 | ($120.6) | $25.1 | $15.4 | $69.5 | $27.7 |

(a) Gain (loss) on derivatives not designated as hedging instruments recognized in income recorded in SG&A includes discontinued operations of $(2.5) and $(5.1) for the years ended December 31, 2020 and 2019, respectively.

## 10. OTHER COMPREHENSIVE INCOME (LOSS) INFORMATION

Other comprehensive income (loss) includes net income, foreign currency translation adjustments, defined benefit pension and postretirement plan adjustments, gains and losses on derivative instruments designated and effective as cash flow hedges and non-derivative instruments designated and effective as foreign currency net investment hedges that are charged or credited to the AOCI account in shareholders' equity.

The following table provides other comprehensive income (loss) information related to the Company's derivatives and hedging instruments and pension and postretirement benefits. Refer to Note 9 for additional information related to the Company's derivatives and hedging transactions. Refer to Note 17 for additional information related to the Company's pension and postretirement benefits activity.

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Derivative and Hedging Instruments | | | |
| Unrealized gain (loss) on derivative & hedging instruments | | | |
| Amount recognized in AOCI | $87.5 | ($93.3) | $78.1 |
| Loss (gain) reclassified from AOCI into income | | | |
| COS | 11.0 | (10.1) | (15.4) |
| SG&A | (47.6) | 108.3 | (39.5) |
| Interest (income) expense, net | (18.7) | (25.1) | (27.8) |
| | (55.3) | 73.1 | (82.7) |
| Other activity | (1.7) | (0.3) | 0.8 |
| Tax impact | (4.5) | 3.5 | 0.4 |
| Net of tax | $26.0 | ($17.0) | ($3.4) |
| | | | |
| Pension and Postretirement Benefits | | | |
| Amount recognized in AOCI | | | |
| Current period net actuarial gain (loss) | $270.7 | ($189.9) | ($326.3) |
| Amount reclassified from AOCI into income | | | |
| Settlement charge | 38.8 | - | - |
| Amortization of net actuarial loss and prior period service credits, net | 78.6 | 68.1 | 0.4 |
| | 388.1 | (121.8) | (325.9) |
| Tax impact | (98.4) | 43.7 | 74.3 |
| Net of tax | $289.7 | ($78.1) | ($251.6) |

## 11. SHAREHOLDERS' EQUITY

Authorized common stock, par value $1.00 per share, was 800 million shares at December 31, 2021, 2020 and 2019. Treasury stock is stated at cost. Dividends declared per share of common stock were $1.95 for 2021, $1.89 for 2020 and $1.85 for 2019.

The Company has 15 million shares, without par value, of authorized but unissued and undesignated preferred stock.

### Share Repurchase Authorization

In February 2015, the Company's Board of Directors authorized the repurchase of up to 20 million additional shares of its common stock, including shares to be repurchased under Rule 10b5-1. As of December 31, 2021, 5,850,187 shares remained to be repurchased under the Company's repurchase authorization. The Company intends to repurchase all shares under its authorization, for which no expiration date has been established, in open market or privately negotiated transactions, subject to market conditions.

### Share Repurchases

During 2021, 2020 and 2019, the Company reacquired 502,132, 761,245 and 1,986,241 shares, respectively, of its common stock, of which 389,759, 565,064 and 1,846,384, respectively, related to share repurchases through open market or private purchases, and 112,373, 196,181 and 139,857, respectively, related to shares withheld for taxes on exercise of stock options and vesting of stock awards and units.

### Separation of ChampionX

On June 3, 2020, the Company effected the split-off of ChampionX through the Exchange Offer and all shares of ChampionX common stock owned by Ecolab were exchanged for outstanding shares of Ecolab common stock. In the Exchange Offer, which was oversubscribed, the Company accepted 4,955,552 shares of Ecolab common stock in exchange for approximately 122,200,000 shares of ChampionX common stock.

## 12. EQUITY COMPENSATION PLANS

The Company's equity compensation plans provide for grants of stock options, performance-based restricted stock units ("PBRSUs") and non-performance-based restricted stock units ("RSUs") and restricted stock awards ("RSAs"). Common shares available for grant as of December 31, 2021, 2020 and 2019 were 7,544,458, 8,644,262 and 9,029,645, respectively. The Company generally issues authorized but previously unissued shares to satisfy stock option exercises and stock award vesting.

The Company's annual long-term incentive share-based compensation program is made up of 50% stock options and 50% PBRSUs. The Company also periodically grants RSUs. Total compensation expense related to all share-based compensation plans was $89 million ($75 million net of tax benefit), $81 million ($68 million net of tax benefit) and $84 million ($70 million net of tax benefit) for 2021, 2020 and 2019, respectively. As of December 31, 2021, there was $123 million of total measured but unrecognized compensation expense related to non-vested share-based compensation arrangements granted under all of the Company's plans. That cost is expected to be recognized over a weighted-average period of 2.6 years.

### Stock Options

Stock options are granted to purchase shares of the Company's stock at the average daily share price on the date of grant. These options generally expire within ten years from the grant date. The Company generally recognizes compensation expense for these awards on a straight-line basis over the three year vesting period. Stock option grants to retirement eligible recipients are attributed to expense using the non-substantive vesting method.

A summary of stock option activity and average exercise prices is as follows:

| | 2021 | | 2020 | | 2019 | |
|---|---|---|---|---|---|---|
| | Number of Options | Exercise Price (a) | Number of Options | Exercise Price (a) | Number of Options | Exercise Price (a) |
| Outstanding, beginning of year | 6,802,415 | $ 144.20 | 9,042,320 | $ 121.72 | 10,516,633 | $ 108.28 |
| Granted | 812,853 | 223.85 | 931,750 | 220.95 | 879,862 | 184.31 |
| Exercised | (1,306,998) | 110.91 | (2,733,130) | 97.52 | (2,270,374) | 82.93 |
| Canceled | (91,109) | 192.49 | (91,660) | 166.67 | (83,801) | 143.08 |
| Separation of ChampionX | - | - | (346,865) | 126.37 | - | - |
| Outstanding, end of year | 6,217,161 | $ 160.91 | 6,802,415 | $ 144.20 | 9,042,320 | $ 121.72 |
| Exercisable, end of year | 4,604,922 | $ 141.21 | 5,051,927 | $ 125.08 | 7,048,422 | $ 109.34 |
| Vested and expected to vest, end of year | 6,083,642 | $ 159.79 | | | | |

(a) Represents weighted average price per share.

The total aggregate intrinsic value of options (the amount by which the stock price exceeded the exercise price of the option on the date of exercise) that were exercised during 2021, 2020 and 2019 was $148 million, $299 million and $227 million, respectively.

The total aggregate intrinsic value of options outstanding as of December 31, 2021 was $456 million, with a corresponding weighted-average remaining contractual life of 6.5 years. The total aggregate intrinsic value of options exercisable as of December 31, 2021 was $429 million, with a corresponding weighted-average remaining contractual life of 5.6 years. The total aggregate intrinsic value of options vested and expected to vest as of December 31, 2021 was $453 million, with a corresponding weighted-average remaining contractual life of 6.5 years.

The lattice (binomial) option-pricing model is used to estimate the fair value of options at grant date. The Company's primary employee option grant occurs during the fourth quarter. The weighted-average grant-date fair value of options granted and the significant assumptions used in determining the underlying fair value of each option grant, on the date of grant were as follows:

| | 2021 | 2020 | 2019 |
|---|---|---|---|
| Weighted-average grant-date fair value of options granted at market prices | $ 47.65 | $ 44.16 | $ 40.30 |
| Assumptions | | | |
| Risk-free rate of return | 1.2 % | 0.5 % | 1.6 % |
| Expected life | 6 years | 6 years | 6 years |
| Expected volatility | 23.0 % | 23.0 % | 23.0 % |
| Expected dividend yield | 0.9 % | 0.9 % | 1.0 % |

The risk-free rate of return is determined based on a yield curve of U.S. treasury rates from one month to ten years and a period commensurate with the expected life of the options granted. Expected volatility is established based on historical volatility of the Company's stock price. The expected dividend yield is determined based on the Company's annual dividend amount as a percentage of the average stock price at the time of the grant.

## PBRSUs, RSUs and RSAs

The expense associated with PBRSUs is based on the average of the high and low share price of the Company's common stock on the date of grant, adjusted for the absence of future dividends. The awards vest based on the Company achieving a defined performance target and with continued service for a three year period. Upon vesting, the Company issues shares of its common stock such that one award unit equals one share of common stock. The Company assesses the probability of achieving the performance target and recognizes expense over the three year vesting period when it is probable the performance target will be met. PBRSU awards granted to retirement eligible recipients are attributed to expense using the non-substantive vesting method. The awards are generally subject to forfeiture in the event of termination of employment.

The expense associated with shares of non-performance based RSUs and RSAs is based on the average of the high and low share price of the Company's common stock on the date of grant, adjusted for the absence of future dividends and is amortized on a straight-line basis over the periods during which the restrictions lapse. The Company currently has RSUs that vest over periods between 12 and 60 months. The awards are generally subject to forfeiture in the event of termination of employment.

A summary of non-vested PBRSUs and restricted stock activity is as follows:

| | PBRSU Awards | Grant Date Fair Value (a) | RSAs and RSUs | Grant Date Fair Value (a) |
|---|---|---|---|---|
| December 31, 2018 | 1,267,353 | $ 126.75 | 246,469 | $ 127.09 |
| Granted | 207,704 | 178.20 | 102,941 | 177.38 |
| Vested / Earned | (334,351) | 114.38 | (64,597) | 119.08 |
| Canceled | (23,808) | 135.70 | (19,300) | 124.77 |
| December 31, 2019 | 1,116,898 | $ 139.83 | 265,513 | $ 149.46 |
| Granted | 202,187 | 215.23 | 62,693 | 203.09 |
| Vested / Earned | (333,676) | 112.78 | (81,150) | 130.72 |
| Canceled | (26,285) | 157.32 | (15,996) | 162.51 |
| Separation of ChampionX | (44,494) | 142.10 | (67,377) | 161.82 |
| December 31, 2020 | 914,630 | $ 165.76 | 163,683 | $ 172.92 |
| Granted | **176,297** | **223.77** | **130,807** | **211.12** |
| Vested / Earned | **(271,731)** | **131.74** | **(48,977)** | **160.84** |
| Canceled | **(30,667)** | **178.46** | **(13,239)** | **192.12** |
| December 31, 2021 | **788,529** | **$ 189.96** | **232,274** | **$ 195.95** |

(a) Represents weighted average price per share.

## 13. INCOME TAXES

Income before income taxes consisted of:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| United States (U.S.) | $277.7 | $100.5 | $787.1 |
| International | 1,136.5 | 1,060.9 | 944.4 |
| Total | $1,414.2 | $1,161.4 | $1,731.5 |

The provision (benefit) for income taxes consisted of:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| U.S. federal and state | $30.9 | ($43.9) | $134.4 |
| International | 240.2 | 259.8 | 176.3 |
| Total current | 271.1 | 215.9 | 310.7 |
| U.S. federal and state | 3.6 | 12.0 | 37.9 |
| International | (4.5) | (51.3) | (60.0) |
| Total deferred | (0.9) | (39.3) | (22.1) |
| Provision for income taxes | $270.2 | $176.6 | $288.6 |

The Company’s overall net deferred tax assets and deferred tax liabilities were comprised of the following:

| December 31 (millions) | 2021 | 2020 |
|---|---|---|
| Deferred tax assets | | |
| Pension and post-retirement benefits | $136.8 | $234.3 |
| Other accrued liabilities | 135.6 | 154.7 |
| Lease liability | 101.3 | 95.5 |
| Credit carryforwards | 81.8 | 76.6 |
| Loss carryforwards | 59.6 | 63.4 |
| Share-based compensation | 44.7 | 44.8 |
| Deferred income | 44.8 | 12.8 |
| Other, net | 71.0 | 64.2 |
| Valuation allowance | (50.3) | (45.3) |
| Total deferred tax assets | 625.3 | 701.0 |
| Deferred tax liabilities | | |
| Intangible assets | (631.0) | (598.9) |
| Property, plant and equipment | (333.5) | (317.8) |
| Lease asset | (100.3) | (95.4) |
| Financing | (34.2) | - |
| Other, net | (27.7) | (9.6) |
| Total deferred tax liabilities | (1,126.7) | (1,021.7) |
| Net deferred tax liabilities balance | ($501.4) | ($320.7) |

As of December 31, 2021, the Company has tax effected federal, state and international net operating loss carryforwards of $3.1 million, $20.4 million and $36.1 million, respectively, which will be available to offset future taxable income. The federal and state loss carryforwards of $23.5 million expire from 2022 to 2042. The international loss carryforwards of $5.8 million expire from 2022 to 2042 and $30.3 million have no expiration. The tax loss carryforwards expiring in 2022 are not material.

Additionally, the Company has $81.8 million of credit carryforwards that are primarily related to U.S. foreign tax credits and various state credits. The U.S. foreign tax credit carryforwards of $49.4 million expire from 2028 to 2030 and the state credit carryforwards of $25.7 million expire from 2022 to 2036. The tax credit carryforwards expiring in 2022 are not material.

The Company has valuation allowances on certain deferred tax assets of $50.3 million and $45.3 million at December 31, 2021 and 2020, respectively. The increase in valuation allowance from year end 2020 to year end 2021 was primarily due to U.S. state tax attributes.

In 2021, the Company obtained tax benefits from a tax holiday in the Dominican Republic. The Company received a permit of operation, which expires in April 2036, from the National Council of Free Zones of Exportation for the Dominican Republic. Companies operating under the Free Zones are not subject to income tax in the Dominican Republic on export income. The tax reduction as the result of the tax holidays for 2021 was $2.9. million ($0.01 per diluted share), 2020 was $26.9 million ($0.09 per diluted share) and 2019 was $29.2 million ($0.10 per diluted share). The Company had a tax incentive awarded by the Singapore Economic Development Board. This incentive provided for a preferential 10% tax rate on certain headquarter income which expired in January 2021.

A reconciliation of the statutory U.S. federal income tax rate to the Company's effective income tax rate is as follows:

| | 2021 | 2020 | 2019 |
|---|---|---|---|
| Statutory U.S. rate | **21.0 %** | 21.0 % | 21.0 % |
| State income taxes, net of federal benefit | **0.6** | 0.4 | 1.8 |
| Foreign operations | **(0.6)** | (1.3) | 5.5 |
| Excess stock benefits | **(2.0)** | (4.9) | (2.4) |
| R&D credit | **(1.3)** | (1.1) | (1.0) |
| Foreign derived intangible income | **(1.6)** | (0.2) | (0.2) |
| Change in valuation allowance | **0.5** | 0.6 | (8.2) |
| One-time transfer of intangibles | **1.8** | - | - |
| Other, net | **0.7** | 0.7 | 0.2 |
| Effective income tax rate | **19.1 %** | 15.2 % | 16.7 % |

The change in the Company's effective income tax rate includes the tax impact of special (gains) and charges and discrete tax items, which have impacted the comparability of the Company's historical effective income tax rates, as amounts included in special (gains) and charges are derived from tax jurisdictions with rates that vary from the statutory U.S. rate, and discrete tax items are not necessarily consistent across periods. The tax impact of special (gains) and charges and discrete tax items will likely continue to impact comparability of the Company's effective income tax rate in the future.

The Company's 2021 effective tax rate of 19.1% includes $53.3 million of net tax benefits on special (gains) and charges, and net tax expense of $5.8 million associated with discrete items. During 2021, the Company recorded a discrete tax benefit of $29.1 million related to share-based compensation excess tax benefits. The extent of excess tax benefits is subject to variation in stock price and award exercises. Additionally, the Company recorded $34.9 million discrete tax charges including a non-cash deferred tax charge of $25.1 million associated with transferring certain intangible property between affiliates. The remaining $9.8 million tax expense primarily relates to the filing of federal, state and foreign tax returns and other income tax adjustments including the impact of changes in tax laws, audit settlements and other changes in estimates.

The Company's 2020 effective tax rate of 15.2% includes $57.9 million of net tax benefits on special (gains) and charges, and net tax benefits of $55.8 million associated with discrete items. During 2020, the Company recorded a discrete tax benefit of $57.3 million related to share-based compensation excess tax benefits. The Company recorded changes in reserves in non-U.S. and U.S. jurisdictions due to audit settlements and the expiration of statutes of limitations which resulted in a $9.8 million tax benefit. Additionally, the Company recognized a net tax expense of $11.3 million primarily related to the filing of prior year federal, state and foreign tax returns and other income tax adjustments.

The Company's 2019 effective tax rate of 16.7% includes $40.1 million of net tax benefits on special (gains) and charges, net tax benefits of $54.6 million associated with discrete tax items and $3.1 million of net benefit associated with updates to the one-time transition tax in the U.S. During 2019, the Company recorded a discrete tax benefit of $42.3 million related to share-based compensation excess tax benefits. The Company recognized $15.6 million tax benefit related to changes in local tax law, which primarily includes $30.4 million benefit due to the passage of the Swiss Tax Reform and AHV Financing Act, a Swiss federal tax law, offset by a tax expense of $10.2 million due to the release of the final Treasury Regulation governing taxation of foreign dividends. The Company recorded changes in reserves in non-U.S. and U.S. jurisdictions due to audit settlements and statutes of limitations which resulted in a $13.8 million tax benefit. The Company finalized the 2015 and 2016 IRS audit in 2019, which resulted in a discrete tax expense of $11.0 million. The remaining discrete tax expense was primarily related to changes in estimates in non-U.S. jurisdictions.

The Company recorded a preliminary deferred tax liability of $19.3 million as part of purchase accounting in 2021 associated with the pre-acquisition undistributed earnings of Purolite that are not considered permanently reinvested. The Company continues to assert permanent reinvestment of the undistributed earnings of international affiliates unless the earnings can be remitted in a net income tax benefit or tax-neutral manner. If there are policy changes, the Company would record the applicable taxes in the period of change. Due to the complexity of the legal entity structure, the number of legal entities and jurisdictions involved, and the complexity of the laws and regulations, the Company believes it is not practicable to estimate the amount of additional taxes which may be payable upon distribution of these undistributed earnings. Accordingly, no deferred taxes have been provided for withholding taxes or other taxes on permanently reinvested earnings.

A reconciliation of the beginning and ending amount of gross liability for unrecognized tax benefits is as follows:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Balance at beginning of year | **$20.7** | $27.0 | $49.0 |
| Additions based on tax positions related to the current year | **3.8** | 3.3 | 2.1 |
| Additions for tax positions of prior years | **3.0** | - | 1.0 |
| Current year acquisitions | **4.4** | - | - |
| Reductions for tax positions of prior years | **-** | (1.1) | (18.4) |
| Reductions for tax positions due to statute of limitations | **(3.0)** | (9.1) | (5.7) |
| Settlements | **(3.7)** | - | (0.6) |
| Foreign currency translation | **(0.1)** | 0.6 | (0.4) |
| Balance at end of year | **$25.1** | $20.7 | $27.0 |

The total amount of unrecognized tax benefits, if recognized would affect the effective tax rate by $22.8 million as of December 31, 2021, $18.3 million as of December 31, 2020 and $23.7 million as of December 31, 2019.

The Company files U.S. federal income tax returns and income tax returns in various U.S. state and non- U.S. jurisdictions. With few exceptions, the Company is no longer subject to state and foreign income tax examinations by tax authorities for years before 2017. The IRS has completed examinations of the Company's U.S. federal income tax returns through 2016, and the years 2017 and 2018 are currently under audit. In addition to the U.S. federal examination, there is ongoing audit activity in several U.S. state and foreign jurisdictions. The Company anticipates changes to uncertain tax positions due to closing of various audits and statutes closing on years mentioned above. The Company does not believe these changes will result in a material impact during the next twelve months. Decreases in the Company's gross liability could result in offsets to other balance sheet accounts, cash payments, and adjustments to tax expense. The occurrence of these events and/or other events not included above within the next twelve months could change depending on a variety of factors.

The Company recognizes interest and penalties related to unrecognized tax benefits in its provision for income taxes. During 2021, 2020 and 2019 the Company released $0.9 million, $2.0 million and $1.9 million related to interest and penalties, respectively. The Company had $3.2 million, $4.1 million and $6.1 million of accrued interest, including minor amounts for penalties, at December 31, 2021, 2020, and 2019, respectively.

## 14. RENTALS AND LEASES

### Lessee

The Company leases sales and administrative office facilities, distribution centers, research and manufacturing facilities, as well as vehicles and other equipment under operating leases. Certain of the Company's lease arrangements are finance leases, which are immaterial individually and in the aggregate.

The Company's operating lease cost was as follows:

| (millions) | **2021** | 2020 | 2019 |
|---|---|---|---|
| Operating lease cost* | **$179.4** | $183.8 | $179.8 |

*Includes immaterial short-term and variable lease costs

Future maturity of operating lease liabilities as of December 31, 2021 is as follows:

| (millions) | |
|---|---|
| 2022 | 138 |
| 2023 | 93 |
| 2024 | 64 |
| 2025 | 45 |
| 2026 | 29 |
| Thereafter | 81 |
| Total lease payments | 450 |
| Less: imputed interest | 52 |
| Present value of lease liabilities | $ 398 |

The Company's operating leases term and discount rate were as follows:

| | **December 31 2021** | December 31 2020 | December 31 2019 |
|---|---|---|---|
| Weighted-average remaining lease terms (years) | **5.99** | 5.52 | 5.83 |
| Weighted-average discount rate | **3.07%** | 3.72% | 4.00% |

The Company's other lease information was as follows:

| (millions) | **December 31 2021** | December 31 2020 | December 31 2019 |
|---|---|---|---|
| Cash paid for amounts included in the measurement of lease liabilities: | | | |
| Operating cash flows from operating leases | **$157.0** | $164.2 | $159.0 |
| Leased assets obtained in exchange for new operating lease liabilities | **116.8** | 60.4 | 116.5 |

### Lessor

The Company leases warewashing and water treatment equipment to customers under operating leases.

Gross assets under operating leases recorded in Property, plant and equipment, net is $1,223.3 million and $1,190.3 million, and related accumulated depreciation is $767.3 million and $646.1 million, as of December 31, 2021 and 2020, respectively.

The Company's operating lease revenue was as follows:

| (millions) | 2021 | 2020 | 2019 |
|---|---|---|---|
| Operating lease revenue* | **$412.5** | $356.3 | $412.7 |

*Includes immaterial variable lease revenue

Revenue from operating leases for existing contracts as of December 31, 2021 is as follows:

| (millions) | |
|---|---|
| 2022 | 350 |
| 2023 | 253 |
| 2024 | 193 |
| 2025 | 119 |
| 2026 | 49 |
| Thereafter | 20 |
| Total lease revenue | $ 984 |

The Company mitigates the risk of residual value subsequent to the lease term by redeploying assets. As such, the Company expects to receive revenue from the operating lease assets through the remaining useful life and therefore subsequent to the initial contract termination date.

## 15. RESEARCH AND DEVELOPMENT EXPENDITURES

Research expenditures that relate to the development of new products and processes, including significant improvements and refinements to existing products, are expensed as incurred. Such costs were $186 million in 2021, $185 million in 2020 and $190 million in 2019. The Company did not participate in any material customer sponsored research during any of the years.

## 16. COMMITMENTS AND CONTINGENCIES

The Company is subject to various claims and contingencies related to, among other things, workers' compensation, general liability (including product liability), automobile claims, health care claims, environmental matters and lawsuits. The Company is also subject to various claims and contingencies related to income taxes, which are discussed in Note 13. The Company also has contractual obligations including lease commitments, which are discussed in Note 14.

The Company records liabilities where a contingent loss is probable and can be reasonably estimated. If the reasonable estimate of a probable loss is a range, the Company records the most probable estimate of the loss or the minimum amount when no amount within the range is a better estimate than any other amount. The Company discloses a contingent liability even if the liability is not probable or the amount is not estimable, or both, if there is a reasonable possibility that a material loss may have been incurred.

### Insurance

Globally, the Company has insurance policies with varying deductible levels for property and casualty losses. The Company is insured for losses in excess of these deductibles, subject to policy terms and conditions and has recorded both a liability and an offsetting receivable for amounts in excess of these deductibles. The Company is self-insured for health care claims for eligible participating employees, subject to certain deductibles and limitations. The Company determines its liabilities for claims on an actuarial basis.

### Litigation and Environmental Matters

The Company and certain subsidiaries are party to various lawsuits, claims and environmental actions that have arisen in the ordinary course of business. These include from time to time antitrust, employment, commercial, patent infringement, tort, product liability and wage hour lawsuits, as well as possible obligations to investigate and mitigate the effects on the environment of the disposal or release of certain chemical substances at various sites, such as Superfund sites and other operating or closed facilities. The Company has established accruals for certain lawsuits, claims and environmental matters. The Company currently believes that there is not a reasonably possible risk of material loss in excess of the amounts accrued related to these legal matters. Because litigation is inherently uncertain, and unfavorable rulings or developments could occur, there can be no certainty that the Company may not ultimately incur charges in excess of recorded liabilities. A future adverse ruling, settlement or unfavorable development could result in future charges that could have a material adverse effect on the Company's results of operations or cash flows in the period in which they are recorded. The Company currently believes that such future charges related to suits and legal claims, if any, would not have a material adverse effect on the Company's consolidated financial position.

***In Re TPC Group Litigation***

On November 27, 2019, a Butadiene production plant owned and operated by TPC Group, Inc. in Port Neches, Texas, experienced an explosion and fire that resulted in personal injuries, the release of chemical fumes and extensive property damage to the plant and surrounding areas in and near Port Neches, Texas.

Nalco Company LLC, a subsidiary of Ecolab, supplied process chemicals to TPC used in TPC's production processes. Nalco did not operate, manage, maintain or control any aspect of TPC's plant operations.

In connection with its provision of process chemicals to TPC, Nalco has been named in numerous lawsuits stemming from the plant explosion. Nalco has been named a defendant, along with TPC and other defendants, in multi-district litigation ("MDL") proceedings pending in Orange County, Texas, alleging among other things claims for personal injury, property damage and business losses (In re TPC Group Litigation – A2020-0236-MDL, Orange County, Texas). In addition, numerous other lawsuits have been filed against Nalco, including TPC Group v. Nalco, E0208239, Jefferson County, Texas, a subrogation claim by TPC's insurers seeking reimbursement for property damage losses. Over 5,000 plaintiffs (including the subrogation matter) currently have claims against Nalco in over 175 individual lawsuits.

All of these cases make similar allegations and seek damages for personal injury, property damage, business losses and other damages, including exemplary damages. The Company expects all these cases will be consolidated for pretrial purposes into the Orange County MDL referenced above. Due to the large number of plaintiffs, the early stage of the litigation and the fact that many of the claims do not specify an amount of damages, any estimate of any loss or range of losses cannot be made at this time.

The Company believes these claims asserted against Nalco Company LLC are without merit and intend to defend the claims vigorously. The Company also believes the claims should be covered by insurance subject to deductibles. However, the Company cannot predict the outcome of these lawsuits, the involvement the Company might have in these matters in the future or the potential for future litigation.

***Environmental Matters***

The Company is currently participating in environmental assessments and remediation at approximately 30 locations, the majority of which are in the U.S., and environmental liabilities have been accrued reflecting management's best estimate of future costs. Potential insurance reimbursements are not anticipated in the Company's accruals for environmental liabilities.

## 17. RETIREMENT PLANS

### Pension and Postretirement Health Care Benefits Plans

The Company has a non-contributory, qualified, defined benefit pension plan covering the majority of its U.S. employees. The Company also has non-contributory, non-qualified, defined benefit plans, which provide for benefits to employees in excess of limits permitted under its U.S. pension plans. Various international subsidiaries have defined benefit pension plans. The Company provides postretirement health care benefits to certain U.S. employees and retirees.

The non-qualified plans are not funded and the recorded benefit obligation for the non-qualified plans was $114 million and $134 million at December 31, 2021 and 2020, respectively. The measurement date used for determining the U.S. pension plan assets and obligations is December 31.

International plans are funded based on local country requirements. The measurement date used for determining the international pension plan assets and obligations is November 30, the fiscal year end of the Company's international subsidiaries.

The U.S. postretirement health care plans are contributory based on years of service and choice of coverage (family or single), with retiree contributions adjusted annually. The measurement date used to determine the U.S. postretirement health care plan assets and obligations is December 31. Certain employees outside the U.S. are covered under government-sponsored programs, which are not required to be fully funded. The expense and obligation for providing international postretirement health care benefits are not significant.

The following table sets forth financial information related to the Company's pension and postretirement health care plans:

| | U.S. Pension | | International Pension | | U.S. Postretirement Health Care | |
|---|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 |
| Accumulated benefit obligation, end of year | $2,462.7 | $2,728.4 | $1,696.2 | $1,759.8 | $155.4 | $172.4 |
| Projected benefit obligation | | | | | | |
| Projected benefit obligation, beginning of year | $2,728.4 | $2,562.5 | $1,834.2 | $1,667.6 | $172.4 | $165.7 |
| Service cost | 43.9 | 68.4 | 31.4 | 30.8 | 1.0 | 1.2 |
| Interest cost | 51.4 | 70.3 | 17.3 | 22.3 | 2.9 | 4.4 |
| Participant contributions | - | - | 2.9 | 2.6 | 3.3 | 3.8 |
| Curtailments and settlements | (35.3) | (0.6) | (24.8) | (34.3) | - | - |
| Plan amendments | - | - | 0.7 | (1.7) | - | - |
| Actuarial (gain) loss | (79.6) | 241.8 | (25.3) | 83.6 | (12.1) | 12.2 |
| Assumed through acquisitions | - | - | 34.0 | - | - | - |
| Other events | - | - | 4.3 | 0.3 | - | - |
| Benefits paid | (246.1) | (214.0) | (43.7) | (39.6) | (12.1) | (14.9) |
| Foreign currency translation | - | - | (51.3) | 102.6 | - | - |
| Projected benefit obligation, end of year | $2,462.7 | $2,728.4 | $1,779.7 | $1,834.2 | $155.4 | $172.4 |
| Plan assets | | | | | | |
| Fair value of plan assets, beginning of year | $2,372.9 | $2,292.9 | $1,148.0 | $1,027.1 | $5.7 | $6.1 |
| Actual returns on plan assets | 276.8 | 281.3 | 107.5 | 87.7 | 0.6 | 0.8 |
| Company contributions | 8.5 | 13.3 | 40.7 | 41.3 | 11.0 | 13.7 |
| Participant contributions | - | - | 2.9 | 2.6 | - | - |
| Acquired through acquisitions | - | - | 12.9 | | - | - |
| Curtailments and settlements | (35.3) | (0.6) | (24.8) | (25.7) | - | - |
| Benefits paid | (246.1) | (214.0) | (43.7) | (39.6) | (12.1) | (14.9) |
| Foreign currency translation | - | - | (23.6) | 54.6 | - | - |
| Fair value of plan assets, end of year | $2,376.8 | $2,372.9 | $1,219.9 | $1,148.0 | $5.2 | $5.7 |
| Funded Status, end of year | ($85.9) | ($355.5) | ($559.8) | ($686.2) | ($150.2) | ($166.7) |
| Amounts recognized in the Consolidated Balance Sheets: | | | | | | |
| Other assets | $28.2 | $- | $86.5 | $37.0 | $- | $- |
| Other current liabilities | (14.8) | (14.7) | (27.0) | (24.0) | (5.5) | (5.5) |
| Postretirement healthcare and pension benefits | (99.3) | (340.8) | (619.3) | (699.2) | (144.7) | (161.2) |
| Net liability | ($85.9) | ($355.5) | ($559.8) | ($686.2) | ($150.2) | ($166.7) |
| Amounts recognized in accumulated other comprehensive loss (income): | | | | | | |
| Unrecognized net actuarial loss (gain) | $396.8 | $691.3 | $485.7 | $595.6 | ($11.7) | $1.3 |
| Unrecognized net prior service costs (benefits) | (25.8) | (32.7) | (0.2) | (1.2) | - | - |
| Tax (benefit) expense | (95.3) | (165.1) | (117.8) | (151.9) | 1.2 | (2.0) |
| Accumulated other comprehensive loss (income), net of tax | $275.7 | $493.5 | $367.7 | $442.5 | ($10.5) | ($0.7) |
| Change in accumulated other comprehensive loss (income): | | | | | | |
| Amortization of net actuarial (gain) loss | ($56.2) | ($51.8) | ($28.7) | ($29.5) | ($0.7) | ($0.1) |
| Amortization of prior service costs | 6.9 | 7.4 | 0.1 | (0.2) | - | 11.0 |
| Current period net actuarial loss (gain) | (203.0) | 113.3 | (56.1) | 66.4 | (12.3) | 11.9 |
| Current period prior service costs | - | - | 0.7 | (1.7) | - | - |
| Curtailments and settlements | (35.3) | (2.7) | (3.5) | (2.2) | - | - |
| Tax (benefit) expense | 69.8 | (16.0) | 25.4 | (22.3) | 3.2 | (5.4) |
| Foreign currency translation | - | - | (12.7) | 33.3 | - | - |
| Other comprehensive loss (income) | ($217.8) | $50.2 | ($74.8) | $43.8 | ($9.8) | $17.4 |

Estimate amounts in accumulated other comprehensive loss expected to be reclassified to net period cost during 2022 are as follows:

| (millions) | U.S. Pension | International Pension | U.S. Post-Retirement Health Care |
|---|---|---|---|
| Net actuarial loss | $39.9 | $24.1 | $0.7 |
| Net prior service benefits | (4.6) | (0.2) | - |
| Total | $35.3 | $23.9 | $0.7 |

Service cost is included with employee compensation cost in cost of sales and selling, general and administrative expenses in the Consolidated Statements of Income while all non-service components are included in other (income) expense in the Consolidated Statements of Income.

The aggregate projected benefit obligation, accumulated benefit obligation and fair value of pension plan assets for plans with accumulated benefit obligations in excess of plan assets were as follows:

| December 31, (millions) | 2021 | 2020 |
|---|---|---|
| Aggregate projected benefit obligation | $1,022.3 | $4,155.4 |
| Accumulated benefit obligation | 964.5 | 4,098.6 |
| Fair value of plan assets | 280.9 | 3,085.2 |

These plans include the U.S. non-qualified pension plans which are not funded as well as various international pension plans which are funded consistent with local practices and requirements. As of December 31, 2021, the U.S. qualified plan had plan assets in excess of the aggregate projected benefit obligation and the accumulated benefit obligation.

For the year ended December 31, 2021, the year-over-year decrease in our net benefit obligation was primarily due to the impacts of discounting projected benefit payments. Increased yields on investment grade corporate bonds used to derived out discount rates increased year-over-year. Additionally, the fair value of our pension assets increased year-over-year as asset returns outpaced pension distributions due to strong returns for equities and fixed income investments.

For the year ended December 31, 2020, the most significant driver of the increases in benefit obligations for the plans was the higher actuarial losses experienced by the majority of the Company's plans. The pension plans incurred actuarial losses primarily due to decreases in bond yields that resulted in decreases to many of the plans' discount rates.

***Net Periodic Benefit Costs and Plan Assumptions***

Pension and postretirement health care benefits expense for the Company's operations are as follows:

| | U.S. Pension | | | International Pension | | | U.S. Postretirement Health Care | | |
|---|---|---|---|---|---|---|---|---|---|
| (millions) | 2021 | 2020 | 2019 | 2021 | 2020 | 2019 | 2021 | 2020 | 2019 |
| Service cost (a) | $43.9 | $68.4 | $72.8 | $31.4 | $30.8 | $30.2 | $1.0 | $1.2 | $1.4 |
| Interest cost on benefit obligation | 51.4 | 70.3 | 89.0 | 17.3 | 22.3 | 31.2 | 2.9 | 4.4 | 5.6 |
| Expected return on plan assets | (152.3) | (152.9) | (149.5) | (70.7) | (63.9) | (59.9) | (0.4) | (0.4) | (0.4) |
| Recognition of net actuarial loss (gain) | 56.7 | 51.9 | 23.6 | 28.7 | 26.1 | 16.3 | 0.7 | 0.1 | (4.1) |
| Amortization of prior service benefit | (6.9) | (7.4) | (11.5) | (0.1) | (0.1) | (0.9) | - | (11.0) | (23.2) |
| Curtailments and settlements (b) | 35.3 | 2.5 | 9.1 | 3.5 | 2.2 | (1.9) | - | - | 0.3 |
| Total expense (benefit) | $28.1 | $32.8 | $33.5 | $10.1 | $17.4 | $15.0 | $4.2 | ($5.7) | ($20.4) |

(a) Service cost includes discontinued operations of $2.5 and $7.8 for the years ended December 31, 2020 and 2019, respectively.
(b) Settlement expense of $37.2 million was recognized as special charges in 2021.

During 2021, the Company incurred settlement expense of $35.3 million ($26.8 million after tax) related to U.S. pension plan lump-sum payments to retirees. During 2020 and 2019, the Company recorded other expense of $0.4 million ($0.3 million after tax) and $9.5 million ($7.2 million after tax) related to pension curtailments and settlements due to the ChampionX separation and Accelerate 2020 as discussed further above. These charges have been included as a component of other (income) expense on the Consolidated Statements of Income.

| Plan Assumptions | U.S. Pension | | | International Pension | | | U.S. Postretirement Health Care | | |
|---|---|---|---|---|---|---|---|---|---|
| (percent) | 2021 | 2020 | 2019 | 2021 | 2020 | 2019 | 2021 | 2020 | 2019 |
| Weighted-average actuarial assumptions used to determine benefit obligations as of year end: | | | | | | | | | |
| Discount rate | 2.86 % | 2.48 % | 3.20 % | 1.45 % | 1.13 % | 1.52 % | 2.75 % | 2.37 % | 3.16 % |
| Projected salary increase | 4.03 | 4.03 | 4.03 | 2.42 | 2.12 | 2.50 | | | |
| Weighted-average actuarial assumptions used to determine net cost: | | | | | | | | | |
| Interest credit rate for cash balance plans | 0.87 | 1.81 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Discount rate | 2.49 | 3.20 | 4.34 | 1.37 | 1.84 | 2.66 | 2.37 | 3.16 | 4.29 |
| Expected return on plan assets | 7.00 | 7.25 | 7.25 | 6.24 | 6.24 | 6.66 | 7.00 | 7.25 | 7.25 |
| Projected salary increase | 4.03 | 4.03 | 4.03 | 2.31 | 2.81 | 2.70 | | | |

The discount rate assumptions for the U.S. plans are developed using a bond yield curve constructed from a population of high-quality, non-callable, corporate bond issues with maturities ranging from six months to thirty years. A discount rate is estimated for the U.S. plans and is based on the durations of the underlying plans.

The Company measures service and interest costs by applying the specific spot rates along that yield curve to the plans' liability cash flows. The Company believes this approach provides a more precise measurement of service and interest costs by aligning the timing of the plans' liability cash flows to the corresponding spot rates on the yield curve.

The expected long-term rate of return used for the U.S. plans is based on the pension plan's asset mix. The Company considers expected long-term real returns on asset categories, expectations for inflation, and estimates of the impact of active management of the assets in determining the final rate to use. The Company also considers historical returns.

The expected long-term rate of return used for the Company's international plans is determined in each local jurisdiction and is based on the assets held in that jurisdiction, the expected rate of returns for the type of assets held and any guaranteed rate of return provided by the investment. The other assumptions used to measure the international pension obligations, including discount rate, vary by country based on specific local requirements and information.

The Company uses most recently available mortality tables as of the respective U.S. and international measurement dates.

For postretirement benefit measurement purposes as of December 31, 2021, the annual rates of increase in the per capita cost of covered health care were assumed to be 6.75% for pre-65 costs and 7.25% for post-65 costs. The rates are assumed to decrease each year until they reach 4.5% in 2029 and remain at those levels thereafter. Health care costs for certain employees which are eligible for subsidy by the Company are limited by a cap on the subsidy.

***Plan Asset Management***

The Company's U.S. investment strategy and policies are designed to maximize the possibility of having sufficient funds to meet the long-term liabilities of the qualified pension plan, while achieving a balance between the goals of asset growth of the qualified pension plan and keeping risk at a reasonable level. Current income is not a key goal of the policy.

The asset allocation position reflects the Company's ability and willingness to accept relatively more short-term variability in the performance of the qualified pension plan asset portfolio in exchange for the expectation of better long-term returns, lower pension costs and better funded status in the long run. The qualified pension plan's asset are diversified across a number of asset classes and securities. Selected individual portfolios within the asset classes may be undiversified while maintaining the diversified nature of total plan assets. The Company has no significant concentration of risk in its U.S. qualified pension plan assets.

Assets of funded retirement plans outside the U.S. are managed in each local jurisdiction and asset allocation strategy is set in accordance with local rules, regulations and practice. Therefore, no overall target asset allocation is presented. Although non-U.S. equity securities are all considered international for the Company, some equity securities are considered domestic for the local plan. The funds are invested in a variety of equities, bonds and real estate investments and, in some cases, the assets are managed by insurance companies which may offer a guaranteed rate of return. The Company has no significant concentration of risk in the assets of its international pension plans.

The fair value hierarchy is used to categorize investments measured at fair value in one of three levels in the fair value hierarchy. This categorization is based on the observability of the inputs used in valuing the investments. Refer to Note 8 for definitions of these levels.

The fair value of the Company's U.S. qualified pension plan assets are as follows:

| (millions) | Fair Value as of December 31, 2021 | | | Fair Value as of December 31, 2020 | | |
|---|---|---|---|---|---|---|
| | Level 1 | Level 2 | Total | Level 1 | Level 2 | Total |
| Cash | $43.6 | $- | $43.6 | $38.3 | $- | $38.3 |
| Equity securities: | | | | | | |
| Large cap equity | 412.2 | - | 412.2 | 610.0 | - | 610.0 |
| Small cap equity | 21.3 | 40.7 | 62.0 | 36.5 | 68.3 | 104.8 |
| International equity | 62.9 | 28.0 | 90.9 | 95.8 | 42.9 | 138.7 |
| Fixed income: | | | | | | |
| Core fixed income | 510.7 | 589.7 | 1,100.4 | 360.3 | 327.8 | 688.1 |
| High-yield bonds | 49.0 | - | 49.0 | 76.3 | - | 76.3 |
| Emerging markets | - | 36.6 | 36.6 | - | 55.6 | 55.6 |
| Total investments at fair value | 1,099.7 | 695.0 | 1,794.7 | 1,217.2 | 494.6 | 1,711.8 |
| Investments measured at NAV | | | 587.3 | | | 666.9 |
| Total | $1,099.7 | $695.0 | $2,382.0 | $1,217.2 | $494.6 | $2,378.7 |

The Company had no Level 3 assets as part of its U.S. qualified pension plan assets as of December 31, 2021 or 2020.

The allocation of the Company's U.S. qualified pension plan assets plans are as follows:

| Asset Category | Target Asset Allocation Percentage | | Percentage of Plan Assets | |
|---|---|---|---|---|
| December 31 | 2021 | 2020 | 2021 | 2020 |
| Cash | - % | - % | 2 % | 2 % |
| Equity securities: | | | | |
| Large cap equity | 21 | 27 | 17 | 26 |
| Small cap equity | 3 | 4 | 3 | 4 |
| International equity | 10 | 16 | 10 | 15 |
| Fixed income: | | | | |
| Core fixed income | 48 | 30 | 46 | 29 |
| High-yield bonds | 3 | 4 | 2 | 3 |
| Emerging markets | 4 | 2 | 2 | 2 |
| Other: | | | | |
| Real estate | 3 | 6 | 4 | 7 |
| Private equity | 5 | 8 | 11 | 9 |
| Distressed debt | 3 | 3 | 3 | 3 |
| Total | 100 % | 100 % | 100 % | 100 % |

The fair value of the Company's international plan assets for its defined benefit pension plans are as follows:

| (millions) | Fair Value as of December 31, 2021 | | | Fair Value as of December 31, 2020 | | |
|---|---|---|---|---|---|---|
| | Level 1 | Level 2 | Total | Level 1 | Level 2 | Total |
| Cash | $7.2 | $- | $7.2 | $11.0 | $- | $11.0 |
| Equity securities: | | | | | | |
| International equity | - | 490.1 | 490.1 | - | 467.0 | 467.0 |
| Fixed income: | | | | | | |
| Corporate bonds | 9.7 | 220.0 | 229.7 | 9.1 | 218.6 | 227.7 |
| Government bonds | 7.2 | 298.5 | 305.7 | 6.8 | 241.9 | 248.7 |
| Insurance company accounts | - | 121.2 | 121.2 | - | 149.6 | 149.6 |
| Total investments at fair value | 24.1 | 1,129.8 | 1,153.9 | 26.9 | 1,077.1 | 1,104.0 |
| Investments measured at NAV | | | 66.0 | | | 44.0 |
| Total | $24.1 | $1,129.8 | $1,219.9 | $26.9 | $1,077.1 | $1,148.0 |

The Company had no Level 3 assets as part of its international plan assets as of December 31, 2021 or 2020.

The allocation of plan assets of the Company's international plan assets for its defined benefit pension plans are as follows:

| Asset Category | Percentage of Plan Assets | |
|---|---|---|
| December 31 | 2021 | 2020 |
| Cash | 1 % | 1 % |
| Equity securities: | | |
| International equity | 40 | 40 |
| Fixed income: | | |
| Corporate bonds | 19 | 20 |
| Government bonds | 25 | 22 |
| Total fixed income | 44 | 42 |
| Other: | | |
| Insurance contracts | 10 | 14 |
| Debt securities | 2 | 2 |
| Real estate | 3 | 1 |
| Total | 100 % | 100 % |

## Cash Flows

As of year-end 2021, the Company's estimate of benefits expected to be paid in each of the next five fiscal years and in the aggregate for the five fiscal years thereafter for the Company's pension and postretirement health care benefit plans are as follows:

| (millions) | All Plans |
|---|---|
| 2022 | $ 225 |
| 2023 | 234 |
| 2024 | 241 |
| 2025 | 248 |
| 2026 | 246 |
| 2027 - 2031 | 1,208 |

Depending on plan funding levels, the U.S. qualified pension plan provides certain terminating participants with an option to receive their pension benefits in the form of lump sum payments.

The Company is currently in compliance with all funding requirements of its U.S. pension and postretirement health care plans. The Company is required to fund certain international pension benefit plans in accordance with local legal requirements. There were no voluntary contributions made to its non-contributory qualified U.S. pension plan. In September of 2019, the Company made a voluntary contribution of $120 million to its non-contributory qualified U.S. pension plan. The Company estimates contributions to be made to its international plans will approximate $49 million in 2022.

The Company seeks to maintain an asset balance that meets the long-term funding requirements identified by the projections of the pension plan's actuaries while simultaneously satisfying the fiduciary responsibilities prescribed in ERISA. The Company also takes into consideration the tax deductibility of contributions to the benefit plans.

## Savings Plan and ESOP

The Company provides a 401(k) savings plan for the majority of its U.S. employees under the Company's 401(k) savings plans, the Ecolab Savings Plan and ESOP (the "Ecolab Savings Plan").

Effective December 31, 2020, the Ecolab Savings Plan and ESOP for Traditional Benefit Employees (the "Traditional Plan") merged into and became part of the Ecolab Savings Plan. Following the merger, participants in the Traditional Plan became participants in the Ecolab Savings Plan and $1,710 million of net assets of the Traditional Plan transferred to the Ecolab Savings Plan.

Under the Ecolab Savings Plan, Employee before-tax contributions of up to 4% of eligible compensation are matched 100% by the Company and employee before-tax contributions over 4% and up to 8% of eligible compensation are matched 50% by the Company.

The Company's matching contributions are 100% vested immediately. The Company's matching contribution expense was $78 million, $72 million and $76 million in 2021, 2020 and 2019, respectively.

## 18. REVENUES

### Revenue Recognition

***Product and Sold Equipment***

Product revenue is generated from sales of cleaning, sanitizing, water treatment, process treatment and colloidal silica products. In addition, the Company sells equipment which may be used in combination with its specialized products. Revenue recognized from product and sold equipment is recognized at the point in time when the obligations in the contract with the customer are satisfied, which generally occurs with the transfer of the product or delivery of the equipment.

***Service and Lease Equipment***

Service and lease equipment revenue is generated from providing services or leasing equipment to customers. Service offerings include installing or repairing certain types of equipment, activities that supplement or replace headcount at the customer location, or fulfilling deliverables included in the contract. Global Industrial segment services are associated with water treatment and paper process applications. Global Institutional & Specialty services include cleaning and sanitizing programs and wash process solutions. Global Healthcare & Life Sciences segment services include pharmaceutical, personal care, infection and containment control solutions. Revenues included in Other primarily related to services designed to detect, eliminate and prevent pests. Service revenue is recognized over time utilizing an input method and aligns with when the services are provided. Typically, revenue is recognized over time using costs incurred to date because the effort provided by the field selling and service organization represents services provided, which corresponds with the transfer of control. Revenue recognized from leased equipment primarily relates to warewashing and water treatment equipment recognized on a straight-line basis over the length of the lease contract pursuant to Topic 842 Leases. In the second quarter ended June 30, 2020, the Company provided a one-time lease billing suspension of approximately $38 million to certain restaurant customers within the Institutional Segment, in recognition of the impact of the COVID-19 pandemic. There was no substantial change to the consideration expected to be received under the lease arrangement. Refer to Note 14 for additional information related to lease equipment.

### Practical Expedients and Exemptions

The revenue standard can be applied to a portfolio of contracts with similar characteristics if it is reasonable that the effects of applying the standard at the portfolio level would not be significantly different than applying the standard at the individual contract level. The Company applies the portfolio approach primarily within each operating segment by geographical region. Application of the portfolio approach was focused on those characteristics that have the most significant accounting consequences in terms of their effect on the timing of revenue recognition or the amount of revenue recognized. The Company determined the key criteria to assess with respect to the portfolio approach, including the related deliverables, the characteristics of the customers and the timing and transfer of goods and services, which most closely aligned within the operating segments. In addition, the accountability for the business operations, as well as the operational decisions on how to go to market and the product offerings, are performed at the operating segment level.

The following table shows principal activities, separated by reportable segments, from which the Company generates its revenue. The reportable segments have been revised to align with the Company's reportable segments in the current year. Corporate segment includes sales to ChampionX under the Master Cross Supply and Product Transfer agreements entered into as part of the ChampionX Separation. For more information about the Company's reportable segments, refer to Note 19.

Net sales at public exchange rates by reportable segment are as follows:

| (millions) | **2021** | 2020 | 2019 |
|---|---|---|---|
| **Global Industrial** | | | |
| Product and sold equipment | **$5,372.0** | $5,052.3 | $5,174.1 |
| Service and lease equipment | **865.8** | 818.5 | 806.1 |
| **Global Institutional & Specialty** | | | |
| Product and sold equipment | **3,265.5** | 2,968.7 | 3,701.9 |
| Service and lease equipment | **690.4** | 584.5 | 699.6 |
| **Global Healthcare & Life Sciences** | | | |
| Product and sold equipment | **1,068.9** | 1,071.4 | 890.6 |
| Service and lease equipment | **112.7** | 110.5 | 82.2 |
| **Other** | | | |
| Product and sold equipment | **308.9** | 274.5 | 362.4 |
| Service and lease equipment | **909.7** | 809.8 | 845.1 |
| **Corporate** | | | |
| Product and sold equipment | **138.0** | 99.7 | - |
| Service and lease equipment | **1.2** | 0.3 | - |
| **Total** | | | |
| Total product and sold equipment | **$10,153.3** | $9,466.6 | $10,129.0 |
| Total service and lease equipment | **2,579.8** | 2,323.6 | 2,433.0 |

Net sales at public exchange rates by geographic region are as follows:

| (millions) | Global Industrial 2021 | Global Industrial 2020 | Global Industrial 2019 | Global Institutional & Specialty 2021 | Global Institutional & Specialty 2020 | Global Institutional & Specialty 2019 |
|---|---|---|---|---|---|---|
| United States | $2,603.0 | $2,564.3 | $2,668.1 | $2,721.8 | $2,400.4 | $3,021.3 |
| Europe | 1,367.1 | 1,262.6 | 1,204.2 | 557.9 | 510.3 | 622.3 |
| Asia Pacific | 802.5 | 747.2 | 774.3 | 201.2 | 203.9 | 235.7 |
| Latin America | 551.5 | 491.7 | 525.8 | 135.0 | 128.3 | 162.2 |
| Greater China | 394.9 | 333.0 | 325.4 | 132.3 | 114.9 | 119.4 |
| India, Middle East and Africa | 344.4 | 314.1 | 319.0 | 44.2 | 39.8 | 52.2 |
| Canada | 174.4 | 157.9 | 163.4 | 163.5 | 155.6 | 188.4 |
| Total | $6,237.8 | $5,870.8 | $5,980.2 | $3,955.9 | $3,553.2 | $4,401.5 |

| (millions) | Global Healthcare & Life Sciences 2021 | Global Healthcare & Life Sciences 2020 | Global Healthcare & Life Sciences 2019 | Other 2021 | Other 2020 | Other 2019 |
|---|---|---|---|---|---|---|
| United States | $442.3 | $432.6 | $410.3 | $719.9 | $645.7 | $710.8 |
| Europe | 647.2 | 643.6 | 513.8 | 264.9 | 228.8 | 268.4 |
| Asia Pacific | 59.6 | 69.8 | 22.5 | 72.4 | 64.8 | 74.5 |
| Latin America | 1.8 | 6.1 | 4.5 | 50.4 | 50.3 | 50.2 |
| Greater China | 6.3 | 3.6 | 2.0 | 80.0 | 63.4 | 66.5 |
| India, Middle East and Africa | 18.1 | 19.8 | 14.5 | 11.6 | 14.4 | 18.0 |
| Canada | 6.3 | 6.4 | 5.2 | 19.4 | 16.9 | 19.1 |
| Total | $1,181.6 | $1,181.9 | $972.8 | $1,218.6 | $1,084.3 | $1,207.5 |

| (millions) | Corporate 2021 | Corporate 2020 | Corporate 2019 |
|---|---|---|---|
| United States | $98.2 | $75.2 | $- |
| Europe | 3.9 | 4.8 | - |
| Asia Pacific | 5.5 | 2.8 | - |
| Latin America | 24.6 | 13.1 | - |
| Greater China | 2.3 | 0.9 | - |
| India, Middle East and Africa | 3.4 | 2.5 | - |
| Canada | 1.3 | 0.7 | - |
| Total | $139.2 | $100.0 | $- |

Net sales by geographic region were determined based on origin of sale. There were no sales from a single foreign country or individual customer that were material to the Company's consolidated net sales. Sales of warewashing products were approximately 10%, 11%, and 13% of consolidated net sales in 2021, 2020 and 2019, respectively.

## Contract Liability

Payments received from customers are based on invoices or billing schedules as established in contracts with customers. Accounts receivable are recorded when the right to consideration becomes unconditional. The contract liability relates to billings in advance of performance (primarily service obligations) under the contract. Contract liabilities are recognized as revenue when the performance obligation has been performed, which primarily occurs during the subsequent quarter.

| (millions) | December 31 2021 | December 31 2020 |
|---|---|---|
| Contract liability as of beginning of the year | $80.4 | $76.7 |
| Revenue recognized in the year from: | | |
| Amounts included in the contract liability at the beginning of the year | (80.4) | (76.7) |
| Increases due to billings excluding amounts recognized as revenue during the year ended | 91.6 | 79.8 |
| Business combinations | 0.1 | 0.6 |
| Contract liability as of end of year | $91.7 | $80.4 |

## 19. OPERATING SEGMENTS AND GEOGRAPHIC INFORMATION

The Company’s organizational structure consists of global business unit and global regional leadership teams. The Company’s eleven operating segments follow its commercial and product-based activities and are based on engagement in business activities, availability of discrete financial information and review of operating results by the Chief Operating Decision Maker at the identified operating segment level.

The Company’s operating segments that share similar economic characteristics and future prospects, nature of the products and production processes, end-use markets, channels of distribution and regulatory environment have been aggregated into three reportable segments: Global Industrial, Global Institutional & Specialty and Global Healthcare & Life Sciences. The Company’s operating segments that do not meet the quantitative criteria to be separately reported have been combined into Other. The Company provides similar information for Other as the Company considers the information regarding its underlying operating segments as useful in understanding its consolidated results.

The Company’s operating segments are aggregated as follows:

***Global Industrial***

Includes the Water, Food & Beverage, Paper, and Downstream operating segments. It provides water treatment and process applications, and cleaning and sanitizing solutions primarily to large industrial customers within the manufacturing, food and beverage processing, transportation, chemical, primary metals and mining, power generation, pulp and paper, commercial laundry, global petroleum and petrochemical industries. The underlying operating segments exhibit similar manufacturing processes, distribution methods and economic characteristics.

***Global Institutional & Specialty***

Includes the Institutional and Specialty operating segments. It provides specialized cleaning and sanitizing products to the foodservice, hospitality, lodging, government and education and retail industries. The underlying operating segments exhibit similar manufacturing processes, distribution methods and economic characteristics.

***Global Healthcare & Life Sciences***

Includes the Healthcare and Life Sciences operating segments. It provides specialized cleaning and sanitizing products to the healthcare, personal care and pharmaceutical industries. The underlying operating segments exhibit similar manufacturing processes, distribution methods and economic characteristics.

***Other***

Includes the Pest Elimination operating segment which provides services to detect, eliminate and prevent pests, such as rodents and insects, the CTG operating segment which produces and sells colloidal silica, which is comprised of nano-sized particles of silica in water used primarily for binding and polishing applications and the Textile Care operating segment which provides products and services that manage the entire wash process through custom designed programs, premium products, dispensing equipment, water and energy management and reduction, and real time data management.

***Corporate***

Consistent with the Company’s internal management reporting, Corporate amounts in the table below include sales to ChampionX under the Master Cross Supply and Product Transfer agreements entered into as part of the ChampionX Separation, as discussed in Note 5. Corporate also includes intangible asset amortization specifically from the Nalco merger and special (gains) and charges, as discussed in Note 3, that are not allocated to the Company’s reportable segments.

### Comparability of Reportable Segments

Effective in the first quarter of 2020, and in anticipation of the separation of the Upstream Energy business, the Company created the Upstream and Downstream operating segments and reporting units from the Global Energy operating segment and reporting unit, which was also a reportable segment. The Downstream operating segment, which was previously included in the Global Energy reportable segment has been aggregated into the Global Industrial reportable segment. The table below reflects the elimination of the Global Energy reportable segment and creation of the Downstream operating segment. Also, in the first quarter of 2020, the Company announced leadership changes which allow for shared oversight and focus on the Healthcare and Life Sciences operating segments and established the Global Healthcare & Life Sciences reportable segment. This segment is comprised of the Healthcare operating segment which was previously aggregated in the Global Institutional reportable segment and the Life Sciences operating segment which was previously aggregated in the Global Industrial reportable segment. Additionally, the table reflects the Textile Care operating segment being reported in Other, which had previously been aggregated in the Global Industrial reportable segment. The Company also renamed the Global Institutional reportable segment to the Global Institutional & Specialty reportable segment. The Company made other immaterial changes, including the movement of certain customers and cost allocations between reportable segments. These changes are reflected in the “Segment Change” column in the table below. Subsequent to the separation of ChampionX, the Company no longer reports the Upstream Energy segment, which is reflected in discontinued operations.

The ChampionX business, which includes the direct revenues, operating expenses and certain other expenses directly attributable to the ChampionX business, is reflected in the Company's historical financial statements as discontinued operations. Allocations of overhead expenses included in historical Upstream Energy segment results are reallocated to the remaining segments. These changes are presented in the "Discontinued operations and related allocation changes" columns in the table below.

The Company evaluates the performance of its non-U.S. dollar functional currency international operations based on fixed currency exchange rates, which eliminate the impact of exchange rate fluctuations on its international operations. Fixed currency amounts are updated annually at the beginning of each year based on translation into U.S. dollars at foreign currency exchange rates established by management, with all periods presented using such rates. The "Fixed Currency Rate Change" column shown in the following table reflects the impact on previously reported values related to fixed currency exchange rates established by management at the beginning of 2021 and have been updated from the 2020 rates reflected in the Company's 2020 Form 10-K. The difference between the fixed currency exchange rates and the actual currency exchanges rates is reported within the "Effect of foreign currency translation" row in the table below. The "Other" column in the table reflects immaterial changes between segments, primarily cost allocations.

The impact of the preceding changes on previously reported full year 2020 and 2019 reportable segment net sales and operating income is summarized as follows:

| | December 31, 2020 | | | |
|---|---|---|---|---|
| (millions) | 2020 Reported Valued at 2020 Management Rates | Other | Fixed Currency Rate Change | 2020 Reported Valued at 2021 Management Rates |
| Net Sales | | | | |
| Global Industrial | $5,959.9 | ($3.7) | $92.0 | $6,048.2 |
| Global Institutional & Specialty | 3,577.2 | 9.3 | 42.5 | 3,629.0 |
| Global Healthcare & Life Sciences | 1,189.1 | 3.7 | 48.3 | 1,241.1 |
| Other | 1,093.3 | (9.3) | 19.4 | 1,103.4 |
| Corporate | 102.4 | - | (1.8) | 100.6 |
| Subtotal at fixed currency rates | 11,921.9 | - | 200.4 | 12,122.3 |
| Effect of foreign currency translation | (131.7) | - | (200.4) | (332.1) |
| Consolidated reported GAAP net sales | $11,790.2 | $- | $- | $11,790.2 |
| | | | | |
| Operating Income | | | | |
| Global Industrial | $1,106.0 | ($0.2) | $17.3 | $1,123.1 |
| Global Institutional & Specialty | 321.9 | (0.3) | 2.4 | 324.0 |
| Global Healthcare & Life Sciences | 207.6 | 0.7 | 10.0 | 218.3 |
| Other | 131.5 | (0.2) | 1.5 | 132.8 |
| Corporate | (347.5) | - | (2.2) | (349.7) |
| Subtotal at fixed currency rates | 1,419.5 | - | 29.0 | 1,448.5 |
| Effect of foreign currency translation | (23.8) | - | (29.0) | (52.8) |
| Consolidated reported GAAP operating income | $1,395.7 | $- | $- | $1,395.7 |

| (millions) | 2019 Reported Valued at 2019 Management Rates | Segment Change | Fixed Currency Rate Change | 2019 Reported Valued at 2020 Management Rates | Discontinued Operations and Related Allocation Charges | 2019 Revised Valued at 2020 Management Rates |
|---|---|---|---|---|---|---|
| | December 31, 2019 | | | | | |
| Net Sales | | | | | | |
| Global Industrial | $5,569.9 | $479.2 | ($52.7) | $5,996.4 | ($1.8) | $5,994.6 |
| Global Institutional & Specialty | 5,235.5 | (800.1) | (23.3) | 4,412.1 | - | 4,412.1 |
| Global Healthcare & Life Sciences | - | 991.7 | (12.7) | 979.0 | - | 979.0 |
| Upstream Energy | - | 2,350.0 | 2.9 | 2,352.9 | (2,352.9) | - |
| Global Energy | 3,334.0 | (3,334.0) | - | - | - | - |
| Other | 907.5 | 313.2 | (9.0) | 1,211.7 | - | 1,211.7 |
| Subtotal at fixed currency rates | 15,046.9 | - | (94.8) | 14,952.1 | (2,354.7) | 12,597.4 |
| Effect of foreign currency translation | (140.6) | - | 94.8 | (45.8) | 10.4 | (35.4) |
| Consolidated reported GAAP net sales | $14,906.3 | $- | $- | $14,906.3 | ($2,344.3) | $12,562.0 |
| | | | | | | |
| Operating Income | | | | | | |
| Global Industrial | $854.7 | $133.4 | ($7.5) | $980.6 | ($77.9) | $902.7 |
| Global Institutional & Specialty | 1,042.2 | (93.4) | (1.5) | 947.3 | (7.5) | 939.8 |
| Global Healthcare & Life Sciences | - | 136.7 | (1.6) | 135.1 | (10.6) | 124.5 |
| Upstream Energy | - | 188.2 | (0.3) | 187.9 | (187.9) | - |
| Global Energy | 379.1 | (379.1) | - | - | - | - |
| Other | 167.3 | 14.2 | (0.9) | 180.6 | (13.6) | 167.0 |
| Corporate | (409.1) | - | 1.2 | (407.9) | 128.2 | (279.7) |
| Subtotal at fixed currency rates | 2,034.2 | - | (10.6) | 2,023.6 | (169.3) | 1,854.3 |
| Effect of foreign currency translation | (20.4) | - | 10.6 | (9.8) | 0.7 | (9.1) |
| Consolidated reported GAAP operating income | $2,013.8 | $- | $- | $2,013.8 | ($168.6) | $1,845.2 |

### Reportable Segment Information

Financial information for each of the Company's reportable segments is as follows:

| (millions) | Net Sales 2021 | Net Sales 2020 | Net Sales 2019 | Operating Income (Loss) 2021 | Operating Income (Loss) 2020 | Operating Income (Loss) 2019 |
|---|---|---|---|---|---|---|
| Global Industrial | **$6,304.9** | $6,048.2 | $6,087.9 | **$1,031.0** | $1,123.1 | $921.3 |
| Global Institutional & Specialty | **3,978.2** | 3,629.0 | 4,477.2 | **556.9** | 324.0 | 945.8 |
| Global Healthcare & Life Sciences | **1,195.4** | 1,241.1 | 1,017.6 | **160.9** | 218.3 | 129.2 |
| Other | **1,226.9** | 1,103.4 | 1,220.5 | **187.3** | 132.8 | 169.7 |
| Corporate | **139.4** | 100.6 | - | **(318.6)** | (349.7) | (283.6) |
| Subtotal at fixed currency | **12,844.8** | 12,122.3 | 12,803.2 | **1,617.5** | 1,448.5 | 1,882.4 |
| Effect of foreign currency translation | **(111.7)** | (332.1) | (241.2) | **(18.9)** | (52.8) | (37.2) |
| Consolidated reported GAAP | **$12,733.1** | $11,790.2 | $12,562.0 | **$1,598.6** | $1,395.7 | $1,845.2 |

The profitability of the Company's operating segments is evaluated by management based on operating income.

The Company has an integrated supply chain function that serves all of its reportable segments. As such, asset and capital expenditure information by reportable segment has not been provided and is not available, since the Company does not produce or utilize such information internally. In addition, although depreciation and amortization expense is a component of each reportable segment's operating results, it is not discretely identifiable.

### Geographic Information

Long-lived assets, which includes property, plant and equipment and right of use assets, at public exchange rates by geographic region are as follows:

| (millions) | Long-Lived Assets, net 2021 | Long-Lived Assets, net 2020 |
|---|---|---|
| United States | **$2,416.4** | $2,375.2 |
| Europe | **580.7** | 523.7 |
| Asia Pacific | **237.1** | 245.0 |
| Greater China | **186.4** | 136.4 |
| Latin America | **137.9** | 138.4 |
| Canada | **66.5** | 72.2 |
| India, Middle East and Africa | **60.2** | 57.8 |
| Total | **$3,685.2** | $3,548.7 |

Geographic data for long-lived assets is based on physical location of those assets. Refer to Note 18 for net sales by geographic region.

## 20. QUARTERLY FINANCIAL DATA (UNAUDITED)

| (millions, except per share) | First Quarter | Second Quarter | Third Quarter | Fourth Quarter | Year |
|---|---|---|---|---|---|
| **2021** | | | | | |
| Net sales | **$2,885.0** | **$3,162.7** | **$3,320.8** | **$3,364.6** | **$12,733.1** |
| Operating expenses | | | | | |
| Cost of sales (a) | **1,712.0** | **1,844.0** | **2,016.7** | **2,043.1** | **7,615.8** |
| Selling, general and administrative expenses | **862.9** | **853.3** | **832.0** | **867.9** | **3,416.1** |
| Special (gains) and charges | **12.8** | **17.6** | **6.3** | **65.9** | **102.6** |
| Operating income | **297.3** | **447.8** | **465.8** | **387.7** | **1,598.6** |
| Other (income) expense (b) | **(17.0)** | **2.5** | **(13.0)** | **(6.4)** | **(33.9)** |
| Interest expense, net (c) | **51.7** | **45.6** | **76.4** | **44.6** | **218.3** |
| Income before income taxes | **262.6** | **399.7** | **402.4** | **349.5** | **1,414.2** |
| Provision for income taxes | **66.1** | **86.1** | **73.8** | **44.2** | **270.2** |
| Net income including noncontrolling interest | **196.5** | **313.6** | **328.6** | **305.3** | **1,144.0** |
| Net income attributable to noncontrolling interest | **2.9** | **2.8** | **4.1** | **4.3** | **14.1** |
| Net income attributable to Ecolab | **$193.6** | **$310.8** | **$324.5** | **$301.0** | **$1,129.9** |
| | | | | | |
| Earnings attributable to Ecolab per common share | | | | | |
| Basic | **$ 0.68** | **$ 1.09** | **$ 1.13** | **$ 1.05** | **$ 3.95** |
| Diluted | **$ 0.67** | **$ 1.08** | **$ 1.12** | **$ 1.04** | **$ 3.91** |
| | | | | | |
| Weighted-average common shares outstanding | | | | | |
| Basic | **286.0** | **286.0** | **286.4** | **286.7** | **286.3** |
| Diluted | **288.8** | **288.8** | **289.2** | **289.5** | **289.1** |
| | | | | | |
| **2020** | | | | | |
| Net sales | $3,020.6 | $2,685.7 | $3,018.6 | $3,065.3 | $11,790.2 |
| Operating expenses | | | | | |
| Cost of sales (a) | 1,720.2 | 1,635.7 | 1,769.6 | 1,780.3 | 6,905.8 |
| Selling, general and administrative expenses | 908.3 | 788.6 | 802.6 | 809.6 | 3,309.1 |
| Special (gains) and charges | 15.9 | 69.4 | 35.0 | 59.3 | 179.6 |
| Operating income | 376.2 | 192.0 | 411.4 | 416.1 | 1,395.7 |
| Other (income) expense (b) | (15.4) | (15.1) | (15.1) | (10.3) | (55.9) |
| Interest expense, net (c) | 48.3 | 58.7 | 134.8 | 48.4 | 290.2 |
| Income before income taxes | 343.3 | 148.4 | 291.7 | 378.0 | 1,161.4 |
| Provision for income taxes | 47.0 | 14.1 | 42.4 | 73.1 | 176.6 |
| Net income from continuing operations, including noncontrolling interest | 296.3 | 134.3 | 249.3 | 304.9 | 984.8 |
| Net income from continuing operations attributable to noncontrolling interest | 4.3 | 5.4 | 3.1 | 4.6 | 17.4 |
| Net income from continuing operations attributable to Ecolab | 292.0 | 128.9 | 246.2 | 300.3 | 967.4 |
| Net income (loss) from discontinued operations, net of tax (d) | (8.6) | (2,163.9) | - | - | (2,172.5) |
| Net income (loss) attributable to Ecolab | $283.4 | ($2,035.0) | $246.2 | $300.3 | ($1,205.1) |
| | | | | | |
| Earnings (loss) attributable to Ecolab per common share | | | | | |
| Basic | | | | | |
| Continuing operations | $ 1.01 | $ 0.45 | $ 0.86 | $ 1.05 | $ 3.37 |
| Discontinued operations | ($ 0.03) | ($ 7.51) | $ - | $ - | ($ 7.57) |
| Earnings (loss) attributable to Ecolab | $ 0.98 | ($ 7.06) | $ 0.86 | $ 1.05 | ($ 4.20) |
| Diluted | | | | | |
| Continuing operations | $ 1.00 | $ 0.44 | $ 0.85 | $ 1.04 | $ 3.33 |
| Discontinued operations | ($ 0.03) | ($ 7.42) | $ - | $ - | ($ 7.48) |
| Earnings (loss) attributable to Ecolab | $ 0.97 | ($ 6.98) | $ 0.85 | $ 1.04 | ($ 4.15) |
| Weighted-average common shares outstanding | | | | | |
| Basic | 288.8 | 288.2 | 285.4 | 285.6 | 287.0 |
| Diluted | 292.6 | 291.5 | 288.4 | 288.7 | 290.3 |

Per share amounts do not necessarily sum due to changes in the calculation of shares outstanding for each discrete period and rounding. Gross profit is calculated as net sales minus cost of sales. As discussed in Note 5, the ChampionX separation met the criteria to be reported as discontinued operations and prior periods have been conformed to current period presentation.

(a) Cost of sales includes special charges of $19.6, $3.7, $52.9 and $17.7 in Q1, Q2, Q3 and Q4 of 2021, respectively, and $9.1, $27.0, $9.5 and $2.6 in Q1, Q2, Q3 and Q4 of 2020, respectively.
(b) Other (income) expense includes special charges of $19.6, $7.0 and $10.6 in Q2, Q3 and Q4 of 2021, respectively, and $0.4 in Q4 of 2020.
(c) Interest expense, net includes special charges of $32.3 and $0.8 in Q3 and Q4 of 2021, respectively, and $0.7 and $83.1 in Q2 and Q3 of 2020, respectively.
(d) Net income from discontinued operations, net of tax includes noncontrolling interest of $2.5 and ($0.3) in Q1 and Q2 of 2020, respectively.

## Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

## Item 9A. Controls and Procedures.

***Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures***

As of December 31, 2021, we carried out an evaluation, under the supervision and with the participation of our management, including our President and Chief Executive Officer and our Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Securities Exchange Act of 1934 as amended). Based upon that evaluation, our President and Chief Executive Officer and our Chief Financial Officer concluded that our disclosure controls and procedures are effective.

***Management's Report on Internal Control Over Financial Reporting***

Refer to page 49 of this Annual Report for "Management's Report on Internal Control Over Financial Reporting."

***Report of Registered Public Accounting Firm***

Refer to page 50 of this Annual Report for the "Report of Independent Registered Public Accounting Firm."

***Changes in Internal Control Over Financial Reporting.***

During the period October 1 - December 31, 2021, other than the Purolite acquisition, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

We are continuing our implementation of our enterprise resource planning ("ERP") system upgrades, which are expected to occur in phases over the next several years. These upgrades, which include supply chain and certain finance functions, are expected to improve the efficiency of certain financial and related transactional processes. These upgrades of the ERP systems will affect the processes that constitute our internal control over financial reporting and will require testing for effectiveness.

## Item 9B. Other Information.

None.

## Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

# PART III

## Item 10. Directors, Executive Officers and Corporate Governance.

Information about our directors is incorporated by reference from the discussion under the heading “Proposal 1: Election of Directors” located in the Proxy Statement. Information about compliance with Section 16(a) of the Securities Exchange Act of 1934, as amended, is incorporated by reference from the discussion under the heading “Delinquent Section 16(a) Reports” located in the Proxy Statement. Information about our Audit Committee, including the members of the Committee, and our Audit Committee financial experts, is incorporated by reference from the discussion under the heading “Corporate Governance,” and sub-headings “Board Committees” and “Audit Committee,” located in the Proxy Statement. Information about our Code of Conduct is incorporated by reference from the discussion under the heading “Corporate Governance Materials and Code of Conduct” located in the Proxy Statement. Information regarding our executive officers is presented under the heading “Information about our Executive Officers” in Part I, Item 1 of this Form 10-K, and is incorporated herein by reference.

## Item 11. Executive Compensation.

Information appearing under the following headings of the Proxy Statement is incorporated herein by reference:

- Director Compensation for 2021
- Compensation Risk Analysis
- Compensation Committee Interlocks and Insider Participation
- Compensation Committee Report
- Compensation Discussion and Analysis
- Summary Compensation Table for 2021
- Grants of Plan-Based Awards for 2021
- Outstanding Equity Awards at Fiscal Year End for 2021
- Option Exercises and Stock Vested for 2021
- Pension Benefits for 2021
- Non-Qualified Deferred Compensation for 2021
- Potential Payments Upon Termination or Change in Control
- Pay Ratio Disclosure

## Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Information appearing under the heading entitled “Security Ownership” located in the Proxy Statement is incorporated herein by reference.

A total of 1,267,288 shares of Common Stock held by our directors and executive officers, some of whom may be deemed to be “affiliates” of the Company, have been excluded from the computation of market value of our Common Stock on the cover page of this Form 10-K. This total represents that portion of the shares reported as beneficially owned by our directors and executive officers as of June 30, 2021 which are actually issued and outstanding.

***Equity Compensation Plan Information***

| Plan Category | (a) Number of securities to be issued upon exercise of outstanding options, warrants and rights | (b) Weighted average exercise price of outstanding options, warrants and rights | (c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) |
|---|---|---|---|
| Equity compensation plans approved by security holders | 7,450,107 (1) | $ 160.91 (1) | 7,544,458 |
| Total | 7,450,107 | $ 160.91 | 7,544,458 |

(1) Includes 212,143 Common Stock equivalents representing deferred compensation stock units earned by non-employee directors under our 2001 Non-Employee Director Stock Option and Deferred Compensation Plan, 788,529 Common Stock equivalents under our 2010 Stock Incentive Plan representing performance-based restricted stock units payable to employees, and 232,274 Common Stock equivalents under our 2010 Stock Incentive Plan representing restricted stock units payable to employees. All of the Common Stock equivalents described in this footnote (1) are not included in the calculation of weighted average exercise price of outstanding options, warrants and rights in column (b) of this table.

## Item 13. Certain Relationships and Related Transactions, and Director Independence.

Information appearing under the headings entitled “Director Independence Standards and Determinations” and “Related Person Transactions” located in the Proxy Statement is incorporated herein by reference.

## Item 14. Principal Accounting Fees and Services.

Information appearing under the heading entitled “Audit Fees” located in the Proxy Statement is incorporated herein by reference.

# PART IV

## Item 15. Exhibit and Financial Statement Schedules.

The following information required under this item is filed as part of this report:

(a)(1) Financial Statements.



| Exhibit No.: | Document: | Method of Filing: |
|---|---|---|
| (a)(2) | Financial Statement Schedules.<br><br>All financial statement schedules are omitted because they are not applicable or the required information is shown in the consolidated financial statements or the accompanying notes to the consolidated financial statements. The separate financial statements and summarized financial information of subsidiaries not consolidated and of fifty percent or less owned persons have been omitted because they do not satisfy the requirements for inclusion in this Form 10-K. | |
| (a)(3) | The documents below are filed as exhibits to this Report. We will, upon request and payment of a fee not exceeding the rate at which copies are available from the Securities and Exchange Commission, furnish copies of any of the following exhibits to stockholders. | |
| (2.1) | Agreement and Plan of Merger and Reorganization, dated December 18, 2019, by and among Ecolab Inc., ChampionX Holding Inc., Apergy Corporation and Athena Merger Sub, Inc. | Incorporated by reference to Exhibit (2.1) of our Form 8-K, dated December 18, 2019. (File No. 001-9328) |
| (2.2) | Separation and Distribution Agreement, dated December 18, 2019, by and among Ecolab Inc., ChampionX Holding Inc. and Apergy Corporation. | Incorporated by reference to Exhibit (2.2) of our Form 8-K, dated December 18, 2019. (File No. 001-9328) |
| (2.3) | Stock and Asset Purchase Agreement, dated October 28, 2021, by and among Ecolab Inc., Purolite Corporation, a Delaware corporation ("Purolite"), Stefan E. Brodie and Don B. Brodie (the "Founder Sellers" and together with Purolite, the "Sellers") and Stefan E. Brodie, solely in his capacity as the representative of the Sellers. | Incorporated by reference to Exhibit (2.1) of our Form 8-K, dated December 1, 2021. (File No. 001-9328) |
| (3.1) | Restated Certificate of Incorporation of Ecolab Inc., dated January 2, 2013. | Incorporated by reference to Exhibit (3.2) of our Form 8-K, dated January 2, 2013. (File No. 001-9328) |
| (3.2) | By-Laws, as amended through December 3, 2015. | Incorporated by reference to Exhibit (3.1) of our Form 8-K, dated December 3, 2015. (File No. 001-9328) |

| Exhibit No.: | Document: | Method of Filing: |
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| (4.1) | Common Stock. | See Exhibits (3.1) and (3.2) |
| (4.2) | Form of Common Stock Certificate effective October 2, 2017. | Incorporated by reference to Exhibit (4.1) of our Form 10-Q Quarterly Report for the quarter ended September 30, 2017. (File No. 001-9328) |
| (4.3) | Amended and Restated Indenture, dated January 9, 2001, between Ecolab Inc. and The Bank of New York Mellon Trust Company, N.A. (formerly known as The Bank of New York Trust Company, N.A.) (as successor in interest to J.P. Morgan Trust Company, N.A. and Bank One, N.A.), as Trustee. | Incorporated by reference to Exhibit (4)(A) of our Form 8-K, dated January 23, 2001. (File No. 001-9328) |
| (4.4) | Second Supplemental Indenture, dated December 8, 2011, between Ecolab Inc., Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee and The Bank of New York Mellon Trust Company, N.A. (formerly known as The Bank of New York Trust Company, N.A.) (as successor in interest to J.P. Morgan Trust Company, N.A. and Bank One, N.A.), as original trustee. | Incorporated by reference to Exhibit (4.2) of our Form 8-K, dated December 5, 2011. (File No. 001-9328) |
| (4.5) | Form of 5.500% Notes due 2041. | Included in Exhibit (4.4) above. |
| (4.6) | Indenture, dated January 12, 2015, between Ecolab Inc. and Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee. | Incorporated by reference to Exhibit 4.1 of our Form 8-K, dated January 15, 2015. (File No. 001-9328) |
| (4.7) | Second Supplemental Indenture, dated July 8, 2015, by and among Ecolab Inc., Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee, Elavon Financial Services Limited, UK Branch, as paying agent, and Elavon Financial Services Limited, as transfer agent and registrar. | Incorporated by reference to Exhibit (4.2) of our Form 8-K, dated July 8, 2015. (File No. 001-9328) |
| (4.8) | Form of 2.625% Euro Notes due 2025. | Included in Exhibit (4.7) above. |
| (4.9) | Fourth Supplemental Indenture, dated October 18, 2016, between Ecolab Inc. and Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee. | Incorporated by reference to Exhibit (4.2) of our Form 8-K, dated October 13, 2016. (File No. 001-9328) |
| (4.10) | Forms of 2.700% Notes due 2026 and 3.700% Notes due 2046. | Included in Exhibit (4.9) above. |
| (4.11) | Fifth Supplemental Indenture, dated December 8, 2016, by and among Ecolab Inc., Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee, Elavon Financial Services DAC, UK Branch, as paying agent, and Elavon Financial Services DAC, as transfer agent and registrar. | Incorporated by reference to Exhibit (4.2) of our Form 8-K, dated December 1, 2016. (File No. 001-9328) |
| (4.12) | Form of 1.000% Euro Notes due 2024. | Included in Exhibit (4.11) above. |
| (4.13) | Seventh Supplemental Indenture, dated November 27, 2017, between Ecolab Inc. and Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee. | Incorporated by reference to Exhibit (4.2) of our Form 8-K, dated November 30, 2017. (File No. 001-9328) |
| (4.14) | Form of 3.250% Notes due 2027. | Included in Exhibit (4.13) above. |
| (4.15) | Form of 3.950% Notes due 2047. | Included in Exhibit (4.13) above. |

| Exhibit No.: | Document: | Method of Filing: |
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| (4.16) | Eighth Supplemental Indenture, dated March 24, 2020, between Ecolab Inc. and Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee. | Incorporated by reference to Exhibit (4.2) of our Form 8-K filed on March 24, 2020. (File No. 001-9328) |
| (4.17) | Form of 4.800% Notes due 2030. | Included in Exhibit (4.16) above. |
| (4.18) | Ninth Supplemental Indenture, dated August 13, 2020, between Ecolab Inc. and Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee. | Incorporated by reference to Exhibit (4.2) of our Form 8-K filed by Ecolab Inc. on August 13, 2020. (File No. 001-9328) |
| (4.19) | Form of 1.300% Notes due 2031. | Included in Exhibit (4.18) above. |
| (4.20) | Form of 2.125% Notes due 2050. | Included in Exhibit (4.18) above. |
| (4.21) | Tenth Supplemental Indenture, dated August 18, 2021, between Ecolab Inc. and Computershare Trust Company, N.A. (as successor to Wells Fargo Bank, National Association), as Trustee. | Incorporated by reference to Exhibit (4.2) of our Form 8-K filed on August 19, 2021. (File No. 001-9328) |
| (4.22) | Form of 2.750% Notes due 2055. | Included in Exhibit (4.21) above. |
| (4.23) | Eleventh Supplemental Indenture, dated December 15, 2021, between Ecolab Inc. and Computershare Trust Company, N.A., as Trustee. | Incorporated by reference to Exhibit (4.2) of our Form 8-K filed by Ecolab Inc. on December 15, 2021. (File No. 001-9328) |
| (4.24) | Form of 0.900% Notes due 2023. | Included in Exhibit (4.23) above. |
| (4.25) | Form of 1.650% Notes due 2027. | Included in Exhibit (4.23) above. |
| (4.26) | Form of 2.125% Notes due 2032. | Included in Exhibit (4.23) above. |
| (4.27) | Form of 2.700% Notes due 2051. | Included in Exhibit (4.23) above. |
| (4.28) | Description of Securities. | Incorporated by reference to Exhibit (4.20) of our Form 10-K Annual Report for the year ended December 31, 2019. (File No. 001-9328) |
| | Copies of other constituent instruments defining the rights of holders of our long-term debt are not filed herewith, pursuant to Section (b)(4)(iii) of Item 601 of Regulation S-K, because the aggregate amount of securities authorized under each of such instruments is less than 10% of our total assets on a consolidated basis. We will, upon request by the Securities and Exchange Commission, furnish to the Commission a copy of each such instrument. | |
| (10.1) | Third Amended and Restated $2.0 billion 5-Year Revolving Credit Facility, dated as of April 16, 2021, among Ecolab Inc., the lenders party thereto, the issuing lenders party thereto, Bank of America, N.A., as administrative agent and swing line bank, and Citibank, N.A., JPMorgan Chase Bank, N.A. and MUFG Bank, Ltd., as co-syndication agents. | Incorporated by reference to Exhibit (10.1) of our Form 8-K, dated April 20, 2021. (File No. 001-9328) |

| Exhibit No.: | | Document: | | | Method of Filing: |
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| (10.2) | | Documents comprising global Commercial Paper Programs. | | | |
| | | (i) | U.S. $2,000,000,000 Euro-Commercial Paper Programme. | | |
| | | | (a) | Amended and Restated Dealer Agreement, dated 9 June 2017, between Ecolab Inc., Ecolab Lux 1 S.À R.L., Ecolab Lux 2 S.À R.L., Ecolab NL 10 B.V. and Ecolab NL 11 B.V. (as Issuers), Ecolab Inc. (as Guarantor in respect of the notes issued by Ecolab Lux 1 S.À R.L., Ecolab Lux 2 S.À R.L. and Ecolab NL 10 B.V. and Ecolab NL 11 B.V.), Credit Suisse Securities (Europe) Limited (as Arranger), and Citibank Europe plc, UK Branch, Credit Suisse Securities (Europe) Limited, Citigroup Global Markets Europe AG, Credit Suisse Securities Sociedad de Valores S.A. and Credit Suisse International (as Dealers). | Incorporated by reference to Exhibit (10.1)(a) of our Form 10-Q for the quarter ended June 30, 2017. (File No. 001-9328) |
| | | | (b) | Amended and Restated Note Agency Agreement, dated 9 June 2017, between Ecolab Inc., Ecolab Lux 1 S.À R.L., Ecolab Lux 2 S.À R.L., Ecolab NL 10 B.V. Ecolab NL 11 B.V. (as Issuers), Ecolab Inc. (as Guarantor in respect of the notes issued by Ecolab Lux 1 S.À R.L., Ecolab Lux 2 S.À R.L., Ecolab NL 10 B.V. and Ecolab NL 11 B.V.), and Citibank, N.A., London Branch (as Issue and Paying Agent). | Incorporated by reference to Exhibit (10.1)(b) of our Form 10-Q for the quarter ended June 30, 2017. (File No. 001-9328) |
| | | | (c) | Deed of Covenant made on 9 June 2017 by Ecolab Inc., Ecolab Lux 1 S.À R.L., Ecolab Lux 2 S.À R.L., Ecolab NL 10 B.V. and Ecolab NL 11 B.V. (as Issuers). | Incorporated by reference to Exhibit (10.1)(c) of our Form 10-Q for the quarter ended June 30, 2017. (File No. 001-9328) |
| | | | (d) | Deed of Guarantee made on 9 June 2017 by Ecolab Inc. (in respect of notes issued by Ecolab Lux 1 S.À R.L., Ecolab Lux 2 S.À R.L., Ecolab NL 10 B.V. and Ecolab NL 11 B.V.). | Incorporated by reference to Exhibit (10.1)(d) of our Form 10-Q for the quarter ended June 30, 2017. (File No. 001-9328) |
| | | (ii) | U.S. $2,000,000,000 U.S. Commercial Paper Program. | | |
| | | | (a) | Form of Commercial Paper Dealer Agreement for 4(a)(2) Program, dated September 22, 2014. The dealers for the program are Barclays Capital Inc., Citigroup Global Markets Inc., Credit Suisse Securities (USA) LLC, BofA Securities, Inc., Mizuho Securities USA LLC, and Wells Fargo Securities, LLC. | Incorporated by reference to Exhibit (10.1)(a) of our Form 10-Q for the quarter ended September 30, 2014. (File No. 001-9328) |
| | | | (b) | Issuing and Paying Agent Agreement, dated September 18, 2017, between Ecolab Inc. and U.S. Bank National Association, as Issuing and Paying Agent (as successor, effective as of June 7, 2021, to MUFG Union Bank, N.A.). | Incorporated by reference to Exhibit (10.1)(a) of our Form 10 Q for the quarter ended September 30, 2017. (File No. 001-9328) |
| | | | (c) | Corporate Commercial Paper – Master Note, dated June 7, 2021, together with annex thereto. | Incorporated by reference to Exhibit (10.3)(ii) of our Form 10 Q for the quarter ended June 30, 2021. (File No. 001-9328) |
| (10.3) | † | (i) | Ecolab Inc. 2001 Non-Employee Director Stock Option and Deferred Compensation Plan, as amended and restated, effective as of August 1, 2013. | | Incorporated by reference to Exhibit (10.6) of our Form 10-K Annual Report for the year ended December 31, 2013. (File No. 001-9328) |

| Exhibit No.: | | Document: | | Method of Filing: |
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| | † | (ii) | Declaration of Amendment, dated May 5, 2016, to Ecolab Inc. 2001 Non-Employee Director Stock Option and Deferred Compensation Plan, as amended and restated, effective as of August 1, 2013. | Incorporated by reference to Exhibit (10.1) of our Form 10-Q for the quarter ended June 30, 2016. (File No. 001-9328) |
| | † | (iii) | Master Agreement Relating to Periodic Options, as amended, effective as of May 1, 2004. | Incorporated by reference to Exhibit (10)D(ii) of our Form 10-Q for the quarter ended June 30, 2004. (File No. 001-9328) |
| | † | (iv) | Amendment No. 1 to Master Agreement Relating to Periodic Options, as amended, effective as of May 2, 2008. | Incorporated by reference to Exhibit (10)B of our Form 10-Q for the quarter ended September 30, 2008. (File No. 001-9328) |
| (10.4) | † | Form of Director Indemnification Agreement. Substantially identical agreements are in effect as to each of our directors. | | Incorporated by reference to Exhibit (10)I of our Form 10-K Annual Report for the year ended December 31, 2003. (File No. 001-9328) |
| (10.5) | † | (i) | Ecolab Executive Death Benefits Plan, as amended and restated, effective as of March 1, 1994. | Incorporated by reference to Exhibit (10)H(i) of our Form 10-K Annual Report for the year ended December 31, 2006. See also Exhibit (10.12) hereof. (File No. 001-9328) |
| | † | (ii) | Amendment No. 1 to Ecolab Executive Death Benefits Plan, effective as of July 1, 1997. | Incorporated by reference to Exhibit (10)H(ii) of our Form 10-K Annual Report for the year ended December 31, 1998. (File No. 001-9328) |
| | † | (iii) | Second Declaration of Amendment to Ecolab Executive Death Benefits Plan, effective as of March 1, 1998. | Incorporated by reference to Exhibit (10)H(iii) of our Form 10-K Annual Report for the year ended December 31, 1998. (File No. 001-9328) |
| | † | (iv) | Amendment No. 3 to the Ecolab Executive Death Benefits Plan, effective as of August 12, 2005. | Incorporated by reference to Exhibit (10)B of our Form 8-K, dated December 13, 2005. (File No. 001-9328) |
| | † | (v) | Amendment No. 4 to the Ecolab Executive Death Benefits Plan, effective as of January 1, 2005. | Incorporated by reference to Exhibit (10)H(v) of our Form 10-K Annual Report for the year ended December 31, 2009. (File No. 001-9328) |
| | † | (vi) | Amendment No. 5 to the Ecolab Executive Death Benefits Plan, effective as of May 6, 2015. | Incorporated by reference to Exhibit 10.2 of our Form 10-Q for the quarter ended June 30, 2015. (File No. 001-9328) |
| | † | (vii) | Amendment No. 6 to the Ecolab Executive Death Benefits Plan, effective as of June 23, 2017. | Incorporated by reference to Exhibit 10.1(vii) of Ecolab's Form 8-K dated June 23, 2017. (File No. 001-9328) |
| (10.6) | † | (i) | Ecolab Executive Long-Term Disability Plan, as amended and restated, effective as of January 1, 1994. | Incorporated by reference to Exhibit (10)I of our Form 10-K Annual Report for the year ended December 31, 2004. See also Exhibit (10.12) hereof. (File No. 001-9328). |
| | † | (ii) | Amendment No. 1 to the Ecolab Executive Long-Term Disability Plan, effective as of August 21, 2015. | Incorporated by reference to Exhibit 10.1 of our Form 10-Q for the quarter ended September 30, 2015. (File No. 001-9328) |
| (10.7) | † | (i) | Ecolab Supplemental Executive Retirement Plan, as amended and restated, effective as of January 1, 2022. | Filed herewith electronically. |
| (10.8) | † | (i) | Ecolab Mirror Savings Plan, as amended and restated, effective as of January 1, 2022. | Filed herewith electronically. |
| (10.9) | † | (i) | Ecolab Mirror Pension Plan, as amended and restated, effective as of January 1, 2022. | Filed herewith electronically. |

| Exhibit No.: | | Document: | | Method of Filing: |
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| (10.10) | † | (i) | Ecolab Inc. Administrative Document for Non-Qualified Plans, as amended and restated, effective as of January 1, 2022. | Filed herewith electronically. |
| (10.11) | † | (i) | Ecolab Inc. Change in Control Severance Compensation Policy, as amended and restated, effective as of February 26, 2010. | Incorporated by reference to Exhibit (10) of our Form 8-K, dated February 26, 2010. (File No. 001-9328) |
| | † | (ii) | Amendment No. 1 to Ecolab Inc. Change-in-Control Severance Policy, as amended and restated, effective as of February 26, 2010. | Incorporated by reference to Exhibit (10.18)(ii) of our Form 10-K Annual Report for the year ended December 31, 2011. (File No. 001-9328) |
| (10.12) | † | Description of Ecolab Management Incentive Plan. | | Incorporated by reference to Exhibit (10.16) of our Form 10-K Annual Report for the year ended December 31, 2015. (File No. 001-9328) |
| (10.13) | † | (i) | Ecolab Inc. 2010 Stock Incentive Plan, as amended and restated, effective as of May 2, 2013. | Incorporated by reference to Exhibit (10.1) of our Form 8-K, dated May 2, 2013. (File No. 001-9328) |
| | † | (ii) | Declaration of Amendment, effective as of February 22, 2019, to Ecolab Inc. 2010 Stock Incentive Plan, as amended and restated, effective as of May 2, 2013. | Incorporated by reference to Exhibit (10.3) of our Form 10-Q, dated May 2, 2019. (File No. 001-9328) |
| | † | (iii) | Sample form of Non-Statutory Stock Option Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted May 6, 2010. | Incorporated by reference to Exhibit (10)B of our Form 8-K, dated May 6, 2010. (File No. 001-9328) |
| | † | (iv) | Sample form of Restricted Stock Award Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted May 6, 2010. | Incorporated by reference to Exhibit (10)C of our Form 8-K, dated May 6, 2010. (File No. 001-9328) |
| | † | (v) | Sample form of Restricted Stock Unit Award Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted August 4, 2010. | Incorporated by reference to Exhibit (10)A of our Form 10-Q, for the quarter ended September 30, 2010. (File No. 001-9328) |
| | † | (vi) | Sample form of Performance-Based Restricted Stock Unit Award Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted December 4, 2018. | Incorporated by reference to Exhibit (10.15)(viii) of our Form 10-K Annual Report for the year ended December 31, 2018. (File No. 001-9328) |
| | † | (vii) | Sample form of Performance-Based Restricted Stock Unit Award Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted December 3, 2019. | Incorporated by reference to Exhibit (10.15)(ix) of our Form 10-K Annual Report for the year ended December 31, 2019. (File No. 001-9328) |
| | † | (viii) | Sample form of Performance-Based Restricted Stock Unit Award Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted December 3, 2020. | Incorporated by reference to Exhibit (10.13)(ix) of our Form 10-K Annual Report for the year ended December 31, 2020. (File No. 001-9328) |
| | † | (ix) | Sample form of Performance-Based Restricted Stock Unit Award Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted December 1, 2021. | Filed herewith electronically. |
| (10.14) | † | Policy on Reimbursement of Incentive Payments, as amended February 22, 2019. | | Incorporated by reference to Exhibit (10.16) of our Form 10-K Annual Report for the year ended December 31, 2018. (File No. 001-9328) |
| (10.15) | † | Form of Nalco Company Death Benefit Agreement and Addendum to Death Benefit Agreement. | | Incorporated by reference from Exhibit (99.2) on Form 8-K of Nalco Holding Company filed on May 11, 2005. (File No. 001-32342) |

| Exhibit No.: | | Document: | Method of Filing: |
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| (10.16) | † | Employee Matters Agreement, dated December 18, 2019, by and among Ecolab, Inc., ChampionX Holding Inc. and Apergy Corporation. | Incorporated by reference to Exhibit (10.1) of our Form 8-K, dated December 18, 2019. (File No. 001-9328) |
| (10.17) | † | Offer Letter relating to employment of Machiel Duijser dated July 22, 2019. | Incorporated by reference to Exhibit (10.1(i) of our Form 10-Q Quarterly Report for the quarter ended March 31, 2021. (File No. 001 9328) |
| (10.18) | † | Sign On Bonus Agreement of Machiel Duijser dated January 9, 2020. | Incorporated by reference to Exhibit (10.1(ii) of our Form 10-Q Quarterly Report for the quarter ended March 31, 2021. (File No. 001 9328) |
| (10.19) | † | Term Credit Agreement, dated November 19, 2021, by and among Ecolab Inc., the financial institutions party thereto as Banks from time to time, and JP Morgan Chase Bank, N.A., as administrative agent. | Incorporated by reference to Exhibit (10.1) of our Form 8-K, dated November 23, 2021. (File No. 001 9328) |
| (14.1) | | Ecolab Code of Conduct, as amended November 26, 2012. | Incorporated by reference to Exhibit (14.1) of our Form 10-K Annual Report for the year ended December 31, 2012. (File No. 001-9328) |
| (21.1) | | List of Subsidiaries. | Filed herewith electronically. |
| (23.1) | | Consent of Independent Registered Public Accounting Firm. | Filed herewith electronically. |
| (24.1) | | Powers of Attorney. | Filed herewith electronically. |
| (31.1) | | Rule 13a-14(a) CEO Certification. | Filed herewith electronically. |
| (31.2) | | Rule 13a-14(a) CFO Certification. | Filed herewith electronically. |
| (32.1) | | Section 1350 CEO and CFO Certifications. | Filed herewith electronically. |
| (101.INS) | | Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document. | Filed herewith electronically. |
| (101.SCH) | | Inline XBRL Taxonomy Extension Schema. | Filed herewith electronically. |
| (101.CAL) | | Inline XBRL Taxonomy Extension Calculation Linkbase. | Filed herewith electronically. |
| (101.DEF) | | Inline XBRL Taxonomy Extension Definition Linkbase. | Filed herewith electronically. |
| (101.LAB) | | Inline XBRL Taxonomy Extension Label Linkbase. | Filed herewith electronically. |
| (101.PRE) | | Inline XBRL Taxonomy Extension Presentation Linkbase. | Filed herewith electronically. |
| (104) | | Cover Page Interactive Data File. | Formatted as Inline XBRL and contained in Exhibit 101. |

† This exhibit is an executive compensation plan or arrangement.

## Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, Ecolab Inc. has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on the 25th day of February, 2022.

ECOLAB INC.
(Registrant)

By: /s/ Christophe Beck
Christophe Beck
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of Ecolab Inc. and in the capacities indicated, on the 25th day of February, 2022.

| | |
|---|---|
| /s/ Christophe Beck<br>Christophe Beck | President and Chief Executive Officer<br>(Principal Executive Officer and Director) |
| /s/ Scott D. Kirkland<br>Scott D. Kirkland | Chief Financial Officer<br>(Principal Financial Officer) |
| /s/ Jennifer J. Bradway<br>Jennifer J. Bradway | Senior Vice President and Corporate Controller<br>(duly authorized officer and Principal Accounting Officer) |
| /s/ Michael C. McCormick<br>Michael C. McCormick<br><br>as attorney-in-fact for:<br>Douglas M. Baker Jr., Shari L. Ballard, Barbara J. Beck, Jeffrey M. Ettinger, Arthur J. Higgins, Michael Larson, David W. MacLennan, Tracy B. McKibben, Lionel L. Nowell, III, Victoria J. Reich, Suzanne M. Vautrinot and John J. Zillmer | Directors |