



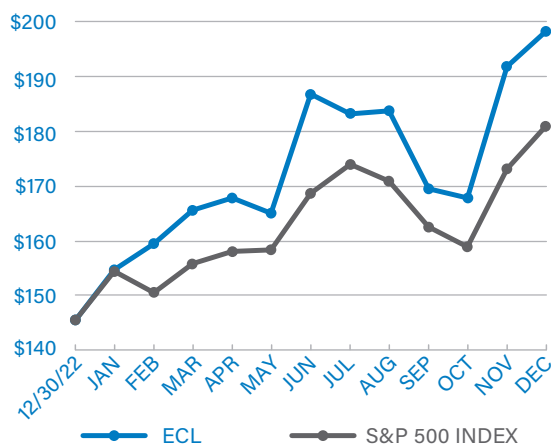
100 years of growth and positive impact

ANNUAL REPORT 2023



An innovative and trusted partner at millions of customer locations, Ecolab Inc. is a global sustainability leader offering water, hygiene and infection prevention solutions and services that protect people and the resources vital to life.

STRONG STOCK PERFORMANCE IN 2023



Building on a century of innovation, Ecolab's more than 48,000 associates deliver comprehensive science-based solutions, data-driven insights and world-class service to advance food safety, maintain clean and safe environments and optimize water and energy use. Ecolab's innovative solutions improve operational efficiencies and sustainability for customers in the food, healthcare, life sciences, hospitality and industrial markets in more than 170 countries around the world.

From hotels, restaurants and healthcare facilities to food and beverage plants, manufacturing plants and power generation facilities across the globe, Ecolab's 26,000-strong sales-and-service team, the industry's largest and best trained, uses innovative solutions, digital technologies and unmatched insights to help solve the most pressing challenges our customers face. Many of the world's leading companies rely on Ecolab to help ensure product quality and guest satisfaction, maintain brand reputation and achieve their operational and sustainability goals.

Ecolab is headquartered in St. Paul, MN, and its common stock is listed under the ticker symbol ECL on the New York Stock Exchange. For more information, visit [ecolab.com](https://www.ecolab.com) or call 1.800.2.ECOLAB. Follow us on LinkedIn [@Ecolab](https://www.linkedin.com/company/ecolab), Twitter [@Ecolab](https://twitter.com/Ecolab), Instagram [@Ecolab_Inc](https://www.instagram.com/Ecolab_Inc) and Facebook at [@Ecolab](https://www.facebook.com/Ecolab).

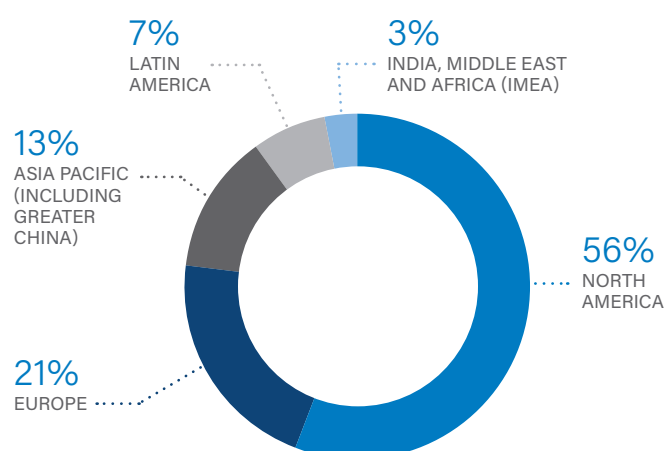
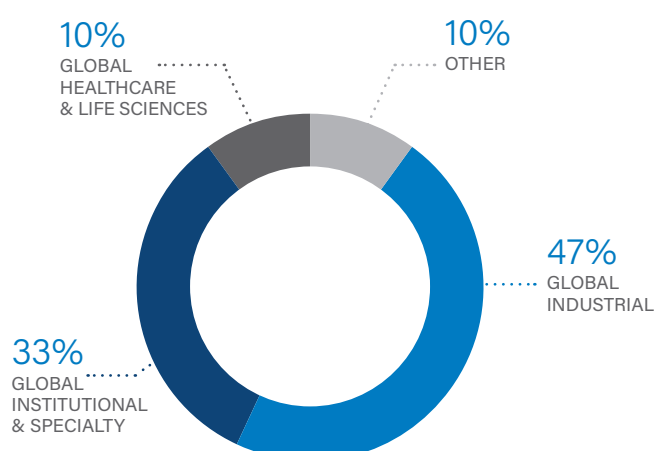
FORWARD-LOOKING STATEMENTS AND RISK FACTORS

We refer readers to the company's disclosures entitled "Forward-Looking Statements" and "Risk Factors," which begin on page 15 of the Form 10-K.

CONTINUING OPERATIONS – MILLIONS, EXCEPT PER SHARE

	2023	2022	2021	2020	PERCENT CHANGE		
					2023	2022	2021
Net Sales	\$15,320.2	\$14,187.8	\$12,733.1	\$11,790.2	8%	11%	8%
Net Income from Continuing Operations Attributable to Ecolab	1,372.3	1,091.7	1,129.9	967.4	26%	-3%	17%
Net Income from Continuing Operations as a Percent of Sales	9.0%	7.7%	8.9%	8.2%	-	-	-
Diluted Earnings per Share from Continuing Operations	4.79	3.81	3.91	3.33	26%	-3%	17%
Adjusted Diluted Earnings per Share from Continuing Operations (non-GAAP measure)	5.21	4.49	4.69	4.02	16%	-4%	17%
Diluted Weighted-Average Common Shares Outstanding	286.5	286.6	289.1	290.3	0%	-1%	0%
Cash Dividends Declared per Common Share	2.16	2.06	1.95	1.89	5%	6%	3%
Cash Provided by Operating Activities from Continuing Operations	2,411.8	1,788.4	2,061.9	1,741.8	35%	-13%	18%
Capital Expenditures	774.8	712.8	643.0	489.0	9%	11%	31%
Ecolab Shareholders' Equity	8,044.7	7,236.1	7,224.2	6,166.5	11%	0%	17%
Return on Beginning Equity	19.0%	15.1%	18.3%	11.1%	-	-	-
Total Debt	8,181.8	8,580.4	8,758.2	6,686.6	-5%	-2%	31%
Net Debt to EBITDA (non-GAAP measure)	2.4	3.2	3.4	2.4	-	-	-
Total Assets	\$21,846.6	\$21,464.3	\$21,206.4	\$18,126.0	2%	1%	17%

Adjusted earnings per share amounts exclude the impact of special gains and charges, discrete taxes and the impact of the Purolite acquisition. See our Management's Discussion and Analysis beginning at page 25 of the Form 10-K for a reconciliation between the non-GAAP measures and the comparable GAAP measures.

SALES BY REGION 2023
(PERCENT OF TOTAL SALES)BUSINESS MIX 2023
(PERCENT OF TOTAL SALES)

Christophe Beck
CHAIRMAN & CEO



2023 was a year of milestones and momentum for Ecolab

After achieving the rare honor of 100 years in business, our team of 48,000 associates went on to deliver for customers across more than 170 countries worldwide. They made 2023 our best year yet, while strengthening Ecolab's connections with customers, partners and communities, and upholding our rich history of making the world cleaner, safer and healthier.

It is thanks to our global team of associates that we continue to **grow fast and drive performance while making a net positive impact on the world.**

Our Global Industrial team reinforced Ecolab's position as the world's water company by helping customers deliver critical business, water and sustainability outcomes. The Institutional & Specialty team returned to its rightful place as a significant driver of Ecolab's business, as they helped newly energized hospitality and retail customers thrive. The Healthcare & Life Sciences team continued their work to build a growth engine for the future. And our Pest Elimination team combined science-based service and expert innovation to grow at a historic pace.

Even as inflationary pressures elevated raw material, energy and transportation costs, our team worked to prove the total value delivered to customers. Their combined efforts allowed Ecolab to report historically impressive levels of new business and sales growth. That is why we finished 2023 with great momentum and full of confidence for the year ahead.

We believe that doing the right thing, the right way, is good for business. We achieved record associate engagement scores, made Ecolab safer and more inclusive, and demonstrated solid progress

on our sustainability targets. We were once again recognized as the world's most admired company in our industry and as one of the world's most ethical companies for the 17th consecutive year.

These achievements are the result of all we've done in recent years to **protect our team, our customers and our company.**

Through it all, Ecolab has remained focused on delivering strong returns for our stockholders. In 2023, we returned \$604 million in cash dividends, while also investing in our business to support future growth. Our excellent cash flow and strong business momentum allowed us to announce our 32nd annual cash dividend rate increase and continue our 87-year run of common stock cash dividends.

As Chairman and CEO of Ecolab, I am confident that we can make our next century even better. Thank you for your investment and your ongoing belief in our team.

Sincerely,

Christophe Beck
CHAIRMAN & CEO

David W. MacLennan
LEAD INDEPENDENT DIRECTOR



Ecolab's last century was characterized by innovation, growth and positive impact. 2023 was another successful year with successfully managed challenges and continued business growth.

It was early in the year that I was appointed as Ecolab's lead independent director, replacing Jeffrey M. Ettinger. I would like to acknowledge Jeff and the many contributions he made to Ecolab's Board as my predecessor. While I bring different experiences and insights to the position, I am also focused on delivering long-term value for our stockholders.

In 2024, we were excited to welcome Judson Althoff to the Board. His global, business and high-tech experience make him an excellent addition and we are sure to benefit from his artificial intelligence and cloud computing knowledge. We also thank our valued colleague, Barbara J. Beck, for her service, including her roles as Chair of the Governance Committee and the Compensation & Human Capital Management Committee.

As I look back on the previous year, your independent directors were deeply involved in the development and oversight of Ecolab's business strategy. We focused on the successful assessment and mitigation of company risk, including the management of financial, business and sustainability risk. We also oversaw a renewed focus on cementing the company's status as an innovation powerhouse. By focusing on market, enterprise and breakthrough innovations, we see Ecolab addressing critical customer needs and realizing significant new sales opportunities in the coming years.

By focusing on innovations, we see Ecolab addressing critical customer needs and realizing significant new sales opportunities.

I have personally worked closely with our Chairman and CEO to maintain effective working relationships between the independent directors and Ecolab's management. I also take the responsibility of assigning committee roles, and reviewing and supporting the

effectiveness and independence of your Board of Directors very seriously. As Chair of the Governance Committee, I have also led ongoing efforts to maintain strong Board leadership, composition and refreshment.

Ecolab's last century was characterized by innovation, growth and positive impact. The company has the strategy and leadership in place to continue this momentum and deliver strong returns for its stockholders.

It is the combined effect of this work that makes me proud of Ecolab's continued progress in 2023. This is the message that I shared as I represented your interests in many stockholder engagements during the year. These conversations were often focused on Ecolab's governance structure, board composition and refreshment, and the oversight of risk.

If these topics are also of interest to you, I invite you to review the updates and ongoing changes overseen by the Board's committees, including the Compensation & Human Capital Management Committee.

I would also like to thank you, our stockholders, for your continued confidence and investment in Ecolab. Your support underpins our commitment to continued progress and innovation in the pursuit of sustainable long-term value creation.

Sincerely,

David W. MacLennan
LEAD INDEPENDENT DIRECTOR

Performance and growth across the business



Delivering on business, water and sustainability goals

In what ended as the hottest year on record, there are real business and sustainability pressures on modern companies. The need for our unique water technologies and services, including Ecolab Water for Climate™, couldn't be clearer. In 2023, Ecolab continued to grow its Ecolab Water for Climate program, which is designed to help customers advance sustainable business growth while meeting climate and water goals. The program works by improving how businesses heat, cool, treat and move water in their operations to deliver interconnected benefits. By leveraging the power of water, Ecolab Water for Climate is showing companies how they can lower water use, energy use, greenhouse gas emissions and overall costs, helping disprove the myth that sustainability and growth are at odds.



As one example, Ecolab estimates that more efficient water management in data centers can help lower water use by up to one-third while continuing to pursue growth, according to Ecolab modeling of 14 data centers. Our sights are set on continuing to demonstrate this value in our priority markets — Data Centers and Food & Beverage Manufacturing — and accelerate future growth opportunities.

Largest innovation pipeline in Ecolab history

Our focus on meeting customer needs and delivering innovation took a huge step in 2023 with attention on delivering against market, enterprise and breakthrough innovations that could deliver \$1.3 billion in projected sales over the next five years.

The focus on the growth engine of life sciences is top of mind in 2024. Our latest breakthrough innovation in our Life Sciences business is our suite of Purolite technologies, focused on resin-based separation, purification and extraction. This innovation pipeline focuses on the established, high-growth market of biological medicines, which are life-saving treatments for diseases such as multiple myeloma and other cancers, rheumatoid arthritis, Crohn's Disease and Alzheimer's. Purolite's patented, proprietary chemical manufacturing technique creates uniformly sized-and-shaped resin beads necessary to purify each drug in a unique way. The combination of our patented resin beads with the unique binding chemistry results in high levels of process consistency for the customer and improved final drug recovery. This provides an advantage for traditionally hard-to-purify drugs, allowing new medicines to come to market and treat patients with unmet needs.

Our breakthrough innovation programs are found in each of our Global Industrial, Global Institutional & Specialty and Healthcare and Life Sciences businesses. These focus on our biggest opportunities, driven by the challenges ranging from labor shortages to climate change and water scarcity, microelectronics, biologics acceleration and data centers that face our customers — and all of us.

Institutional business gains momentum, driving positive change

A business synonymous with Ecolab's 100-year history faced significant challenges when the global pandemic led to massive disruption across its customer markets. 2023 saw Ecolab's Global Institutional & Specialty segment lead with a strong focus on new business gains, value-based pricing and efficiency improvement.

Our effort to become the world's water company is led by our Global Industrial business, which delivered strong sales of **\$7.2 billion in 2023**, an **increase of 7%**.



In 2023, Global Institutional & Specialty focused on transforming the business for growth, driving penetration for volume and creating breakthrough innovations. The \$43-billion global market for institutional-type business remains focused on sustainability while addressing labor challenges, inflation and opportunities presented by new technology.

Ecolab Science Certified is one such value program that helps customers attain their goals of talent retention, cost management and customer retention. In 2023, Ecolab effectively supported hotels like Wyndham in navigating this landscape. The 531 participating Wyndham locations saw a 21 percent increase in higher reviews and a 29 percent decrease in negative cleanliness mentions six months after beginning the program compared to the same time frame a year prior.

These types of efforts in 2023 helped drive Institutional's **\$5.0 billion in full-year organic sales** and **\$823 million operating income**, an increase of 12% and 32% compared to the prior year.

As we kick off 2024, we are committed to helping to solve labor challenges through solution penetration. We will focus on driving growth through increased market penetration by delivering new innovation for our customers and protecting vital customer relationships.

Pest Elimination: \$1 billion driver

Science-based service. Data and insights. Expert innovation. This focus has enabled Pest Elimination to continue growing at a historic pace through 2023, an 11 percent increase in organic sales compared to 2022.

Pest Elimination's strong and consistent platform delivers growth through innovation that benefits mission-critical segments and protects our customers' brands and reputation.

Our strategic mindset is to move past simply pest control to end-to-end pest elimination programs, leveraging our expertise, data science and innovation. For example, Ecolab's digitally enabled pest elimination solution connects equipment that monitors and detects rodent activity, leverages predictive analytics and develops a risk-based service plan designed to meet customers' needs.

On deck for 2024: Building on the best year in Pest Elimination's history and leveraging more innovative technology that allows Ecolab service specialists to more effectively and efficiently support our customers.



Growing our business, growing our positive impact

Making a difference for people and our communities

We operate with concern for the well-being of all people and value diversity, equity and inclusion in business and in all facets of life. This is reflected in how we attract, develop and retain all people, promote a respectful and inclusive workplace, conduct business with our customers and suppliers and strive to enrich and strengthen our communities.

WITHIN OUR COMPANY

We're committed to a culture of inclusion and belonging where all associates are supported and encouraged to reach their full potential. We seek to foster a diverse and inclusive workforce that reflects our longstanding value of working together to integrate diverse perspectives to challenge ourselves, reach our goals and do what's right. And we endeavor to maintain vendor relationships that reflect Ecolab's commitment to supporting more inclusive communities and to level the playing field for all vendors.

We are working in support of our 2030 impact aspirations, which include increasing management-level gender diversity to 35 percent and ethnic/racial diversity to 25 percent as we seek to meet full representation of the U.S. workforce at all levels for our industry. Our 2030 Impact Aspirations support our commitment to the value of diversity and to ensuring equal employment opportunities for people of all different backgrounds.

In 2023, we made significant progress toward our 2030 aspirations, including:

39% of all new management-level hires globally were women

27% of all new management-level hires in the U.S. were people of color

Increased management-level female representation from 27 percent to **28%**

Management-level people of color representation was stable in 2023 at **20%**

Increased year-over-year spend with diverse suppliers by **26%**



We recorded more than

37,000

volunteer hours,
valued at more than
\$1.2 million.



WITHIN OUR COMMUNITIES

During our 100th anniversary year, we focused on giving back to our communities and making a positive impact, something that has been at the heart of our work in the community. And our associates showed that during 2023 with a 20 percent impact value increase compared to the prior year.

In 2023:

- We had **associates in 43 countries** donate and/or volunteer their time.
- Almost **6,500 associates** donated to and/or volunteered for causes that matter to them.
- We recorded **more than 37,000 volunteer hours**, valued at more than \$1.2 million, a value determined by Independent Sector.
- We awarded **more than \$1.1 million in grants** to organizations supporting our global employee volunteerism.

And we continued our support of the communities in which we live and work through a variety of initiatives including cash grants to nonprofits, product donations to communities in need and employee volunteerism. We:

- Continued our foundation giving through **grants totaling \$7.4 million** to global nonprofit organizations.
- Continued to grow our Solutions for Life, one of our key initiatives, that looks to conserve water and provide education around healthy hygiene around the world through nonprofit partnerships, global philanthropy and employee volunteerism. Since 2014, we've donated **more than \$7.4 million** to global organizations and **positively impacted water projects** in locations that include Brazil, China, Mexico and the United States.
- Donated **more than \$6.6 million worth of products** that weighed more than 1.5 million pounds during numerous disasters throughout the year.

DOING BUSINESS THE RIGHT WAY

We lead with our values and are driven to uphold ethical, inclusive and responsible policies and practices wherever we operate. Our values and commitment to integrity are why we're trusted by our customers, our partners and our communities. Ecolab is managed under the direction of our 13-person board of directors, comprised of 38.5 percent women and 15.4 percent people of color, and we have transparent disclosure of our corporate governance practices.

The company also has formal policies and procedures in place to ensure we uphold the highest legal and ethical standards, regardless of when and where we conduct our business. The Ecolab Code of Conduct is a guide to the principles and ethics that the company expects all employees to adhere to when making decisions and acting on its behalf. More than a policy, the Code of Conduct serves as the foundation of our success. The values reflected in the Code of Conduct help us continue to succeed in an increasingly competitive global marketplace.



Offering more products and services focused on sustainable practices and reporting

Aimbridge

As a leading, global hospitality management company, Aimbridge Hospitality drives efficiencies and profitability at hotels and resorts with top lodging brands. In alignment with its operations' offerings, Aimbridge Hospitality is dedicated to driving a collaborative, sustainable and social impact journey for its hospitality partners and stakeholders. Its work provides products, services and solutions that address environmental, social and governance challenges meaningful to its business, associates, guests, partners and communities.

As part of this commitment, Aimbridge Hospitality incorporates the sustainability principles of the American Hotel & Lodging Association's Responsible Stay initiative across its business functions. Aimbridge Hospitality focuses on offering enhanced data and analytics tools and reports that enable hotel owners to track and communicate key sustainability metrics.

ACTIONS

As Aimbridge Hospitality fosters partnerships with strategic suppliers to offer more products and services focused on sustainable practices and reporting. In collaboration with Ecolab, Aimbridge Hospitality employs a range of solutions to help reduce the environmental footprint of its partners:

- ✕ **Aquanomic™ Low Temp Laundry Program** yields consistently white linens and significant water and energy savings over traditional laundry programs.
- ✕ **SMARTPOWER™ program** delivers superior dishware cleanliness alongside environmental benefits achieved, in part, through reduced wash times and reduction of plastic packaging.
- ✕ Through remote monitoring and smart sensors, **3D TRASAR® Technology** protects critical assets and maximizes cooling water efficiency for water, energy and emissions savings.
- ✕ Aimbridge Hospitality helped partners achieve water energy emissions and waste reductions while improving productivity with **Sanitizing Wash 'n Walk™** and **Oasis Pro™**.



eROISM
by Ecolab

ANNUAL SAVINGS



209 million gallons
(~791,000 m³) of water



130 billion BTU



590,000 pounds
of reduced plastic packaging waste



9,600 metric tons
of CO₂e



126,000 hours
of labor gained by reduced rewash
and faster cleaning processes

\$10.2M

**ESTIMATED TOTAL
VALUE DELIVERED**



Helping to operate restaurants safely and in an environmentally and socially responsible way



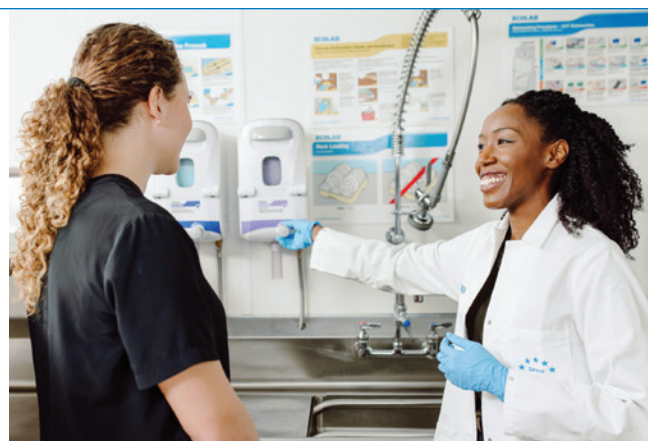
Dine Brands Global is one of the largest full-service restaurant companies in the world. Through its subsidiaries, it franchises restaurants under the Applebee's Neighborhood Grill + Bar®, IHOP® and Fuzzy's Taco Shop® brands.

Dine Brands prioritizes partners who share a focus on environmentally conscious operations, quality products and employee and food safety. To that end, it seeks ways to enhance safety and reduce its environmental impact. Dine Brands partnered with Ecolab to optimize its product portfolio to help reduce water, energy and waste while enhancing employee safety and achieving operational savings.

ACTIONS

- ✕ Adopting Ecolab's **SMARTPOWER™ program**, a dishwashing program that combines innovative chemistry with actionable insights designed to deliver clean dishes and glassware while reducing water, energy and costs. SMARTPOWER technology reduces plastic use by up to 99 percent compared to traditional packaging by replacing five-gallon plastic pails with shrink-wrapped blocks. The program also drives safety through a safe-to-touch, spill-proof technology.
- ✕ Moving to concentrated liquids through the **Oasis** and **Oasis Pro™** program, which can reduce packaging waste by up to 80 percent as compared to traditional containers. The Oasis line also enhances employee safety with an easy-to-use design.
- ✕ Changing to **Solid Power™ XL**, a dishwashing detergent that provides 50 percent more washes per capsule, reducing packaging waste by 33 percent compared to traditional solutions. Solid Power XL also incorporates 40 percent post-consumer resin into its packaging design.
- ✕ Boosting productivity by adopting a one-step floor cleaning and sanitizing process via **Sanitizing Wash 'n Walk™**, a no-rinse solution.

*For participating franchised restaurants



eROISM
by Ecolab

ANNUAL SAVINGS



8.6 million gallons
(~32,500 m³) of water



14.6 billion BTU



387,000 pounds
of reduced waste



780 metric tons
of CO₂e



137,000 hours
of labor gained by reduced rewash
and avoided chemistry handling

\$1.5M

**ESTIMATED TOTAL
VALUE DELIVERED***

**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, 2023

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 2.625% Euro Notes due 2025	ECL ECL 25	New York Stock Exchange 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 ☒
Non-accelerated filer ☐

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. ☒

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

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

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

Aggregate market value of voting and non-voting common equity held by non-affiliates of registrant on June 30, 2023, the last business day of the Registrant's most recently completed second fiscal quarter: \$53,175,318,295 (see Item 12, under Part III hereof), based on a closing price of registrant's Common Stock of \$186.69 per share.

The number of shares of registrant's Common Stock, par value \$1.00 per share, outstanding as of January 31, 2024: 285,513,155 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the Annual Meeting of Stockholders to be held May 2, 2024, and to be filed within 120 days after the registrant's fiscal year ended December 31, 2023 (hereinafter referred to as "Proxy Statement"), are incorporated by reference into Part III.

ECOLAB INC.
FORM 10-K
For the Year Ended December 31, 2023

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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 December 1, 2021, we 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.

Narrative Description of Business.

General

A trusted partner for millions of customers, we are a global sustainability leader offering water, hygiene and infection prevention solutions and services that protect people and the resources vital to life. Building on a century of innovation, we have annual sales of \$15 billion, employ more than 48,000 associates and sell to customers in more than 170 countries around the world. We deliver comprehensive science-based solutions, data-driven insights and world-class service to advance food safety, maintain clean and safe environments, and optimize water and energy use. Our innovative solutions improve operational efficiencies and sustainability for customers in the food, healthcare, life sciences, hospitality and industrial markets.

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 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 2022, we helped our customers conserve more than 219 billion gallons of water and avoid more than 3.6 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, 2023, which are located in Item 8 of Part II of this Form 10-K. Operating segments that share similar economic characteristics and future prospects, including the 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 useful in understanding our consolidated results.

Global Industrial

This reportable segment consists of the Water, Food & Beverage 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 three 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, mining and petroleum refining and fuels industry.

Water provides water treatment products and technology programs for cooling water, wastewater, boiler water and process water applications. In addition to these solutions, we offer specialty programs to the petroleum and fuels industry – refining process applications, fuels and feedstocks additives. 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, anti-foamers, hydrogen sulfide removal, cold flow improvers, lubricity inhibitors, crude desalting and reactive monomer inhibitors, as well as our 3D TRASAR™ technologies, which combine 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 and petroleum refining industries.

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.

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 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. QSR's program also includes a lease program comprised of energy-efficient dishwashing machines, detergents, rinse additives and sanitizers, including full machine maintenance. 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.

Food Safety Solutions supplies a digital platform that combines software, hardware and multiple services to automate kitchen procedures for efficiency and compliance. It also offers a unique variety of products, tools and equipment for food preparation, food rotation labeling, temperature management, cleaning and employee safety across all food service 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, prevent, and eliminate pests such as rodents and insects in full-service and quick-service restaurants, food and beverage processors, hotels, grocery operations and other commercial segments including education, life sciences and healthcare.

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

We believe Pest Elimination is a leading service provider of effective, high-quality pest elimination programs that deliver high quality outcomes to commercial segments 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 believe 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. The 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 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 2023, 2022 or 2021, 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 12%, 12%, and 10% of consolidated net sales in 2023, 2022 and 2021, respectively.

Human Capital

As of December 31, 2023, Ecolab employed approximately 48,000 employees, including approximately 26,000 sales and service and 1,100 research, development, and engineering employees. Approximately 42% of the employees are employed in North America, 20% in Europe, 7% in Asia Pacific, 17% in Latin America, 7% in India, Middle East and Africa, and 7% in Greater China.

We believe that doing the right thing, the right way, is good for business. We believe that driving performance and growing fast, we can deliver a net positive impact in our own operations and what we deliver for our customers. We are committed to developing a culture that is diverse, equitable, inclusive, and leverages our employees' talents as we work together to serve the needs of our customers. We believe that our culture is more creative and helps deliver the innovation needed to grow our business. We believe in providing training and career development opportunities to all employees and in compensating and rewarding our employees equitably.

Our commitment to the safety of our employees, contractors, and customers is evident in the way we operate, the products we develop, and 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 strong 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 our people processes, including in the areas of recruitment, retention, and development. To help guide our work and support our broad commitment to progress, Ecolab has a Diversity Council made up of senior leaders throughout our company and chaired by our CEO. We review with the Council, senior executives and business leads key metrics and practices, including diverse representation of backgrounds and experiences, along with many aspects of our recruiting and retention practices. These programs are designed to facilitate equitable employment opportunities, while promoting an inclusive workforce.

We also have a vibrant and growing community of 11 Employee Resource Groups ("ERGs") that are open to all, 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 on several dimensions of diversity, including gender, race/ethnicity, gender identity, sexual orientation, ability/disability, military service, generational, global, and career skill development. All employees are welcome and encouraged to join, participate, or become leaders and allies within any of our ERGs.

Employee Training and Development: Ecolab's growth has been characterized by a century of supporting customers by combining science, technology and innovation with the expertise of our associates. Beyond rigorous technical, functional, and business-specific training courses, our Global Corporate Flagship Development Programs for supervisors, managers and leaders are designed to deepen leadership capability and prepare potential successors for key leadership roles.

Compensation and Benefits: Ecolab has a market-competitive and performance-based pay philosophy, and we believe in compensating our employees fairly and equitably. We are committed to rewarding and recognizing employees for their contributions to the success of the organization. This includes our global merit increase program and our short- and long-term variable pay programs, which include goals and targets that are tied to the success of the business. We test our pay and wage data against compensation surveys to align our pay with the competitive external market. In the U.S., we conduct pay equity studies, and we are in the process of expanding pay equity studies outside the U.S.

Ecolab also provides market-competitive benefits based on country-specific needs and government requirements. While our benefits packages vary by market, they are designed to attract top talent and build long-term connections with our associates. Aligned to the applicable market and local regulations, elements of our benefits programs may include medical and dental insurance, retirement savings, employee stock purchase plan, paid time off, parental leave and adoption assistance, life and disability insurance, and employee assistance plans.

Safety, Health, and Wellness: At Ecolab, the safety of our employees and contractors is a 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 robust 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. Wellness initiatives are also underway outside the U.S. aligned to country-specific needs and market practices.

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 invested, and plan to continue to invest, 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 approximately 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. When practical, global sourcing is used so that purchasing or production locations can be shifted to control product costs.

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 2023, 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, per- and polyfluoroalkyl substances ("PFAS") 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 ("LCSCA") in 2016. The LCSCA modernizes the original 1976 legislation, aiming to establish greater public confidence in the safety of chemical substances in commerce and improve the U.S. Environmental Protection Agency's ("EPA") capability and authority to regulate existing and new chemical substances. For Ecolab, the TSCA changes mainly impact testing and submission costs for new and existing chemical substances in the United States. As a result of reform and administration changes, EPA reviews are resulting in the majority of new substances being regulated in some manner by the agency. Compliance with new requirements under TSCA are 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, India, Chile and Colombia and other countries have implemented or are implementing similar requirements. In addition, the European Green Deal will include the revision of chemical

management regulation to achieve a circular economy and toxic-free environment (Chemical Strategy for Sustainability) which may impact sales in Ecolab's raw material portfolio. 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"). As of 2023, most countries in which we operate have adopted or are expected to adopt GHS-related legislation. 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, including Advanced Pharmaceutical Ingredients ("API"), excipients and resins for biopharmaceutical processing. 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/EEC, Medical Device Regulation (EU) 2017/745 ("MDR"), and ISO 13485). We have CE mark approval to sell various medical device and medicinal products in Europe. Implementation of the MDR will require additional certifications and investments, including system, product and process upgrades. 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 \$46 million in 2023, \$35 million in 2022 and \$28 million in 2021. Approximately \$51 million has been budgeted globally for projects in 2024.

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. These include regulations passed by the State of California in 2023 relating to GHG emissions, climate-related risk, and emissions reduction claims, proposed regulations introduced by the SEC in March 2022 relating to climate change disclosure, and the European Commission's Corporate Sustainability Reporting Directive, which came into force on January 2024 and applies to both EU and certain non-EU companies with a phased introduction. We are or may become subject to many of these laws. We continue to monitor the development and implementation of such laws and regulations, and are preemptively evaluating and, where appropriate, including reporting and disclosure obligations.

Ecolab recognizes that climate change poses potential risks to and creates potential opportunities for our organization. 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 on our website. Ecolab continues to focus on climate-related risks since our first TCFD-aligned climate risk assessment conducted in 2021 – we plan to regularly review the results of our analysis and consider adaptation and management plans for any relevant climate change risks and to further benefit from identified opportunities for customer impact. Ecolab also evaluates potential water-related risks in our direct operations that may be exacerbated by climate change and discloses the results in our Corporate Responsibility Report. We plan to explore additional analyses of potential nature-related risks that may link to climate- and water-related risks in the future, aligned with the emerging recommendations of the Task Force on Nature-Related Financial Disclosures ("TNFD").

As a matter of corporate policy, we support a balanced approach to reducing GHG emissions while sustaining economic growth. To further our climate commitment, in 2019 we announced new goals to reduce our operational GHG emissions by half by 2030 and achieve net zero by 2050, in alignment with the United Nations Global Compact's Business Ambition for 1.5°C. In 2020, we further committed to attempt to move to 100% renewable energy by 2030 and set a science-based target ("SBT") addressing our Scope 1, 2 and 3 GHG emissions, and in 2022 we committed to submitting our net zero target to the Science Based Targets initiative ("SBTi") for formal validation. With the increasing complexity of supply chain emissions, in 2023 we decided to develop a revised Scope 3 target that prioritizes absolute emissions reduction. We plan to continue our supplier engagement practices to advance climate action outside of our operations. We submitted our new Scope 3 target along with our net zero target in early 2024 for validation by the SBTi. Our near-term SBT continues to target reduction of absolute Scope 1 and 2 emissions by 50% by 2030 from a 2018 base year and we report our progress in our annual Corporate Responsibility Report.

In 2022, we invested \$65 million in capital and \$6 million in operating expenses to implement continuous improvement projects positively impacting our environmental performance. In 2022, we completed process improvement projects that reduced total energy consumption by almost 21.4 billion BTUs, emissions by 11,000 metric tons CO₂e and 12.7 million gallons (~48,000 cubic meters) of water savings. The reduction in energy consumption is calculated using a combination of direct measurements and estimations using best-practice methodologies. The scope of reduction in GHG emissions consumption data is an estimated annual impact and includes both Scope 1 and 2 emissions. Water data from meter readings and utilities reports is used to quantify the water savings with 2018 as our baseline year.

In addition to managing our operational and supply chain sustainability performance, we help our customers in more than 170 countries to reduce their 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 planned 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.

The science of sustainability is an evolving one. For a discussion of the factors that may cause our sustainability initiatives, goals and targets to differ from those expressed above, see Item 1A of this Form 10-K, entitled "Risk Factors."

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 16 sites in the United States. Additionally, we have similar liability at six 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 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.

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.

Our worldwide net expenditures for contamination remediation were approximately \$0.3 million in 2023, \$1.4 million in 2022 and \$0.5 million in 2021. Our worldwide accruals at December 31, 2023 for probable future remediation expenditures, excluding potential insurance reimbursements, totaled approximately \$9.3 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, 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, 2019
Nicholas J. Alfano	62	Executive Vice President and President – Global Industrial Group Executive Vice President and General Manager – Global Light Sector Executive Vice President and General Manager – Global Food & Beverage	Apr. 2023 – Present Jan. 2021 – Mar. 2023 Jan. 2019 – Dec. 2020
Christophe Beck	56	Chairman and Chief Executive Officer Chairman, Chief Executive Officer and President President and Chief Executive Officer President and Chief Operating Officer Executive Vice President and President – Industrial	Oct. 2022 – Present May 2022 – Oct. 2022 Jan. 2021 – May 2022 Apr. 2019 – Dec. 2020 Jan. 2019 – Mar. 2019
Larry L. Berger	63	Executive Vice President and Chief Technical Officer	Jan. 2019 – Present
Jennifer J. Bradway	47	Senior Vice President and Corporate Controller Senior Vice President Finance - Global Institutional Vice President Finance - Institutional North America	Jan. 2022 – Present Jan. 2020 – Dec. 2021 Jan. 2019 – Dec. 2019
Darrell R. Brown	60	President and Chief Operating Officer Executive Vice President and President – Global Industrial Executive Vice President and President – Energy Services	Oct. 2022 – Present Apr. 2019 – Sept. 2022 Jan. 2019 – Mar. 2019
Angela M. Busch	57	Executive Vice President – Corporate Strategy & Business Development	Jan. 2019 – Present
Gregory B. Cook	55	Executive Vice President and President – Institutional Group Executive Vice President and General Manager – Global Institutional Senior Vice President and General Manager – Global Pest Senior Vice President and General Manager – Institutional Latin America	Aug. 2023 – Present June 2021 – July 2023 Jan. 2020 – May 2021 Jan. 2019 – Dec. 2019
Alexander A. De Boo	56	Executive Vice President and President – Global Markets Executive Vice President and President – Western Europe Senior Vice President and General Manager – Industrial, Europe	Feb. 2021 – Present Apr. 2020 – Jan. 2021 Jan. 2019 – Apr. 2020
Machiel Duijser (1)	52	Executive Vice President and Chief Supply Chain Officer	Feb. 2020 – Present
Nicolas A. Granucci	49	Executive Vice President and President - Global Pest Senior Vice President and General Manager – Global Pest Senior Vice President and General Manager – Institutional & Specialty Greater China	Aug. 2023 – Present June 2021 – July 2023 Jan. 2019 – May 2021
Scott D. Kirkland	50	Chief Financial Officer Senior Vice President and Corporate Controller Senior Vice President – Finance, Global Energy Services	Jan. 2022 – Present June 2019 – Dec. 2021 Jan. 2019 – May 2019
Laurie M. Marsh	60	Executive Vice President – Human Resources	Jan. 2019 – Present
Lanesha T. Minnix (2)	48	Executive Vice President, General Counsel and Secretary	June 2022 – Present
Gail Peterson	45	Executive Vice President – Global Marketing & Communications Senior Vice President – Global Marketing & Communications Vice President – Marketing Global Healthcare	Apr. 2022 – Present Jan. 2021 – Mar. 2022 Jan. 2019 – Dec. 2020
Gergely Sved	50	Executive Vice President and President – Global Healthcare and Life Sciences Senior Vice President and General Manager - Global Healthcare	Apr. 2022 – Present Jan. 2019 – Mar. 2022

(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 from 2018 until 2020.

(2) Prior to joining Ecolab in June 2022, Ms. Minnix was employed by Flowserve Corporation, a global industrial manufacturer of engineered flow control systems, as Senior Vice President, Chief Legal Officer and Corporate Secretary from 2018 until 2022.

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 economic and political environment
- 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 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, unrecognized tax benefits, permanent reinvestment assertions and goodwill deductibility
- recognition of share-based compensation expense
- payments under operating leases
- future benefit plan payments
- market position

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.

Forward-looking and other statements in this document may also address our sustainability initiatives, goals, targets and progress, and the inclusion of such statements is not an indication that these contents are necessarily material to investors or required to be disclosed in our filings with the SEC. In addition, historical, current, and forward-looking sustainability-related statements may be based on standards for measuring progress that are still developing, internal controls and processes that continue to evolve, and assumptions that are subject to change in the future and performance against our goals and targets may differ from such forward-looking statements in such event.

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

Our results are impacted by general worldwide economic factors.

Over the past year, global interest rates aimed at curbing inflation, as well as implications of geopolitical situations in Europe, the Middle East and China, have resulted in economic and demand uncertainty. Previously, the COVID pandemic, geopolitical instability and other global events have resulted in supply chain challenges, inflation, high interest rates, foreign currency exchange volatility, and volatility in global capital markets, which have affected our business and could have a material adverse impact on our business in the future. Countries such as Argentina and Turkey have experienced economic upheaval and similar upheaval in other countries with Ecolab operations could 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.

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 customers, and we may find it difficult to restore margins by maintaining pricing due to easing inflation from slowing economic growth. Recently, the war and energy crisis in Europe have resulted in a more challenging macroeconomic environment with significantly impacted costs and demand. Previously, the COVID-19 pandemic negatively impacted the demand for our products and services provided to customers in the full-service restaurant, hospitality, lodging and entertainment industries. In prior years, a weaker global economic environment has also negatively impacted certain of our other 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 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 more than 170 countries and, in 2023, approximately 47% 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;
- 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, including the Russian invasion of Ukraine, the Israel-Hamas conflict and other hostilities in the Middle East; and
- countries whose governments have been hostile to U.S.-based businesses.

Following Russia's invasion of Ukraine and the United States' and other countries' sanctions against Russia, we have limited our Russian business to operations that are essential to life, providing minimal support for our healthcare, life sciences, food and beverage and certain water businesses, and we may further narrow our presence in Russia depending on developments in the conflict or otherwise. While our operations in Russia and areas experiencing conflict are not material to our business and financial results, the escalation of these conflicts may also heighten many other risks disclosed in our report on Form 10-K, any of which could materially and adversely affect our business and financial results. Such risks include, but are not limited to, adverse effects on macroeconomic conditions, including increased inflation, constraints on the availability of commodities, supply chain disruption and decreased business spending; disruptions to our or our business partners' global technology infrastructure, including through cyber-attack or cyber-intrusion; adverse changes in international trade policies and relations; claims, litigation and regulatory enforcement; our ability to implement and execute

our business strategy; terrorist activities; our exposure to foreign currency fluctuations; reputational risk; and constraints, volatility, or disruption in the capital markets.

Additionally, 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 CHIPS and Science Act of 2022 with objectives including countering China's technical ambitions was signed into law in August 2022. Any new tariffs or policies 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.

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.

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.

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.

We may experience business disruption if we fail to execute organizational change and management transitions.

Our continued success will depend 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. Our operations could be materially and adversely affected if for any reason we are unable to successfully execute organizational change and management transitions at leadership levels.

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 and those of strategic vendors 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 or to the systems of strategic vendors pose a risk that sensitive data may be exposed to unauthorized persons or to the public. Geopolitical tensions or conflicts, such as Russia's invasion of Ukraine, may further heighten the risk of cybersecurity attacks. While we have continually matured our security program and capabilities and have had no material incidents to date, cyber threats continue to evolve and there can be no assurance that our efforts will prevent cybersecurity attacks or breaches in our systems or in the systems of strategic vendors, including cloud providers, 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 materially adversely affect our business, including our business strategy, results of operations, or financial condition. 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.

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.

Severe public health outbreaks not limited to COVID-19 may adversely impact our business.

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. 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.

Strategic Risks

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

We seek to acquire complementary businesses as part of our long-term strategy. There can be no assurance that we will find attractive acquisition candidates or succeed at effectively managing the integration of acquired businesses, including Purolite, which operates in the highly regulated life sciences, pharma and biopharma industries and has extensive international operations which complicate integration execution. 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.

If we are unsuccessful in executing on key business initiatives, our business could be materially and adversely affected.

We continue to execute key business initiatives as part of our ongoing efforts to improve our efficiency and returns. In particular, we are making supply chain investments to secure supply and add new capacity in our Life Sciences business. 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. We are also undertaking the Combined Program focused on optimizing the cost structure of our business in Europe and our Institutional and Healthcare businesses, which is discussed along with other restructuring activities under Note 3 of this Form 10-K. 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, including in the area of artificial intelligence, 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.

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. Furthermore, increasing public and governmental awareness and concern regarding the effects of climate change has led to significant legislative and regulatory efforts to limit greenhouse gas emissions and will likely result in further environmental and climate change laws and regulations. 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, including the effects of climate change, 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 Water operating segment. 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.

Our commitments, goals, targets, objectives and initiatives related to sustainability, and our public statements and disclosures regarding them, expose us to numerous risks.

We have developed, and will continue to establish, goals, targets, and other objectives related to sustainability matters, including our sustainability goals in alignment with the United Nations Global Compact's Business Ambition for 1.5°C and our commitments to science-based targets addressing Scope 1, 2 and 3 GHG emissions, discussed in Item 1 of Part I of this Form 10-K, entitled "Business."

Achieving these goals and commitments will require evolving our business, capital investment and the development of technology that might not currently exist. We might incur additional expense or be required to recognize impairment charges in connection with our efforts. These commitments, goals, targets and other objectives reflect our current plans and there is no guarantee that they will be achieved. Our efforts to research, establish, accomplish, and accurately report on these commitments, goals, targets, and objectives expose us to operational, reputational, financial, legal, and other risks. Our ability to achieve any stated commitment, goal, target, or objective is subject to factors and conditions, many of which are outside of our control, including the pace of changes in technology, the availability of requisite financing, and the availability of suppliers that can meet our sustainability and other standards.

Our business may face increased scrutiny from the investment community, other stakeholders, regulators, and the media related to our sustainability activities, including our commitments, goals, targets, and objectives, and our methodologies and timelines for pursuing them. If our sustainability practices do not meet investor or other stakeholder expectations and standards, which continue to evolve, our reputation, our ability to attract or retain employees, and our attractiveness as an investment, business partner, or as an acquirer could be negatively impacted. Similarly, our failure or perceived failure to pursue or fulfill our commitments, goals, targets, and objectives, to comply with ethical, environmental, or other standards, regulations, or expectations, or to satisfy reporting standards with respect to these matters, within the timelines we announce, or at all, could have operational, reputational, financial and legal impacts.

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. We are also impacted by actions taken 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. In particular, the OECD is coordinating negotiations among more than 140 jurisdictions with the goal of achieving consensus on various substantial changes to the international tax framework, including a 15% global minimum taxation regime ("Pillar Two"). Pillar Two takes effect in several jurisdictions in which we operate starting in 2024 and will increase the burden and costs of our tax compliance. The company continues to monitor these legislative developments, but based on information available does not anticipate material impacts to the 2024 financial statements. 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, 2023, we had approximately \$8.2 billion in outstanding indebtedness, with approximately \$1.5 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, 2023 would increase future interest expense by approximately \$15 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 and Purolite transactions 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, 2023, 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 and Purolite transactions 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 1C. Cybersecurity.

Since 2014, when the Ecolab Cybersecurity program was established, we have continuously matured our cybersecurity program to proactively address evolving cybersecurity trends and risks. Ecolab has an Information Security Steering Committee ("ISSC"), a cross-functional team chaired by our Chief Information Security Officer ("CISO") that is described more fully below.

Senior management provides in-depth reviews of cybersecurity matters to the Board and the Audit Committee. Cybersecurity is also considered in the annual enterprise risk assessment presented to the Board by management as part of the Board's oversight of our enterprise risk management ("ERM") program.

Ecolab's cybersecurity policies, standards, processes, and practices are integrated into our ERM program and are based on recognized frameworks established by the National Institute of Standards and Technology ("NIST") Cybersecurity Framework ("CSF"), the International Organization for Standardization and other applicable industry standards. We are formally assessed by an independent third party against NIST CSF and industry standards, including peer benchmarking.

Risk Management and Strategy

Cybersecurity presents strategic and operating risks and is an area of continued focus for our Board and management under its ERM program. Ecolab's cybersecurity program addresses the following key areas:

- **Governance:** As discussed in more detail under the heading "Cybersecurity Governance," the Audit Committee and the Board of Directors provide oversight of cybersecurity risk management.

- **Technical Safeguards:** We have implemented multi-layer controls designed to protect our information systems from cybersecurity threats, including general, backup, recovery, resiliency, processing, access, change and risk controls. These controls are evaluated by Ecolab's cybersecurity team and enhanced through controls audits and assessments, internal testing, and third-party cybersecurity threat intelligence.
- **Incident Response and Recovery Planning:** We have established and maintain comprehensive cybersecurity incident response and recovery plans that coordinate multidisciplinary internal teams and cybersecurity partners to assess, triage, escalate, contain, mitigate, investigate, remediate, and recover from a potential cybersecurity incident. Through ongoing communications with these teams, management monitors the incidents and reports incidents to the Audit Committee when appropriate. Management is responsible for timely disclosure of cybersecurity incidents as required by law.
- **Third-Party Risk Management:** We maintain a risk-based approach to identify, monitor, and manage third-party cybersecurity risks associated with our use of third-party service providers who have access to our systems, data or are critical to our continued business operations. Additionally, cybersecurity considerations affect the selection and oversight of our third-party service providers. We require certain third-party vendors to agree to manage their cybersecurity risks in specified ways, and to agree to be subject to cybersecurity audits, which we conduct as appropriate.
- **Education and Awareness:** We provide training for personnel regarding cybersecurity trends and threats to equip them with the knowledge to recognize and tools to report suspected cybersecurity threats. We also conduct simulations for employees and contractors to enhance awareness and responsiveness to such possible threats. In addition, we send global cybersecurity awareness communications to our personnel.
- **Assessment:** We engage in the periodic assessment, testing and updating of our policies, standards, processes, and practices that are designed to address cybersecurity threats and incidents. These efforts include a wide range of activities, including audits, assessments, tabletop exercises, threat modeling, vulnerability testing and other exercises focused on evaluating the effectiveness of our cybersecurity measures, and planning. We engage third parties to perform assessments on our cybersecurity measures, including information security maturity assessments, audits and independent reviews of our information security control environment and operating effectiveness. Additionally, we leverage third party cybersecurity rating agency data to inform our assessment of risk. The results of such assessments, audits and reviews are reported to the Audit Committee and the Board.

While we have continually matured our security program and capabilities and have had no material incidents to date, cyber threats continue to evolve and there can be no assurance that our efforts will prevent cybersecurity attacks or breaches in our systems such as those described in the risk factor entitled, "We are subject to information technology system failures, network disruptions and breaches in data security" under "Item 1A. Risk Factors" of this Form 10-K.

Cybersecurity Governance

Ecolab's ISSC, chaired by our CISO meets as needed. The Committee is comprised of executive leaders including the Chief Information Officer ("CIO"), Chief Digital Officer, Chief Operating Officer, Chief Financial Officer, Chief Technology Officer, the General Counsel, the Executive Vice Presidents of our commercial divisions, the Executive Vice President Global Supply Chain, the Executive Vice President Human Resources, the Vice President of Enterprise Business Solutions, and the Vice President Internal Audit.

The ISSC assists the CISO in fulfilling our responsibilities regarding our information security program to protect the confidentiality, integrity and availability of our information assets, financial assets, and information systems. ISSC responsibilities include, but are not limited to, evaluation of relevant information security risks, prioritization of information security initiatives, determination of, and advocacy for, appropriate investments, review of related legal and regulatory compliance initiatives, review of effective security communication initiatives, establishing specific requirements of the program in documented policies which all Ecolab associates, customers, and partners are obligated to follow, partner with Ecolab's business, functional and regional leaders to ensure effective, risk-based security controls and practices are in place to achieve the program's intent, and assist in monitoring the integrity and evaluating the effectiveness of the program.

The Board, in coordination with the Audit Committee, provides oversight of our ERM program, including the management of risks arising from cybersecurity threats. The Board and the Audit Committee each receive an overview from our CIO and CISO regarding our cybersecurity threat risk management and strategy processes. These reports cover a wide range of topics, and may include current and emerging cybersecurity threat risks, third-party assessments, risk-mitigation tactics and programs, information security considerations arising with respect to our peers and third parties, and our incident response plan.

Through a risk-based approach consistent with Ecolab's ERM framework, the CISO identifies cyber incidents that are brought forward to a cross-functional cyber-incident response team including our CEO, CFO, CIO, General Counsel, CISO and Executive Vice President Supply Chain. This cyber incident response team, or, in the event of more minor incidents, the CISO and her team, takes steps to promptly assess and address the incident, including engaging third parties according to pre-established guidelines. The Board and the Audit Committee also receive prompt and timely information regarding any cybersecurity incident that meets established reporting thresholds, including ongoing updates regarding any such incident until it has been addressed.

Ecolab's cybersecurity program is led by our CISO, who holds a CISO certification. She has been our CISO since 2020 and has more than 35 years of information systems experience in total.

Item 2. Properties.

We operate 32 manufacturing facilities in 14 states in the U.S. Internationally, we operate 68 manufacturing facilities in 38 countries. We own most of our manufacturing locations. 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. 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. Many of our properties are used by multiple segments.

Our manufacturing facilities produce chemical products as well as medical devices and equipment for all 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.

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 115-acre campus in Eagan, Minnesota that houses a significant research and development 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 Water operating segment leases administrative and research facilities in Houston, Texas. Our Purolite business maintains leased and owned facilities in the greater King of Prussia, PA area for administrative functions, and research and development.

Significant regional administrative and/or research facilities are located in Campinas, Brazil; Leiden, Netherlands, which we own; and in Bangalore, India; Dubai, UAE; Monheim, Germany; Pune, India; 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 15, "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, 2024, we had 4,797 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, 2023	1,352	(\$158.0400)	-	12,917,097
November 1-30, 2023	1,601	(174.2750)	-	12,917,097
December 1-31, 2023	7,821	(192.1285)	-	12,917,097
Total	10,774	(\$185.1978)	-	12,917,097

- (1) Includes 10,774 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 common shares. As announced on November 3, 2022, our Board of Directors authorized the repurchase of up to an additional 10,000,000 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

In December 2021, we 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 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. The 2021 impacts of the Purolite acquisition including operating results, acquisition-related amortization and interest expense related to the transaction were also excluded from 2021 adjusted results.

Impact of Acquisitions and Divestitures

Our non-GAAP financial measures for organic sales, organic operating income and organic operating income margin are at fixed currency and exclude the impact of special (gains) and charges, the results of our acquired businesses from the first twelve months post acquisition and the results of divested businesses from the twelve months prior to divestiture. As part of the separation of ChampionX in 2020, we entered into a Master Cross Supply and Product Transfer agreement with ChampionX to provide, receive or transfer certain products for a period of 36 months and for a small set of products with limited suppliers over the next few years. 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.

Comparability of Reportable Segments

Effective January 1, 2023, our former Downstream operating segment is now part of the Water operating segment. This change did not have any impact on the Global Industrial reportable segment.

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 2023, we delivered high single digit sales growth as we continued strong pricing. Our strong pricing offset continued delivered product cost increases. Our team generated double-digit sales growth in Institutional & Specialty, high single digit sales growth in Industrial, and Other segments while Healthcare and Life Sciences generated good sales growth. Operating income grew by strong double digits, as strong pricing and cost savings initiatives overcame investments in the business and higher supply chain costs.

Sales

Reported sales increased 8% to \$15.3 billion in 2023 from \$14.2 billion in 2022. When measured in fixed rates of foreign currency exchange, fixed currency sales increased 8% compared to the prior year. Organic sales increased 9% compared to the prior year.

Gross Margin

Our reported gross margin was 40.2% of sales for 2023, compared to our 2022 reported gross margin of 37.8%. Excluding the impact of special (gains) and charges included in cost of sales, our adjusted gross margin was 40.4% in 2023 and 38.2% in 2022. Our gross profit increased as our strong pricing exceeded delivered product cost inflation.

Operating Income

Reported operating income increased 28% to \$2.0 billion in 2023, compared to \$1.6 billion in 2022. Adjusted operating income, excluding the impact of special (gains) and charges increased 20% in 2023 as strong pricing overcame investments in the business including incentive compensation, unfavorable mix and higher supply chain costs. Organic operating income increased 20% in 2023.

Earnings from Continuing Operations Attributable to Ecolab Per Common Share ("EPS")

Reported diluted EPS increased 26% to \$4.79 in 2023 compared to \$3.81 in 2022. Special (gains) and charges had an impact on both years. Special (gains) and charges in 2023 were driven primarily by restructuring expense and 2022 was driven primarily by restructuring and pension settlement expense. Adjusted diluted EPS, which excludes the impact of special (gains) and charges and discrete tax items increased 16% to \$5.21 in 2023 compared to \$4.49 in 2022 as our strong operating income performance was partially offset by foreign currency translation and increases in interest expense.

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.

Cash Flow

Cash flow from operating activities was \$2.4 billion in 2023 compared to \$1.8 billion in 2022. 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

Dividends declared per common share in 2023 was \$2.16 per share. In December 2023 we increased our quarterly cash dividend by 8% to \$0.57 per share, representing our 32nd consecutive annual dividend rate increase. We have paid cash dividends on our common shares for 87 consecutive years. 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.

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 17.

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 15.

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 in their valuations and calculations. These assumptions affect the amount and timing of future pension contributions, benefit payments and expense or income recognized.

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

- 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 bonds that have an average rating of AA when averaging available Moody's Investor Services, Standard & Poor's and Fitch ratings. The discount rates are calculated by matching each plans' projected cash flows to the bond yield curve. For 2023 and 2022, 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 2023, our weighted-average discount rate decreased to 4.95% from 5.17% at year-end 2022. In determining our U.S. postretirement health care obligation for 2023, our weighted-average discount rate decreased to 4.95% from 5.14% at year-end 2022.
- 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 returns on U.S. plan assets used in determining the U.S. pension and U.S. postretirement health care expenses was 7.75% for 2023 and 7.00% for 2022 and 2021.
- Projected salary is 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 2023, 2022 and 2021.
- For postretirement benefit measurement purposes as of December 31, 2023, the annual rates of increase in the per capita cost of covered health care were assumed to be 7.46% for pre-65 costs. Post-65 costs are no longer used. The rates are assumed to decrease each year until they reach 4.5% in 2034 and remain at those levels thereafter.
- We use mortality tables appropriate in the circumstances, which generally are the recently available mortality tables as of the respective U.S. and international measurement dates. Our year-end U.S. valuations reflect mortality tables that estimate the impacts of COVID in an endemic state. This represents a change from prior year when the impact of COVID on future mortality could not be reasonably estimated.

The effects of actual results differing from our assumptions, as well as changes in assumptions, are reflected in the unrecognized gains or losses and amortized into earnings in the future. Significant differences in actual experience or significant changes in assumptions may materially affect future pension and other postretirement obligations and income or expense. The unrecognized net losses on our U.S. qualified and non-qualified pension plans increased to \$495 million as of December 31, 2023 from \$412 million as of December 31, 2022 (both before tax), primarily due to lower actual return on assets partially offset by 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, 2023, on the December 31, 2023 defined benefit obligation and 2024 expense is shown below, assuming no changes in benefit levels. Expense amounts reflect the accounting for gains or losses as a component of other comprehensive income or expense and recognition of the impacts into earnings over time:

	Effect on U.S. Pension Plans		
	Assumption Change	Increase in Recorded Obligation	Higher 2024 Expense
(millions)			
Discount rate	-.25 pts	\$37.7	\$2.9
Expected return on assets	-.25 pts	N/A	(4.7)

	Effect on U.S. Postretirement Health Care Benefits Plans		
	Assumption Change	Increase in Recorded Obligation	Higher 2024 Expense
(millions)			
Discount rate	-.25 pts	\$2.3	\$-
Expected return on assets	-.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 16 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 unrecognized tax benefits.

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 unrecognized tax benefits. 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 liabilities for unrecognized tax benefits 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.

Unrecognized Tax Benefits

A number of years may elapse before a particular tax matter, for which we have established a liability for unrecognized tax benefits, 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 through 2020 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 unrecognized tax benefits are appropriate and sufficient for the positions taken. Because of the uncertainty of the final outcome of these examinations, we have established a liability 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 unrecognized tax benefits 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 unrecognized tax benefits are presented in the Consolidated Balance Sheets within other non-current liabilities. Our gross liability for unrecognized tax benefits was \$24.2 million and \$24.9 million as of December 31, 2023 and 2022, respectively. For additional information on income taxes refer to Note 12.

Long-Lived Assets, Intangible Assets and Goodwill

Long-Lived and Amortizable Intangible Assets

Purchased long-lived and amortizable intangible assets not acquired as part of a business combination are recorded as of their acquisition date at cost, whereas long-lived and amortizable assets acquired as part of a business combination are recorded as of their acquisition date at their 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 \$6.3 billion as of December 31, 2023 and 2022, for impairment when significant events or changes in business circumstances indicate that the carrying amount 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, Laboratoires Anios ("Anios"), Copal Invest NV, including its primary operating entity CID Lines (collectively, "CID Lines") and Purolite transactions, which make up the majority of our unamortized customer relationships. Our historical retention rates, 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 impacts and significance 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 expense.

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

Goodwill arises from our acquisitions and represents the excess of the fair value of the purchase consideration exchanged over the fair value of net assets acquired. We had total goodwill of \$8.1 billion and \$8.0 billion as of December 31, 2023 and 2022, respectively. We test our goodwill for impairment at the reporting unit level. Our reporting units are our ten operating segments. We assess 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, we complete an interim goodwill impairment assessment of that reporting unit prior to the next annual assessment. If the results of an annual or interim goodwill impairment assessment demonstrate the carrying amount of a reporting unit is greater than its fair value, we 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.

For our annual 2023 goodwill impairment assessment, we completed our impairment assessment for our ten reporting units using discounted cash flow analyses that incorporated assumptions regarding future growth rates, terminal values and discount rates. Our goodwill impairment assessments for 2023 indicated the estimated fair values of each of these ten reporting units exceeded the carrying amounts of the respective reporting units by a significant margin. We evaluate the need to complete interim goodwill impairment 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. No events were noted during the second half of 2023 that required completion of an interim goodwill impairment assessment in the second half of 2023 for any of our ten 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, which is tested for impairment on an annual basis during the second quarter. For our annual 2023 indefinite life intangible asset impairment assessment, we completed our impairment assessment of the Nalco trade name using the relief from royalty discounted cash flow method, which incorporates assumptions regarding future sales projections, royalty rates and discount rates. Our Nalco tradename impairment assessment for 2023 indicated the estimated fair value of the Nalco trade name exceeded its \$1.2 billion carrying amount by a significant margin. No events were noted during the second half of 2023 that required completion of an interim impairment assessment of our Nalco trade name in the second half of 2023. There has been no impairment of the Nalco trade name intangible since it was acquired.

RESULTS OF OPERATIONS

Net Sales

		Percent Change			
(millions)	2023	2022	2021	2023	2022
Product and equipment sales	\$12,316.8	\$11,446.2	\$10,153.3		
Service and lease sales	3,003.4	2,741.6	2,579.8		
Reported GAAP net sales	15,320.2	14,187.8	12,733.1	8 %	11 %
2021 impact of Purolite on net sales	-	-	12.0		
Non-GAAP adjusted net sales	15,320.2	14,187.8	12,721.1	8 %	12 %
Effect of foreign currency translation	(44.8)	(94.4)	(566.9)		
Non-GAAP adjusted fixed currency sales	15,275.4	14,093.4	12,154.2	8 %	16 %
Effect of acquisitions and divestitures	(113.4)	(123.7)	*		
Non-GAAP organic sales	\$15,162.0	\$13,969.7	*	9 %	*

* Not meaningful

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

(percent)	2023	2022
Volume	- %	2 %
Price changes	8	10
Organic sales change	9	13
Acquisitions and divestitures	-	3
Fixed currency sales change	8	16
Foreign currency translation	-	(4)
Reported GAAP net sales change	8 %	11 %

Amounts do not necessarily sum due to rounding.

Cost of Sales (“COS”) and Gross Profit Margin (“Gross Margin”)

	2023		2022		2021	
(millions/percent)	COS	Gross Margin	COS	Gross Margin	COS	Gross Margin
Product and equipment cost of sales	\$7,389.2		\$7,212.8		\$6,100.9	
Service and lease cost of sales	1,765.7		1,618.2		1,514.9	
Reported GAAP COS and gross margin	9,154.9	40.2 %	8,831.0	37.8 %	7,615.8	40.2 %
Special (gains) and charges	22.5		69.9		93.9	
2021 impact of Purolite on COS	-		-		7.6	
Non-GAAP adjusted COS and gross margin	\$9,132.4	40.4 %	\$8,761.1	38.2 %	\$7,514.3	40.9 %

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%, 37.8%, and 40.2% for 2023, 2022 and 2021, respectively. Our 2023, 2022 and 2021 reported gross margins were negatively impacted by special (gains) and charges of \$22.5 million, \$69.9 million, and \$93.9 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, our 2023 adjusted gross margin was 40.4% compared against a 2022 adjusted gross margin of 38.2%. The increase primarily reflected accelerating pricing that overcame higher supply chain costs.

Excluding the impact of special (gains) and charges and the 2021 impacts of the Purolite transaction, our adjusted gross margin was 38.2% and 40.9% for 2022 and 2021, respectively. The decrease primarily reflected accelerating pricing that was more than offset by higher delivered product cost and unfavorable mix.

Selling, General and Administrative Expenses (“SG&A”)

(percent)
SG&A Ratio

2023	2022	2021
26.5 %	25.8 %	26.8 %

The increased SG&A ratio (SG&A expenses as a percentage of reported net sales) comparing 2023 against 2022 was driven by higher incentive compensation compared to last year which was partially offset by strong productivity including cost savings initiatives. The decreased SG&A ratio (SG&A expenses as a percentage of reported net sales) comparing 2022 against 2021 was driven primarily by strong productivity including cost savings initiatives, partially offset by higher cost of compensation compared to last year.

Special (Gains) and Charges

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

(millions)	2023	2022	2021
Cost of sales			
Restructuring activities	\$22.5	\$21.4	\$24.7
Acquisition and integration activities	-	25.0	4.2
Russia/Ukraine	-	7.2	-
Other	-	16.3	65.0
Cost of sales subtotal	22.5	69.9	93.9
Special (gains) and charges			
Restructuring activities	63.2	85.8	11.9
Acquisition and integration activities	16.1	14.5	29.9
Russia/Ukraine	1.4	5.9	-
Other	30.7	34.3	60.8
Special (gains) and charges subtotal	111.4	140.5	102.6
Operating income subtotal	133.9	210.4	196.5
Other (income) expense	-	50.6	37.2
Interest expense, net	-	-	33.1
Total special (gains) and charges	\$133.9	\$261.0	\$266.8

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 Combined Program which is 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.

Combined Program

In November 2022, we approved a Europe cost savings program. In connection with these actions, we expected to incur pre-tax charges of \$130 million (\$110 million after tax) or \$0.38 per diluted share. In February 2023, we expanded our previously announced Europe cost savings program to focus on its Institutional and Healthcare businesses in other regions. In connection with the expanded program (“Combined Program”), we expect to incur total pre-tax charges of \$195 million (\$150 million after tax) or \$0.52 per diluted share. We expect that these restructuring charges will be completed by the end of 2024. Program actions include headcount reductions from terminations, not filling certain open positions, and facility closures. The Combined Program charges are expected to be primarily cash expenditures related to severance and asset disposals.

In anticipation of this Combined Program, a limited number of actions were taken in the fourth quarter of 2022. As a result, we reclassified \$19.3 million (\$14.5 million after tax) or \$0.05 per diluted share from other restructuring to the Combined Program in the first quarter of 2023.

In 2023 and 2022 we recorded total Combined Program restructuring charges of \$77.7 million (\$66.4 million after tax) or \$0.23 per diluted share and \$67.2 million (\$56.0 million after tax) or \$0.20 per diluted share, respectively. We have recorded \$164.2 million (\$136.9 million after tax), or \$0.48 per diluted share of cumulative charges under the Combined Plan. The net liability related to the Combined Program was \$43.1 million and \$62.0 million as of December 31, 2023 and 2022, 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 Combined Program has delivered \$131 million of cumulative cost savings with estimated annualized cost savings of \$175 million in continuing operations by 2024.

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 2023, 2022 and 2021, we recorded total restructuring charges of \$8.0 million (\$6.0 million after tax) or \$0.03 per diluted share, \$6.3 million (\$4.8 million after tax) or \$0.02 per diluted share and \$12.6 million (\$10.2 million after tax) or \$0.04 per diluted share, respectively, primarily related to severance, disposals of equipment and office closures. The Restructuring activities were completed at the end of 2023, with total costs of \$62.1 million (\$47.4 million after tax), or \$0.17 per diluted share. Net cash payments were \$2.6 million and non-cash net charges were \$6.8 million in 2023. There was no remaining liability related to the Institutional Plan as of December 31, 2023. There was \$1.9 million of liability related to the Institutional Plan of December 31, 2022.

The Institutional Plan has delivered \$55 million of annual cost savings.

Accelerate 2020

During 2018, we formally commenced a restructuring plan Accelerate 2020 ("the A2020 Plan"), to leverage technology and system investments and organizational changes. The goals of the A2020 Plan were 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. We recorded restructuring charges of \$9.9 million (\$8.4 million after tax) or \$0.03 per diluted share and \$5.3 million (\$6.2 million after tax) or \$0.02 per diluted share in 2022 and 2021, respectively. The restructuring activities were completed at the end of 2022, with total costs of \$254.4 million (\$198.4 million after tax), or \$0.69 per diluted share.

Net cash payments were \$13.2 million during 2023. The liability related to the A2020 Plan was \$4.9 million and \$18.1 million as of December 31, 2023 and 2022, respectively. The remaining liability is expected to be paid over a period of a few months to several quarters which continue to be funded from operating activities.

The A2020 Plan has delivered \$315 million of annual cost savings.

Other Restructuring Activities

During 2022 and 2021, we incurred restructuring charges of \$23.8 million (\$17.9 million after tax), or \$0.06 per diluted share and \$18.7 million (\$17.0 million after tax), or \$0.06 per diluted share, respectively, related to other immaterial restructuring activity. The charges primarily related to severance and asset write-offs.

The restructuring liability balance for all other restructuring plans excluding the Combined Program, A2020 Plan and the Institutional Plan were \$3.3 million and \$23.2 million as of December 31, 2023 and 2022, respectively. The decrease in liability was driven primarily by the reclass of \$19.3 million from other restructuring to the Combined Program in the first quarter of 2023. 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 2023 related to all other restructuring plans excluding the Combined Program, A2020 and Institutional Plan were \$0.6 million.

Acquisition and integration related costs

Acquisition and integration related costs reported in special (gains) and charges on the Consolidated Statements of Income in 2023 include \$16.1 million (\$12.0 million after tax) or \$0.04 per diluted share. Charges are integration related costs primarily related to the Purolite Corporation ("Purolite") acquisition.

Acquisition and integration related costs reported in special (gains) and charges on the Consolidated Statements of Income in 2022 include \$14.5 million (\$11.4 million after tax) or \$0.04 per diluted share. Charges are related primarily to the Purolite acquisition and consist of integration related costs, advisory and legal fees. Acquisition and integration related costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2022 include \$25.0 million (\$19.6 million after tax) or \$0.07 per diluted share. Charges are related primarily to the recognition of fair value step-up in the Purolite inventory and other integration costs.

Acquisition and integration related 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 primarily related to the Purolite acquisition and consisted of deal costs, integration costs and advisory and legal fees. Acquisition and integration related 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.

Russia/Ukraine

In light of Russia's invasion of Ukraine and the sanctions against Russia by the United States and other countries, we have made the determination that we will limit our Russian business to operations that are essential to life, providing minimal support for our healthcare, life sciences, food and beverage and certain water businesses. We incurred charges of \$1.4 million (\$1.1 million after tax) or less than \$0.01 per diluted share and \$13.1 million (\$12.6 million after tax) or \$0.04 per diluted share during 2023 and 2022, respectively, primarily related to recoverability risk of certain assets in both Russia and Ukraine.

Other operating activities

Other operating activities recorded in cost of sales on the Consolidated Statements of Income of \$16.3 million (\$12.7 million after tax), or \$0.04 per diluted share in 2022, and \$65.0 million (\$49.2 million after tax), or \$0.17 per diluted share in 2021 relate primarily to COVID-19 activities.

Other operating activities recorded in special (gains) and charges on the Consolidated Statements of Income of \$30.7 million (\$23.3 million after tax), or \$0.08 per diluted share in 2023 relate primarily to certain legal charges. Other operating activities recorded in special (gains) and charges on the Consolidated Statements of Income of \$34.3 million (\$25.7 million after tax), or \$0.09 per diluted share in 2022 and \$60.8 million (\$46.4 million after tax), or \$0.16 per diluted share in 2021 relate primarily to COVID-19 activities and certain legal charges.

Other (income) expense

During 2022 and 2021, we incurred settlement expense recorded in other (income) expense on the Consolidated Statements of Income of \$50.6 million (\$38.2 million after tax) or \$0.13 per diluted share and \$37.2 million (\$28.7 million after tax) or \$0.10 per diluted share, respectively, related to U.S. pension plan lump-sum payments to retirees.

Interest expense, net

During 2021 we recorded special charges of \$32.3 million (\$28.4 million after tax) or \$0.10 per diluted share in interest expense on the Consolidated Statements of Income related to debt issuance and refinancing charges.

Operating Income and Operating Income Margin

	Percent Change				
(millions)	2023	2022	2021	2023	2022
Reported GAAP operating income	\$1,992.3	\$1,562.5	\$1,598.6	28 %	(2)%
Special (gains) and charges	133.9	210.4	196.5		
2021 impact of Purolite on operating income	-	-	3.8		
Non-GAAP adjusted operating income	2,126.2	1,772.9	1,798.9	20	(1)
Effect of foreign currency translation	(5.8)	(13.1)	(110.5)		
Non-GAAP adjusted fixed currency operating income	2,120.4	1,759.8	1,688.4		
Effect of acquisitions and divestitures	(2.9)	(0.4)	*		
Non-GAAP organic operating income	\$2,117.5	\$1,759.4	*	20 %	*

* Not meaningful

(percent)	2023	2022	2021
Reported GAAP operating income margin	13.0 %	11.0 %	12.6 %
Non-GAAP adjusted operating income margin	13.9 %	12.5 %	14.1 %
Non-GAAP adjusted fixed currency operating income margin	13.9 %	12.5 %	13.9 %
Non-GAAP organic operating income margin	14.0 %	12.6 %	*

* Not meaningful

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 was \$1,992.3 million, \$1,562.5 million and \$1,598.6 for 2023, 2022 and 2021, respectively. Our 2023, 2022 and 2021 operating incomes were negatively impacted by special (gains) and charges and the 2021 impact of Purolite on operating income of \$133.9 million, \$210.4 million, and \$200.3 million, respectively.

Excluding the impacts of special (gains) and charges 2023 adjusted operating income increased 20% as strong pricing overcame investments in the business including incentive compensation, higher supply chain costs and unfavorable mix. Excluding the impacts of special (gains) and the 2021 impact of Purolite on operating income 2022 adjusted operating income decreased 1% driven by accelerating pricing covering substantially higher delivered product costs, which was offset by investments in the business.

Other (Income) Expense

(millions)	2023	2022	2021
Reported GAAP other (income) expense	(\$59.9)	(\$24.5)	(\$33.9)
Special (gains) and charges	-	50.6	37.2
Non-GAAP adjusted other (income) expense	(\$59.9)	(\$75.1)	(\$71.1)

Our reported other income was \$59.9 million, \$24.5 million and \$33.9 million in 2023, 2022 and 2021, respectively. Other (income) expense increased when comparing 2023 against 2022 as higher pension costs were more than offset by the comparison to last year's \$50.6 million settlement expense related to U.S. pension plan lump-sum payments to retirees. Other (income) expense decreased when comparing 2022 against 2021 primarily due to increased pension settlement charges in 2022 as a result of a higher volume of pension settlement activity and higher interest costs associated with rising interest rates throughout 2022. Excluding the impact of settlements and curtailments recorded in special (gains) and charges during 2023, 2022 and 2021, our adjusted other income was \$59.9 million, \$75.1 million and \$71.1 million, respectively.

Interest Expense, Net

(millions)	2023	2022	2021
Reported GAAP interest expense, net	\$296.7	\$243.6	\$218.3
Special (gains) and charges	-	-	33.1
2021 impact of Purolite on interest expense	-	-	3.5
Non-GAAP adjusted interest expense, net	\$296.7	\$243.6	\$181.7

Our reported net interest expense totaled \$296.7 million, \$243.6 million and \$218.3 million during 2023, 2022 and 2021, respectively.

We incurred \$33.1 million (\$29.0 million after tax) or \$0.10 per diluted share of interest expense special charges in conjunction with our debt issuances and refinancing activities during 2021.

Adjusted for special (gains) and charges, the increase in interest expense when comparing 2023 against 2022 was driven primarily by the higher average interest rates on outstanding debt. Adjusted for special (gains) and charges, the increase in interest expense when comparing 2022 against 2021 was driven primarily by the interest on debt issued to fund the Purolite acquisition and the impact from higher average interest rates on floating rate debt.

Provision for Income Taxes

The following table provides a summary of our tax rate:

(percent)	2023	2022	2021
Reported GAAP tax rate	20.6 %	17.5 %	19.1 %
Tax rate impact of:			
Special (gains) and charges	(0.1)	0.5	0.1
Discrete tax items	(0.6)	0.7	(0.3)
Non-GAAP adjusted tax rate	19.9 %	18.7 %	18.9 %

Our reported tax rate was 20.6%, 17.5%, and 19.1%, for 2023, 2022 and 2021, 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 a net tax expense related to discrete tax items of \$11.2 million during 2023. The net discrete tax expense 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 laws, audit settlements, share-based compensation excess tax benefits and other changes in estimates.

We recognized a net tax benefit related to discrete tax items of \$11.8 million during 2022. This included a deferred tax benefit of \$14.6 million associated with utilization of tax attributes as a result of legal entity rationalization and share-based compensation excess tax benefits of \$6.0 million. The remaining discrete tax expense of \$8.8 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 laws, audit settlements and other changes in estimates.

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 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.

The change in our adjusted tax rates from 2022 to 2023 was primarily driven by 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 Attributable to Ecolab

	Percent Change				
(millions)	2023	2022	2021	2023	2022
Reported GAAP net income attributable to Ecolab	\$1,372.3	\$1,091.7	\$1,129.9	26 %	(3)%
Adjustments:					
Special (gains) and charges, after tax	109.2	207.3	213.5		
Discrete tax net (benefit) expense	11.2	(11.8)	5.8		
2021 impact of Purolite on net income	-	-	5.6		
Non-GAAP adjusted net income attributable to Ecolab	\$1,492.7	\$1,287.2	\$1,354.8	16 %	(5)%

Diluted EPS

	Percent Change				
(dollars)	2023	2022	2021	2023	2022
Reported GAAP diluted EPS	\$4.79	\$3.81	\$3.91	26 %	(3)%
Adjustments:					
Special (gains) and charges, after tax	0.38	0.72	0.74		
Discrete tax net (benefit) expense	0.04	(0.04)	0.02		
2021 impact of Purolite on diluted EPS	-	-	0.02		
Non-GAAP adjusted diluted EPS	\$5.21	\$4.49	\$4.69	16 %	(4)%

Per share amounts do not necessarily sum due to rounding.

Currency translation had an unfavorable \$(0.05) impact on reported and adjusted diluted EPS when comparing 2023 to 2022 and unfavorable \$(0.26) impact when comparing 2022 to 2021.

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 2023. 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 18.

Fixed currency net sales and operating income for 2023, 2022 and 2021 for our reportable segments are shown in the following tables.

Net Sales

Percent Change

(millions)	2023	2022	2021	2023	2022
Global Industrial	\$7,193.1	\$6,736.3	\$5,908.5	7 %	14 %
Global Institutional & Specialty	4,994.0	4,414.3	3,856.7	13	14
Global Healthcare & Life Sciences	1,576.9	1,505.8	1,101.1	5	37
Other	1,442.3	1,313.3	1,162.5	10	13
Corporate	69.1	123.7	137.4	(44)	(10)
Subtotal at fixed currency	15,275.4	14,093.4	12,166.2	8	16
Effect of foreign currency translation	44.8	94.4	566.9		
Consolidated reported GAAP net sales	\$15,320.2	\$14,187.8	\$12,733.1	8 %	11 %

Operating Income

Percent Change

(millions)	2023	2022	2021	2023	2022
Global Industrial	\$1,080.7	\$935.8	\$943.4	15 %	(1)%
Global Institutional & Specialty	823.0	621.7	536.7	32	16
Global Healthcare & Life Sciences	160.0	193.3	141.0	(17)	37
Other	255.0	209.9	181.3	21	16
Corporate	(331.7)	(414.4)	(314.3)	(20)	32
Subtotal at fixed currency	1,987.0	1,546.3	1,488.1	29	4
Effect of foreign currency translation	5.3	16.2	110.5		
Consolidated reported GAAP operating income	\$1,992.3	\$1,562.5	\$1,598.6	28 %	(2)%

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

Net Sales	Year ended December 31					
	2023			2022		
	Fixed Currency	Impact of Acquisitions and Divestitures	Organic	Fixed Currency	Impact of Acquisitions and Divestitures	Organic
(millions)						
Global Industrial	\$7,193.1	(\$4.5)	\$7,188.6	\$6,736.3	\$-	\$6,736.3
Global Institutional & Specialty	4,994.0	(39.8)	4,954.2	4,414.3	-	4,414.3
Global Healthcare & Life Sciences	1,576.9	-	1,576.9	1,505.8	-	1,505.8
Other	1,442.3	-	1,442.3	1,313.3	-	1,313.3
Corporate	69.1	(69.1)	-	123.7	(123.7)	-
Subtotal at fixed currency	15,275.4	(113.4)	15,162.0	14,093.4	(123.7)	13,969.7
Effect of foreign currency translation	44.8			94.4		
Consolidated reported GAAP net sales	\$15,320.2			\$14,187.8		

Operating Income

Operating Income	2023			2022		
	Fixed Currency	Impact of Acquisitions and Divestitures	Organic	Fixed Currency	Impact of Acquisitions and Divestitures	Organic
(millions)						
Global Industrial	\$1,080.7	\$0.2	\$1,080.9	\$935.8	\$-	\$935.8
Global Institutional & Specialty	823.0	(0.5)	822.5	621.7	-	621.7
Global Healthcare & Life Sciences	160.0	-	160.0	193.3	-	193.3
Other	255.0	-	255.0	209.9	-	209.9
Corporate	(198.3)	(2.6)	(200.9)	(200.9)	(0.4)	(201.3)
Non-GAAP adjusted fixed currency operating income	2,120.4	(2.9)	2,117.5	1,759.8	(0.4)	1,759.4
Special (gains) and charges	133.4			213.5		
Subtotal at fixed currency	1,987.0			1,546.3		
Effect of foreign currency translation	5.3			16.2		
Consolidated reported GAAP operating income	\$1,992.3			\$1,562.5		

Global Industrial

	2023	2022	2021
Sales at fixed currency (millions)	\$7,193.1	\$6,736.3	\$5,908.5
Sales at public currency (millions)	7,221.8	6,805.0	6,237.9
Volume	(2)%	1 %	
Price changes	9 %	13 %	
Organic sales change	7 %	14 %	
Acquisitions and divestitures	- %	- %	
Fixed currency sales change	7 %	14 %	
Foreign currency translation	(1)%	(5)%	
Public currency sales change	6 %	9 %	
Operating income at fixed currency (millions)	\$1,080.7	\$935.8	\$943.4
Operating income at public currency (millions)	1,084.7	950.0	1,019.5
Fixed currency operating income change	15 %	(1)%	
Fixed currency operating income margin	15.0 %	13.9 %	16.0 %
Organic operating income change	16 %	*	
Organic operating income margin	15.0 %	13.9 %	*
Public currency operating income change	14 %	(7)%	

* Not meaningful

Percentages in the above table do not necessarily sum due to rounding.

Net Sales

Organic sales for Global Industrial increased in 2023 driven by strong pricing and new business wins partially offset by weaker markets. The 2022 sales increase was impacted by as strong double-digit growth across all divisions was driven by accelerating pricing and new business wins.

At an operating segment level, **Water** organic sales increased 8% in 2023 driven by strong pricing and new business wins. Water organic sales increased 13% in 2022 driven by strong pricing and new business wins. Light industry reported good sales growth driven by strong performance across data centers, microelectronics and institutional. Heavy industry in 2023 reported good sales growth driven by strong pricing, gains in primary metals and growth in chemicals and strong sales in 2022 led by double-digit growth in power and chemicals. Downstream reported strong sales growth in 2023 driven by innovative water treatment programs. **Food & Beverage** organic sales increased 9% in 2023 reflecting continued pricing, strong performance in dairy, and solid growth in beverage & brewing and animal health. Organic increased 14% in 2022 primarily reflecting accelerating pricing. **Paper** organic sales decreased 1% in 2023 as pricing and new business wins were offset by easing customer production rates. Organic sales increased 16% in 2022 driven by accelerating pricing, new business wins and continued growth in ecommerce markets.

Operating Income

Organic operating income and organic operating income margins for Global Industrial increased in 2023 and decreased 2022 when compared to prior periods.

Organic operating income margins increased 1.1 percentage points during 2023 compared to 2022, as the 6.8 percentage point positive impacts of strong pricing overcame the 5.5 percentage point negative impacts of investments in the business including incentive compensation, lower volume, and higher supply chain costs. Organic operating income margins decreased in 2022 compared to 2021, as the positive impact from accelerating pricing was more than offset by the negative impacts of higher delivered product costs, unfavorable mix and investment in the business.

Global Institutional & Specialty

	2023	2022	2021
Sales at fixed currency (millions)	\$4,994.0	\$4,414.3	\$3,856.7
Sales at public currency (millions)	4,999.2	4,432.1	3,966.8
Volume	3 %	6 %	
Price changes	10 %	8 %	
Organic sales change	12 %	15 %	
Acquisitions and divestitures	1 %	- %	
Fixed currency sales change	13 %	14 %	
Foreign currency translation	- %	(3) %	
Public currency sales change	13 %	12 %	
Operating income at fixed currency (millions)	\$823.0	\$621.7	\$536.7
Operating income at public currency (millions)	823.4	624.3	550.6
Fixed currency operating income change	32 %	16 %	
Fixed currency operating income margin	16.5 %	14.1 %	13.9 %
Organic operating income change	32 %	*	
Organic operating income margin	16.6 %	14.1 %	*
Public currency operating income change	32 %	13 %	

* Not meaningful

Percentages in the above table do not necessarily sum due to rounding.

Net Sales

Organic sales for Global Institutional & Specialty increased in 2023 driven by strong pricing and new business wins. The 2022 sales increased driven by accelerating pricing and new business wins.

At an operating segment level, **Institutional** organic sales increased 12% in 2023, driven by strong pricing and new business wins. Organic sales increased 18% in 2022, driven by accelerating pricing and new business wins. **Specialty** organic sales increased 13% in 2023 driven by growth in quick service and food retail. Organic sales increased 7% in 2022 driven by strong quick service sales and modest growth in food retail sales.

Operating Income

Organic operating income for our Global Institutional & Specialty segment increased in both 2023 and 2022 when compared to prior periods. Organic operating income margins increased in 2023 but decreased 2022 when compared to prior periods.

Organic operating income margins increased 2.5 percentage points during 2023, as the 7.9 percentage point positive impacts from strong pricing and cost savings initiatives overcame the 4.9 percentage point negative impacts of investments in the business including incentive compensation and higher supply chain costs. Organic operating income margins increased during 2022, as the positive impact from accelerating pricing and volume growth overcame the negative impacts of higher delivered product costs and investments in the business.

Global Healthcare & Life Sciences

	2023	2022	2021
Sales at fixed currency (millions)	\$1,576.9	\$1,505.8	\$1,101.1
Sales at public currency (millions)	1,586.0	1,510.5	1,181.6
Volume	(1)%	(7)%	
Price changes	6 %	7 %	
Organic sales change	5 %	- %	
Acquisitions and divestitures	- %	37 %	
Fixed currency sales change	5 %	37 %	
Foreign currency translation	- %	(8)%	
Public currency sales change	5 %	(28)%	
Operating income at fixed currency (millions)	\$160.0	\$193.3	\$141.0
Operating income at public currency (millions)	161.5	193.5	158.1
Fixed currency operating income change	(17)%	37 %	
Fixed currency operating income margin	10.1 %	12.8 %	12.8 %
Organic operating income change	(17)%	*	
Organic operating income margin	10.1 %	12.8 %	*
Public currency operating income change	(17)%	22 %	

* Not meaningful

Percentages in the above table do not necessarily sum due to rounding.

Net Sales

Organic sales for Global Healthcare & Life Sciences increased in 2023 as compared to 2022 driven by strong pricing and new business wins.

At an operating segment level, **Healthcare** organic sales increased 7% in 2023 driven by pricing and strong growth in North America. Organic sales decreased 1% in 2022 reflecting lower procedural and hand hygiene volumes, partially offset by increased pricing. **Life Sciences** organic sales increased 1% 2023 as pricing was more than offset soft near-term industry demand. Organic sales increased 9% in 2022 as accelerating pricing and growth in consumable pharmaceutical and personal care products, partially offset by normalizing demand for Bioquell's biocontamination systems.

Operating Income

Organic operating income for our Global Healthcare & Life Sciences segment decreased in both 2023 and 2022 when compared to prior periods. Organic operating income margins decreased in both 2023 and 2022 when compared to prior periods.

Organic operating income margins decreased 2.7 percentage points in 2023, as the 4.5 percentage point positive impact from strong pricing was more than offset by the 7.5 percentage point negative impacts from targeted investments in the business, unfavorable mix and higher supply chain costs. Organic operating income margins decreased in 2022, as positive impact from accelerating pricing was more than offset by the negative impacts from higher delivered product costs, unfavorable mix, lower Healthcare volumes and targeted investments in the business.

Other

	2023	2022	2021
Sales at fixed currency (millions)	\$1,442.3	\$1,313.3	\$1,162.5
Sales at public currency (millions)	1,444.2	1,316.4	1,207.7
Volume	3 %	6 %	
Price changes	7 %	7 %	
Organic sales change	10 %	13 %	
Acquisitions and divestitures	- %	- %	
Fixed currency sales change	10 %	13 %	
Foreign currency translation	- %	(4) %	
Public currency sales change	10 %	9 %	
Operating income at fixed currency (millions)	\$255.0	\$209.9	\$181.3
Operating income at public currency (millions)	254.4	209.5	188.2
Fixed currency operating income change	21 %	16 %	
Fixed currency operating income margin	17.7 %	16.0 %	15.6 %
Organic operating income change	21 %	16 %	
Organic operating income margin	17.7 %	16.0 %	*
Public currency operating income change	21 %	11 %	

* Not meaningful

Percentages in the above table do not necessarily sum due to rounding.

Net Sales

Organic sales for Other increased in 2023 led by double-digit growth in Pest Elimination. Organic sales increased in 2022 led by strong growth in Pest Elimination, Textile Care and Colloidal Technologies.

At an operating segment level, **Pest Elimination** organic sales increased 11% in 2023 reflecting strong growth in restaurants, food & beverage, and food retail. Organic sales increased 11% in 2022 reflecting strong growth across food retail, food & beverage, hospitality and restaurants from accelerating pricing and new business wins. **Textile Care** organic sales increased 7% and 19% in 2023 and 2022, respectively. **Colloidal Technologies Group** organic sales increased 4% and 14% in 2023 and 2022, respectively.

Operating Income

Organic operating income in Other increased in both 2023 and 2022 when compared to prior periods. Organic operating income margins increased in both 2022 and 2022 when compared to prior periods.

Organic operating income margins in Other increased 1.7 percentage points in 2023, as the 5.6 percentage point positive impacts from strong pricing overcame the 4.3 percentage point negative impacts of investments in business. Organic operating income margins increased in 2022, as the positive impacts from accelerating pricing overcame the negative impacts of higher delivered product costs and investments in business.

Corporate

Consistent with our internal management reporting, Corporate amounts in the table on page 37 include sales to ChampionX in accordance with the long-term supply agreement entered into with the Transaction post-separation. As discussed in Note 17, intangible asset amortization specifically from the Nalco and Purolite transactions 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 32.

FINANCIAL POSITION, CASH FLOW AND LIQUIDITY

Financial Position

Total assets were \$21.8 billion as of December 31, 2023, compared to total assets of \$21.5 billion as of December 31, 2022.

Total liabilities were \$13.8 billion as of December 31, 2023, compared to total liabilities of \$14.2 billion as of December 31, 2022. Total debt was \$8.2 billion as of December 31, 2023 and \$8.6 billion as of December 31, 2022. 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.

	2023	2022	2021
(ratio)			
Net debt to EBITDA	2.4	3.2	3.4
(millions)			
Total debt	\$8,181.8	\$8,580.4	\$8,758.2
Cash	919.5	598.6	359.9
Net debt	\$7,262.3	\$7,981.8	\$8,398.3
Net income including noncontrolling interest	\$1,393.0	\$1,108.9	\$1,144.0
Provision for income taxes	362.5	234.5	270.2
Interest expense, net	296.7	243.6	218.3
Depreciation	616.7	618.5	604.4
Amortization	306.9	320.2	238.7
EBITDA	\$2,975.8	\$2,525.7	\$2,475.6

Cash Flows

Operating Activities

	2023	2022	2021	Dollar Change
(millions)				
Cash provided by operating activities	\$2,411.8	\$1,788.4	\$2,061.9	\$623.4

We continue to generate cash flow from operations 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 \$623 million in 2023 compared to 2022, driven primarily by a \$332 million net favorable change in working capital and \$284 million increase in net income. The cash flow impact from working capital was primarily driven by improvement in inventory due to management efforts following easing global supply chain constraints and an improvement in receivables offset by a decrease in accounts payable primarily associated with our inventory reduction efforts.

Cash provided by operating activities decreased \$274 million in 2022 compared to 2021, driven primarily by \$277 million increase in working capital. The increase in working capital is primarily driven by past due receivables higher than last year due to pricing and energy surcharge rollout. Additionally, inventory impacted by inflationary environment and higher stock holding to mitigate supply disruption.

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:

	2023	2022	2021	Dollar Change
(millions)				
Pensions and postretirement plan contributions	\$109.3	\$64.3	\$60.2	\$45.0
Restructuring payments	118.3	41.0	78.3	77.3
Income tax payments	469.2	308.9	275.7	160.3
Interest payments	324.8	222.4	208.7	102.4

Investing Activities

	Dollar Change				
(millions)	2023	2022	2021	2023	2022
Cash used for investing activities	(\$990.5)	(\$716.8)	(\$4,579.7)	(\$273.7)	\$3,862.9

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.

We continue to make capital investments in the business, including merchandising and customer equipment and manufacturing facilities. Total capital expenditures were \$775 million, \$713 million and \$643 million in 2023, 2022 and 2021, respectively.

Total cash paid for acquisitions, net of cash acquired and net of cash received from dispositions, in 2023, 2022 and 2021 was \$180 million, \$7 million and \$3,924 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.

Financing Activities

	Dollar Change				
(millions)	2023	2022	2021	2023	2022
Cash provided by (used for) financing activities	(\$1,054.7)	(\$837.3)	\$1,603.2	(\$217.4)	(\$2,440.5)

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.

There were no long-term debt issuances in 2023. We repaid \$500 million of long-term debt in 2023. We issued \$500 million par value and received \$494 million in proceeds of long-term debt in 2022. 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. 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 had net repayments of \$2 million and \$404 million of commercial paper and notes payable in 2023 and 2022, respectively, and net issuances of \$394 million in 2021.

Shares are repurchased for the purpose of partially offsetting the dilutive effect of our equity compensation plans, to manage our capital structure and to efficiently return capital to shareholders. We repurchased a total of \$14 million, \$518 million, and \$107 million of shares in 2023, 2022 and 2021, 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:

	Dollar Change				
(millions)	2023	2022	2021	2023	2022
Net (repayments) issuances of commercial paper and notes payable	(\$1.9)	(\$404.3)	\$393.6	\$402.4	(\$797.9)
Long-term debt borrowings	-	494.0	2,775.0	(494.0)	(2,281.0)
Long-term debt repayments	(500.0)	-	(1,017.9)	(500.0)	1,017.9

In December 2023, we increased our quarterly dividend rate by 8%. This represents the 32nd consecutive year we have increased our dividend. We have paid dividends on our common stock for 87 consecutive years. We paid dividends of \$617 million, \$603 million and \$566 million in 2023, 2022 and 2021, 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
2023	\$0.53	\$0.53	\$0.53	\$0.57	\$2.16
2022	\$0.51	\$0.51	\$0.51	\$0.53	\$2.06
2021	\$0.48	\$0.48	\$0.48	\$0.51	\$1.95

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, 2023, we had \$920 million of cash and cash equivalents on hand, of which \$880 million was held outside of the U.S. As of December 31, 2022, we had \$599 million of cash and cash equivalents on hand, of which \$122 million was held outside of the U.S. Our cash balance is intended to fund current maturities of long-term debt. We will continue to evaluate our cash position in light of future developments.

In January 2024, we repaid €575 million (\$630 million) of long-term debt.

As of December 31, 2023, 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 no commercial paper outstanding under our U.S. program nor our Euro program. There were no borrowings under our credit facility as of December 31, 2023 or 2022. As of December 31, 2023, both programs were rated A-2 by Standard & Poor's, P-2 by Moody's and F-1 by Fitch.

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. As of December 31, 2023 we had \$155 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, 2023, Standard & Poor's, Fitch and Moody's rated our long-term credit at A- (negative outlook), A- (stable outlook) and A3 (negative outlook), respectively. 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.

As of December 31, 2023, we were 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, 2023 are summarized in the following table:

(millions)	Total	Payments Due by Period			
		Less Than 1 Year	2-3 Years	4-5 Years	More Than 5 Years
Notes payable	\$2	\$2	\$-	\$-	\$-
One-time transition tax	67	7	60	-	-
Long-term debt	8,180	629	1,363	1,441	4,747
Operating leases	632	147	229	108	148
Interest*	3,953	321	609	454	2,569
Total	\$12,834	\$1,106	\$2,261	\$2,003	\$7,464

*Interest on variable rate debt was calculated using the interest rate at year end 2023.

As of December 31, 2023, our gross liability for unrecognized tax benefits was \$24 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 2023. 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 \$47 million in 2024. 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, 2023, we had a total of €834 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, 2023, we had €625 million of cross-currency swap derivative contracts outstanding designated as a net investment hedge.

We enter into cross-currency swap derivative contracts to hedge certain Chinese Yen ("CNY") denominated exposures from our investments in certain CNY 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, 2023, we had CNH 2,192 million (CNH is the CNY traded in the offshore market) 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, 2023, we had \$1,500 million of interest rate swaps outstanding.

Refer to Note 8 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 \$169 million. The effect on our results of operations would be substantially offset by the impact of the hedged items.

GLOBAL ECONOMIC AND POLITICAL ENVIRONMENT

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 and Turkey are classified as highly inflationary economies in accordance with U.S. GAAP, and the U.S. dollar is the functional currency for our subsidiaries in Argentina and Turkey. During 2023, sales in Argentina and Turkey represented less than 1% of our consolidated sales. Assets held in Argentina and Turkey at the end of 2023 represented less than 1% of our consolidated assets.

In light of Russia's invasion of Ukraine and the sanctions against Russia by the United States and other countries, we have made the determination that we will limit our Russian business to operations that are essential to life, providing minimal support for our healthcare, life sciences, food and beverage and certain water businesses. We may further narrow our presence in Russia depending on future developments. Our Russian and Ukraine operations represented approximately 1% of our 2023 consolidated net sales. We recorded charges of \$1.4 million and \$13.1 million in 2023 and 2022, respectively, primarily related to recoverability risk of certain assets in both Russia and Ukraine.

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
- Organic sales, formerly known as 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
- Organic operating income, formerly known as acquisition adjusted fixed currency operating income
- Organic operating income margin, formerly known as acquisition adjusted fixed currency operating income margin
- Adjusted other (income) expense
- Adjusted interest expense, net
- EBITDA
- Adjusted tax rate
- Adjusted net income attributable to Ecolab
- Adjusted diluted EPS

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 2021 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 2021 impact of the Purolite transaction, and our non-GAAP measures for tax rate, net income attributable to Ecolab and diluted EPS 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 2023. We also provide our segment results based on public currency rates for informational purposes.

Our reportable segments do not include the impact of intangible asset amortization from the Nalco and Purolite transactions or the impact of special (gains) and charges as these are not allocated to our reportable segments.

Our non-GAAP financial measures for organic sales, organic operating income and organic operating income margin are at fixed currency and exclude the impact of special (gains) and charges, the results of our acquired businesses from the first twelve months post acquisition and the results of divested businesses from the twelve months prior to divestiture. As part of the separation of ChampionX in 2020, we 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 and for a small set of products with limited suppliers over the next few years. 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 in this MD&A.

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, 2023.

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, 2023 as stated in their report which is included herein.



Christophe Beck
Chairman and Chief Executive Officer



Scott D. Kirkland
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, 2023 and 2022, 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, 2023, 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, 2023, 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, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023 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, 2023, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in 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.

Definition and Limitations of Internal Control over Financial Reporting

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

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

Critical Audit Matters

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

Valuation of Certain U.S. Defined Benefit Pension Plan Obligations

As described in Note 16 to the consolidated financial statements, the Company's projected benefit obligations for U.S. pension plans was \$1,859.5 million as of December 31, 2023, of which a majority relates to certain U.S. pension plans. The measurement of the Company's pension benefit obligations are dependent on a variety of assumptions determined by management and used actuaries in their valuation method and calculations. The significant assumptions used in developing the required estimates of the projected benefit obligations are the discount rates, expected returns on assets, projected salary increases, and mortality tables.

The principal considerations for our determination that performing procedures relating to the valuation of certain U.S. defined benefit pension plan obligations is a critical audit matter are (i) the significant judgment by management when developing the estimate of certain U.S. defined benefit pension plan obligations; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to the discount rates and expected return on assets; 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 valuation of the defined benefit pension plan obligations, including controls over the valuation of the U.S. defined benefit pension plan obligations. These procedures also included, among others (i) testing management's process for developing the estimate of certain U.S. defined benefit pension plan obligations; (ii) evaluating the appropriateness of the actuarial valuation method and calculations used by management; (iii) testing the completeness and accuracy of underlying data used in the actuarial valuation method and calculations; and (iv) evaluating the reasonableness of the significant assumptions used by management related to the discount rates and expected return on assets. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the actuarial valuation method and calculations and (ii) the reasonableness of the discount rates and expected return on assets assumptions.

/s/ PricewaterhouseCoopers LLP
Minneapolis, Minnesota
February 23, 2024

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

CONSOLIDATED STATEMENTS OF INCOME

(millions, except per share amounts)

	2023	2022	2021
Product and equipment sales	\$12,316.8	\$11,446.2	\$10,153.3
Service and lease sales	3,003.4	2,741.6	2,579.8
Net sales	15,320.2	14,187.8	12,733.1
Product and equipment cost of sales	7,389.2	7,212.8	6,100.9
Service and lease cost of sales	1,765.7	1,618.2	1,514.9
Cost of sales (including special charges (a))	9,154.9	8,831.0	7,615.8
Selling, general and administrative expenses	4,061.6	3,653.8	3,416.1
Special (gains) and charges	111.4	140.5	102.6
Operating income	1,992.3	1,562.5	1,598.6
Other (income) expense (b)	(59.9)	(24.5)	(33.9)
Interest expense, net (c)	296.7	243.6	218.3
Income before income taxes	1,755.5	1,343.4	1,414.2
Provision for income taxes	362.5	234.5	270.2
Net income including noncontrolling interest	1,393.0	1,108.9	1,144.0
Net income attributable to noncontrolling interest	20.7	17.2	14.1
Net income attributable to Ecolab	\$1,372.3	\$1,091.7	\$1,129.9
Earnings attributable to Ecolab per common share			
Basic	\$ 4.82	\$ 3.83	\$ 3.95
Diluted	\$ 4.79	\$ 3.81	\$ 3.91
Weighted-average common shares outstanding			
Basic	285.0	285.2	286.3
Diluted	286.5	286.6	289.1

- (a) Cost of sales includes special (gains) and charges of \$14.5 in 2023, \$65.0 in 2022, and \$91.9 in 2021, which is recorded in product and equipment cost of sales. Cost of sales includes special (gains) and charges of \$8.0 in 2023, \$4.9 in 2022 and \$2.0 in 2021, which is recorded in service and lease cost of sales.
- (b) Other (income) expense includes special charges of \$50.6 in 2022 and \$37.2 in 2021.
- (c) Interest expense, net includes special charges of \$33.1 in 2021.

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

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(millions)	2023	2022	2021
Net income including noncontrolling interest	\$1,393.0	\$1,108.9	\$1,144.0
Other comprehensive income (loss), net of tax			
Foreign currency translation adjustments			
Foreign currency translation	10.0	(333.4)	(10.9)
(Loss) gain on net investment hedges	(73.1)	108.3	51.6
Total foreign currency translation adjustments	(63.1)	(225.1)	40.7
Derivatives and hedging instruments	(7.8)	(1.2)	26.0
Pension and postretirement benefits	(55.1)	130.3	289.7
Subtotal	(126.0)	(96.0)	356.4
Total comprehensive income, including noncontrolling interest	1,267.0	1,012.9	1,500.4
Comprehensive income attributable to noncontrolling interest	18.5	13.0	10.9
Comprehensive income attributable to Ecolab	\$1,248.5	\$999.9	\$1,489.5

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

CONSOLIDATED BALANCE SHEETS

(millions, except per share amounts)

	2023	2022
ASSETS		
Current assets		
Cash and cash equivalents	\$919.5	\$598.6
Accounts receivable, net	2,834.2	2,698.1
Inventories	1,497.2	1,792.8
Other current assets	393.2	404.7
Total current assets	5,644.1	5,494.2
Property, plant and equipment, net	3,474.6	3,293.4
Goodwill	8,148.2	8,012.7
Other intangible assets, net	3,493.5	3,680.7
Operating lease assets	553.5	448.2
Other assets	532.7	535.1
Total assets	\$21,846.6	\$21,464.3
LIABILITIES AND EQUITY		
Current liabilities		
Short-term debt	\$630.4	\$505.1
Accounts payable	1,566.3	1,728.2
Compensation and benefits	655.5	493.6
Income taxes	158.7	197.6
Other current liabilities	1,334.9	1,285.9
Total current liabilities	4,345.8	4,210.4
Long-term debt	7,551.4	8,075.3
Pension and postretirement benefits	651.7	670.3
Deferred income taxes	418.2	505.6
Operating lease liabilities	425.5	337.8
Other liabilities	381.8	406.3
Total liabilities	13,774.4	14,205.7
Commitments and contingencies (Note 15)		
Equity (a)		
Common stock	365.7	364.7
Additional paid-in capital	6,766.7	6,580.2
Retained earnings	10,075.4	9,318.8
Accumulated other comprehensive loss	(1,850.4)	(1,726.6)
Treasury stock	(7,312.7)	(7,301.0)
Total Ecolab shareholders' equity	8,044.7	7,236.1
Noncontrolling interest	27.5	22.5
Total equity	8,072.2	7,258.6
Total liabilities and equity	\$21,846.6	\$21,464.3

(a) Common stock, 800.0 shares authorized, \$1.00 par value, 285.4 shares outstanding at December 31, 2023 and 284.5 shares outstanding at December 31, 2022. 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)	2023	2022	2021
OPERATING ACTIVITIES			
Net income including noncontrolling interest	\$1,393.0	\$1,108.9	\$1,144.0
Adjustments to reconcile net income to cash provided by operating activities:			
Depreciation	616.7	618.5	604.4
Amortization	306.9	320.2	238.7
Deferred income taxes	(55.7)	(142.6)	(1.1)
Share-based compensation expense	95.1	87.8	89.5
Pension and postretirement plan contributions	(109.3)	(64.3)	(60.2)
Pension and postretirement plan expense (income), net	3.1	45.5	42.4
Restructuring charges, net of cash paid	(32.6)	66.2	(41.7)
Debt refinancing	-	-	29.4
Other, net	31.9	24.9	15.9
Changes in operating assets and liabilities, net of effect of acquisitions:			
Accounts receivable	(84.3)	(319.6)	(178.2)
Inventories	320.3	(402.9)	(73.0)
Other assets	72.2	(278.2)	(92.9)
Accounts payable	(232.3)	394.7	200.4
Other liabilities	86.8	329.3	144.3
Cash provided by operating activities	2,411.8	1,788.4	2,061.9
INVESTING ACTIVITIES			
Capital expenditures	(774.8)	(712.8)	(643.0)
Property and other assets sold	9.9	2.2	12.2
Acquisitions and investments in affiliates, net of cash acquired	(180.4)	(7.2)	(3,923.7)
Other, net	(45.2)	1.0	(25.2)
Cash used for investing activities	(990.5)	(716.8)	(4,579.7)
FINANCING ACTIVITIES			
Net (repayments) issuances of commercial paper and notes payable	(1.9)	(404.3)	393.6
Long-term debt borrowings	-	494.0	2,775.0
Long-term debt repayments	(500.0)	-	(1,017.9)
Reacquired shares	(13.7)	(518.2)	(106.6)
Dividends paid	(617.3)	(602.8)	(566.4)
Exercise of employee stock options	96.8	29.1	143.5
Debt refinancing	-	-	(29.4)
Hedge settlements	(15.3)	172.0	25.9
Other, net	(3.3)	(7.1)	(14.5)
Cash (used for) provided by financing activities	(1,054.7)	(837.3)	1,603.2
Effect of exchange rate changes on cash and cash equivalents	(45.7)	4.4	14.3
Increase (decrease) in cash and cash equivalents	320.9	238.7	(900.3)
Cash and cash equivalents, beginning of period	598.6	359.9	1,260.2
Cash and cash equivalents, end of period	\$919.5	\$598.6	\$359.9
SUPPLEMENTAL CASH FLOW INFORMATION			
Income taxes paid	\$469.2	\$308.9	\$275.7
Net interest paid	324.8	222.4	208.7

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

CONSOLIDATED STATEMENTS OF EQUITY

(millions, except per share amounts)	Year ended December 31, 2023, 2022 and 2021							
	Common Stock	Additional Paid-in Capital	Retained Earnings	AOCI (Loss)	Treasury Stock	Ecolab Shareholders' Equity	Non-Controlling Interest	Total Equity
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
Other comprehensive income (loss) activity				359.6		359.6	(3.2)	356.4
Cash dividends declared (a)			(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
Net income			1,091.7			1,091.7	17.2	1,108.9
Other comprehensive income (loss) activity				(91.8)		(91.8)	(4.2)	(96.0)
Cash dividends declared (a)			(587.4)			(587.4)	(20.0)	(607.4)
Fair value adjustment of prior acquisition						-	0.6	0.6
Stock options and awards	0.6	115.6			1.4	117.6		117.6
Reacquired shares					(518.2)	(518.2)		(518.2)
Balance, December 31, 2022	364.7	6,580.2	9,318.8	(1,726.6)	(7,301.0)	7,236.1	22.5	7,258.6
Net income			1,372.3			1,372.3	20.7	1,393.0
Other comprehensive income (loss) activity				(123.8)		(123.8)	(2.2)	(126.0)
Cash dividends declared (a)			(615.7)			(615.7)	(13.5)	(629.2)
Changes in noncontrolling interests		(4.5)				(4.5)		(4.5)
Stock options and awards	1.0	191.0			2.0	194.0		194.0
Reacquired shares					(13.7)	(13.7)		(13.7)
Balance, December 31, 2023	\$365.7	\$6,766.7	\$10,075.4	(\$1,850.4)	(\$7,312.7)	\$8,044.7	\$27.5	\$8,072.2

(a) Dividends declared per common share were \$2.16, \$2.06, and \$1.95 in 2023, 2022 and 2021, respectively.

COMMON STOCK ACTIVITY

Year ended December 31	2023		2022		2021	
	Common Stock	Treasury Stock	Common Stock	Treasury Stock	Common Stock	Treasury Stock
Shares, beginning of year	364,711,841	(80,261,501)	364,139,362	(77,255,713)	362,553,443	(76,801,025)
Stock options	802,645	14,629	276,059	14,525	1,270,757	29,684
Stock awards	234,154	30,437	296,420	17,794	315,162	17,760
Reacquired shares	-	(83,674)	-	(3,038,107)	-	(502,132)
Shares, end of year	365,748,640	(80,300,109)	364,711,841	(80,261,501)	364,139,362	(77,255,713)

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.

In December 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 the Company's 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 the Company's 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 18 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.

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, litigation and environmental reserves, actuarially determined liabilities, income taxes, long-lived assets, intangible assets and goodwill.

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 income (loss) in shareholders' equity. Income statement accounts are translated at average rates of exchange prevailing during the year. As discussed in Note 18 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 consider macroeconomic trends, 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 was \$72 million, \$59 million, and \$19 million as of December 31, 2023, 2022 and 2021, 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)	2023	2022	2021
Beginning balance	\$71.9	\$52.8	\$68.4
Bad debt expense	54.0	38.1	15.0
Write-offs	(46.2)	(21.1)	(27.4)
Other (a)	(2.4)	2.1	(3.2)
Ending balance	\$77.3	\$71.9	\$52.8

(a) Other amounts are primarily the effects of changes in currency translations and acquired balances.

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 30% and 29% of consolidated inventories as of December 31, 2023 and 2022, 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 5, 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 \$617 million, \$619 million and \$604 million for 2023, 2022 and 2021, respectively.

Goodwill and Other Intangible Assets

Goodwill

Goodwill arises from the Company's acquisitions and represents the excess of the fair value of the purchase consideration exchanged over the fair value of net assets acquired. The Company's reporting units are its ten 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 impairment assessment of that reporting unit prior to the next annual assessment. If the results of an annual or interim goodwill impairment 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 2023, the Company completed its annual goodwill impairment assessment for its ten reporting units using discounted cash flow analyses that incorporated assumptions regarding future growth rates, terminal values and discount rates. The Company's goodwill impairment assessments for 2023 indicated the estimated fair values of each of these ten reporting units exceeded the carrying amounts of the respective reporting unit by a significant margin. The Company evaluates the need to complete interim goodwill impairment 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. No events were noted during the second half of 2023 that required completion of an interim goodwill impairment assessment for any of our ten 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 were as follows:

(millions)	Global Industrial	Global Institutional & Specialty	Global Healthcare & Life Sciences	Other	Total
December 31, 2021	\$4,270.1	\$576.5	\$2,974.2	\$243.1	\$8,063.9
Prior year business combinations (a)	0.4	-	253.4	-	253.8
Effect of foreign currency translation	(188.7)	(8.9)	(102.2)	(5.2)	(305.0)
December 31, 2022	\$4,081.8	\$567.6	\$3,125.4	\$237.9	\$8,012.7
Current year business combinations (b)	30.8	39.3	-	-	70.1
Effect of foreign currency translation	28.0	3.1	33.0	1.3	65.4
December 31, 2023	\$4,140.6	\$610.0	\$3,158.4	\$239.2	\$8,148.2

- (a) Represents purchase price allocation adjustments for acquisitions deemed preliminary as of the end of the prior year.
(b) Represents goodwill associated with current year acquisitions. For 2023, approximately \$62 of goodwill related to businesses acquired is expected to be tax deductible related primarily to the acquisitions of Chemlink Laboratories LLC and Flottec, LLC (refer to Footnote 4 for additional information).

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 2023, the Company completed its annual impairment assessment of the Nalco trade name using the relief from royalty discounted cash flow method, which incorporates assumptions regarding future sales projections, royalty rate and discount rates. The Company's Nalco trade name impairment assessment for 2023 indicated the estimated fair value of the Nalco trade name exceeded its \$1.2 billion carrying amount by a significant margin. No events were noted during the second half of 2023 that required completion of an interim impairment assessment of our Nalco trade name. 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 valuation 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 years as of December 31, 2023 and 2022.

The weighted-average useful life by type of amortizable asset at December 31, 2023 were as follows:

(years)	
Customer relationships	15
Patents	15
Trademarks	13
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 updated remaining useful life. Amortization expense related to other intangible assets during the last three years and future estimated amortization were as follows:

(millions)	
2021	\$239
2022	320
2023	307
2024	301
2025	294
2026	281
2027	155
2028	145

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

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, property taxes, parking, etc.). 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 the lease 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 the lease 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 its 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 are 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, whereas, cancellation terms can shorten the lease term by multiple years. The lease start date is the date when the leased 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 17 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 13 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 unrecognized tax benefits 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 unrecognized tax benefits in the income tax provision.

Refer to Note 12 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 11 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 when the good or service is not bundled with other product or services 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)	2023	2022	2021
Net income attributable to Ecolab	\$1,372.3	\$1,091.7	\$1,129.9
Weighted-average common shares outstanding			
Basic	285.0	285.2	286.3
Effect of dilutive stock options and units	1.6	1.4	2.8
Diluted	286.5	286.6	289.1
Earnings attributable to Ecolab per common share			
Basic EPS	\$4.82	\$3.83	\$3.95
Diluted EPS	\$4.79	\$3.81	\$3.91
Anti-dilutive securities excluded from the computation of diluted EPS	4.3	3.9	1.9

Amounts do not necessarily sum due to rounding.

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	7
Derivatives and hedging transactions	8
Share-based compensation	10
Research and development expenditures	14
Legal contingencies	15
Pension and post-retirement benefit plans	16
Reportable segments	18

New Accounting Pronouncements

Standards That Are Not Yet Adopted:

Standard	Date of Issuance	Description	Required Date of Adoption	Effect on the Financial Statements
ASU 2023-09 Income taxes (Topic 740): Improvements to Income Tax Disclosures	December 2023	The amendments in this Update require that public business entities on an annual basis (1) disclose specific categories in the rate reconciliation and (2) provide additional information for reconciling items that meet a quantitative threshold.	January 1, 2025	The Company is currently evaluating the impact of adoption and additional disclosure requirements.
ASU 2023-07 - Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures	November 2023	The amendments in this ASU are to improve the disclosures about reportable segments and add more detailed information about a reportable segment's expenses. The amendments in the ASU require public entities to disclose on an annual and interim basis significant segment expenses that are regularly provided to the chief operating decision maker ("CODM") and included within each reported measure of segment profit or loss, other segment items by reportable segment, the title and position of the CODM, and an explanation of how the CODM uses the reported measures of segment profit or loss in assessing segment performance and deciding how to allocate resources. The ASU does not change the definition of a segment, the method for determining segments, the criteria for aggregating operating segments into reportable segments, or the current specifically enumerated segment expenses that are required to be disclosed.	Effective for annual periods beginning after December 15, 2023	Entities are required to apply the disclosure amendments on a retrospective basis to all periods presented. The Company is currently evaluating the impact of adoption.

Standards That Were Adopted:

Standard	Date of Issuance	Description	Date of Adoption	Effect on the 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 adoption of this standard did not have a significant 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)	2023	2022	2021
Cost of sales			
Restructuring activities	\$22.5	\$21.4	\$24.7
Acquisition and integration activities	-	25.0	4.2
Russia/Ukraine	-	7.2	-
Other	-	16.3	65.0
Cost of sales subtotal	22.5	69.9	93.9
Special (gains) and charges			
Restructuring activities	63.2	85.8	11.9
Acquisition and integration activities	16.1	14.5	29.9
Russia/Ukraine	1.4	5.9	-
Other	30.7	34.3	60.8
Special (gains) and charges subtotal	111.4	140.5	102.6
Operating income subtotal	133.9	210.4	196.5
Other (income) expense	-	50.6	37.2
Interest expense, net	-	-	33.1
Total special (gains) and charges	\$133.9	\$261.0	\$266.8

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 Combined Program which is described below. These activities have been included as a component of cost of sales, special (gains) and charges, other (income) expense and interest expense, net 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.

Combined Program

In November 2022 the Company approved a Europe cost savings program. In connection with these actions, the Company expected to incur pre-tax charges of \$130 million (\$110 million after tax). In February 2023, the Company expanded its previously announced Europe cost savings program to focus on its Institutional and Healthcare businesses in other regions. In connection with the expanded program ("Combined Program"), the Company expects to incur total pre-tax charges of \$195 million (\$150 million after tax). The Company expects that these restructuring charges will be completed by the end of 2024. Program actions include headcount reductions from terminations, not filling certain open positions, and facility closures. The Combined Program charges are expected to be primarily cash expenditures related to severance and asset disposals.

In anticipation of this Combined Program, a limited number of actions were taken in the fourth quarter of 2022. As a result, the Company reclassified \$19.3 million (\$14.5 million after tax) from other restructuring to the Combined Program in the first quarter of 2023.

In 2023 and 2022, the Company recorded total Combined Program restructuring charges of \$77.7 million (\$66.4 million after tax) and \$67.2 million (\$56.0 million after tax), respectively, primarily related to severance. The Company has recorded \$164.2 million (\$136.9 million after tax) of cumulative charges under the Combined Plan. The net liability related to the Combined Program was \$43.1 million and \$62.0 million as of December 31, 2023 and 2022, 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.

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

(millions)	Employee Costs	Asset Disposals	Other	Total
2022 Activity				
Recorded expense and accrual	\$67.2	\$-	\$-	\$67.2
Net cash payments	(5.2)	-	-	(5.2)
Net restructuring liability, December 31, 2022	62.0	-	-	62.0
2023 Activity				
Recorded expense and accrual	47.0	14.0	16.7	77.7
Net cash payments	(85.2)	-	(16.7)	(101.9)
Non-cash charges	-	(14.0)	-	(14.0)
Reclassification	19.3	-	-	19.3
Net restructuring liability, December 31, 2023	\$43.1	\$-	\$-	\$43.1

Institutional Advancement Program

The Company approved a restructuring plan in 2020 focused on the Institutional business ("the Institutional Plan") which is intended to enhance the Company's Institutional sales and service structure and allow the sales team to capture share and penetration while maximizing service effectiveness by leveraging the Company's ongoing investments in digital technology.

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 2023, 2022 and 2021, the Company recorded restructuring charges of \$8.0 million (\$6.0 million after tax), \$6.3 million (\$4.8 million after tax) and \$12.6 million (\$10.2 million after tax), respectively, primarily related to severance, disposals of equipment and office closures. The restructuring activities were completed at the end of 2023, with total costs of \$62.1 million (\$47.4 million after tax). Net cash payments were \$2.6 million and non-cash net charges were \$6.8 million during 2023. There was no liability related to the Institutional Plan as of December 31, 2023 and \$1.9 million as of December 31, 2022.

Accelerate 2020

During 2018, the Company formally commenced a restructuring plan, Accelerate 2020 ("the A2020 Plan"), to leverage technology and systems investments and organizational changes. The goals of the A2020 Plan were 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. The Company recorded restructuring charges of \$9.9 million (\$8.4 million after tax) and \$5.3 million (\$6.2 million after tax) in 2022 and 2021, respectively, primarily related to severance. The restructuring activities were completed at the end of 2022, with total costs of \$254.4 million (\$198.4 million after tax).

Net cash payments were \$13.2 million during 2023. The liability related to the A2020 Plan were \$4.9 million and \$18.1 million as of December 31, 2023 and 2022, 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.

Other Restructuring Activities

During 2022, and 2021, the Company recorded other restructuring charges of \$23.8 million (\$17.9 million after tax), and \$18.7 million (\$17.0 million after tax), respectively, related to other immaterial restructuring activity. The charges are comprised primarily of severance and asset write-offs.

The restructuring liability balance for all other restructuring plans excluding Combined Program, the A2020 Plan and the Institutional Plan was \$3.3 million and \$23.2 million as of December 31, 2023 and 2022, respectively. The decrease in liability was driven primarily by the reclass of \$19.3 million from other restructuring to the Combined Program in the first quarter of 2023. 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 2023 related to all other restructuring plans excluding the Combined Program, the A2020 Plan and Institutional Plan were \$0.6 million.

Acquisition and integration related costs

Acquisition and integration related costs reported in special (gains) and charges on the Consolidated Statements of Income in 2023 include \$16.1 million (\$12.0 million after tax) related primarily to the Purolite Corporation ("Purolite") acquisition and consist of integration related costs and advisory and legal fees.

Acquisition and integration related costs reported in special (gains) and charges on the Consolidated Statements of Income in 2022 include \$14.5 million (\$11.4 million after tax) related primarily to the Purolite acquisition and consist of integration related costs and advisory and legal fees. Acquisition and integration related costs reported in product and equipment cost of sales on the Consolidated Statements of Income in 2022 included \$25.0 million (\$19.6 million after tax) related primarily to the recognition of fair value step-up in Purolite inventory and other integration related costs.

Acquisition and integration related 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 primarily to the Purolite acquisition and consisted of deal costs, 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.

Russia/Ukraine

In light of Russia's invasion of Ukraine and the sanctions against Russia by the United States and other countries, the Company has made the determination that it will limit the Company's Russian business to operations that are essential to life, providing minimal support for the Company's healthcare, life sciences, food and beverage and certain water businesses. The Company incurred charges of \$1.4 million (\$1.1 million after tax) and \$13.1 million (\$12.6 million after tax) during 2023 and 2022, respectively, primarily related to recoverability risk of certain assets in both Russia and Ukraine.

Other operating activities

Other operating activities recorded to cost of sales on the Consolidated Statements of Income of \$16.3 million (\$12.7 million after tax) in 2022 and \$65.0 million (\$49.2 million after tax) in 2021 relate primarily to COVID-19 activities.

Other operating activities recorded in special (gains) and charges on the Consolidated Statements of Income of \$30.7 million (\$23.3 million after tax) in 2023 relate primarily to certain legal charges. Other operating activities recorded in special (gains) and charges on the Consolidated Statements of Income of \$34.3 million (\$25.7 million after tax) in 2022 and \$60.8 million (\$46.4 million after tax) in 2021 relate primarily to COVID-19 activities and certain legal charges.

Other (income) expense

During 2022 and 2021, the Company incurred pension settlement expense recorded in other (income) expense on the Consolidated Statements of Income of \$50.6 million (\$38.2 million after tax) and \$37.2 million (\$28.7 million after tax), respectively, related to U.S. pension plan lump-sum payments to retirees.

Interest expense, net

During 2021, the Company recorded special charges of \$32.3 million (\$28.4 million after tax) in interest expense on the Consolidated Statements of Income related to debt issuance and refinancing charges.

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 based on estimates of the fair value of assets acquired, liabilities assumed and noncontrolling interests acquired as of the acquisition date. Goodwill is recognized in the amount that the purchase consideration paid exceeds the fair value of the net assets acquired. Purchase consideration includes both cash paid and the fair value of noncash consideration exchanged, including stock and/or contingent consideration exchanged, and is reduced by the amount of cash or cash equivalents acquired. Acquisitions during 2023, 2022 and 2021 were not significant to the Company's consolidated financial statements; therefore, pro forma financial information is not presented.

2023 Activity

In November 2023, the Company acquired Flottec, LLC, a U.S.-based provider of flotation products and services for the mineral processing industry. The move will expand Nalco Water's flotation offerings and its work to serve the industry from mine to metal. The acquisition became part of the Global Industrial reporting segment. The purchase accounting for this acquisition is preliminary and subject to change as the Company finalizes the valuation of intangible assets, income tax balances and working capital. The goodwill arising from the acquisition of Flottec, LLC is tax deductible.

In May 2023, the Company acquired Chemlink Laboratories LLC, a U.S.-based producer of small format cleaning solutions. The Company made two other immaterial acquisitions during the second quarter of 2023. All three acquisitions became part of the Global Institutional & Specialty reporting segment. The purchase accounting for these acquisitions are preliminary and subject to change as the Company finalizes the valuation of intangible assets, income tax balances and working capital. The goodwill arising from the acquisition of Chemlink Laboratories LLC is tax deductible.

2022 Activity

No acquisitions occurred during 2022.

2021 Activity

Purolite Acquisition

On December 1, 2021, the Company acquired Purolite for total consideration of \$3,706 million in cash, net of cash acquired. Purolite is a US-based business that is a leading and fast-growing global provider of resins for the separation and purification of solutions that is highly complementary to the Company's 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 in the circumstances for the nature of the assets being valued. The valuation models incorporated projections of future cash flows and other valuation assumptions. Significant inputs and assumptions used in the Company's 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 used in the Company's tradename and acquired technology intangible asset valuations include projected revenues, future asset utilities, royalty rates, tax saving due to amortization, income tax rates and discount rates.

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

Purolite purchase accounting was finalized in the fourth quarter of 2022. The following table summarizes the final value of Purolite assets acquired and liabilities assumed, net of cash acquired, as of the acquisition date:

(millions)	December 1, 2021
Tangible assets	\$361.9
Identifiable intangible assets	
Customer relationships	870.0
Other technologies	285.0
Trademarks	73.0
Total assets acquired	1,589.9
Goodwill	2,260.6
Total liabilities	144.8
Total consideration transferred to sellers, net of cash acquired	\$3,705.7

During 2022, the Company recorded purchase accounting adjustments associated with the finalization of the purchase accounting for its acquisition of Purolite. As a result of these purchase accounting adjustments, the Company made \$7.2 million of acquisition-related payments, acquisition related net tangible assets decreased by \$54.0 million, definite-lived intangible assets decreased by \$185.4 million and goodwill increased by \$246.6 million.

Tangible assets acquired primarily consist of accounts receivable of \$61.6 million, property, plant and equipment of \$156.5 million and inventory of \$122.4 million. Liabilities assumed primarily consist of deferred tax liabilities of \$38.2 million and current liabilities of \$77.6 million. Identified intangible assets primarily consist of customer relationships, acquired technologies, and trade names and are being amortized over weighted average lives of 17, 14, and 5 years, respectively, with a weighted average life of 15 years.

Goodwill of \$2,260.6 million arising from the acquisition consists largely of the synergies and economies of scale expected through adding complementary geographies and innovative products to the Company's Life Sciences businesses. Purolite became part of the Global Healthcare & Life Sciences reportable segment. Goodwill of \$2,146.3 million is deductible for income tax purposes.

Other Acquisitions

In February 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. Purchase accounting was finalized in the first quarter of 2022.

In July 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. Purchase accounting was finalized in the third quarter of 2022.

In September 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 was finalized in the fourth quarter of 2022.

The goodwill related to the acquisitions of TechTex or EPN is not tax deductible, whereas the goodwill arising from the acquisition of NWA is tax deductible.

Acquisitions

The components of the cash paid for other acquisitions, excluding the Purolite acquisition (as further disclosed above), for 2023, 2022 and 2021, are shown in the following table:

(millions)	2023	2022	2021
Net tangible assets acquired	\$20.8	\$-	\$3.6
Identifiable intangible assets			
Customer relationships	60.8	-	75.0
Trademarks	-	-	4.7
Non-compete agreements	2.1	-	3.0
Other technologies	25.8	-	1.5
Total intangible assets	88.7	-	84.2
Goodwill	70.2	-	140.6
Total aggregate purchase price	179.7	-	228.4
Acquisition-related liabilities and contingent consideration (a)	(3.9)	-	(4.4)
Total cash paid for acquisitions, including acquisition-related liabilities and contingent consideration, net of cash acquired	\$175.8	\$-	\$224.0

(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 Statements of Cash Flows.

During 2023, the Company recorded purchase accounting adjustments. As a result of these purchase accounting adjustments, the Company made \$4.1 million of acquisition-related payments, acquisition related net tangible assets increased by \$1.7 million, acquisition related liabilities and contingent consideration decreased by \$1.7 million and goodwill increased by \$0.7 million.

During 2022, the Company recorded purchase accounting adjustments associated with the finalization of the purchase accounting for its acquisitions of TechTex, NWA and EPN. As a result of these purchase accounting adjustments, acquisition related net tangible assets decreased by \$1.6 million, definite-lived intangible assets decreased by \$5.6 million, and goodwill increased by \$7.2 million.

The weighted average useful lives of identifiable intangible assets acquired during 2023 and 2021 were 12 and 13 years, respectively. No intangible assets were acquired during 2022.

Dispositions

No dispositions were significant to the Company's consolidated financial statements for 2023, 2022 or 2021.

5. BALANCE SHEET INFORMATION

(millions)	December 31 2023	December 31 2022
Accounts receivable, net		
Accounts receivable	\$2,983.2	\$2,829.0
Allowance for expected credit losses and other accruals	(149.0)	(130.9)
Total	\$2,834.2	\$2,698.1
Inventories		
Finished goods	\$911.4	\$1,122.7
Raw materials and parts	704.7	849.2
Inventories at FIFO cost	1,616.1	1,971.9
FIFO cost to LIFO cost difference	(118.9)	(179.1)
Total	\$1,497.2	\$1,792.8
Other current assets		
Prepaid assets	\$143.9	\$123.9
Taxes receivable	186.9	184.1
Derivative assets	3.3	57.5
Other	59.1	39.2
Total	\$393.2	\$404.7
Property, plant and equipment, net		
Land	\$155.6	\$161.3
Buildings and leasehold improvements	1,171.0	1,126.9
Machinery and equipment	2,113.8	1,966.3
Merchandising and customer equipment	2,758.4	2,635.5
Capitalized software	985.9	962.1
Construction in progress	470.1	403.8
	7,654.8	7,255.9
Accumulated depreciation	(4,180.2)	(3,962.5)
Total	\$3,474.6	\$3,293.4
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	3,385.1	3,292.8
Patents	503.6	497.0
Trademarks	406.5	404.0
Other technologies	551.2	518.8
	4,846.4	4,712.6
Accumulated amortization		
Customer relationships	(1,805.0)	(1,581.7)
Patents	(319.4)	(292.3)
Trademarks	(238.0)	(202.5)
Other technologies	(220.5)	(185.4)
	(2,582.9)	(2,261.9)
Net intangible assets subject to amortization	2,263.5	2,450.7
Total	\$3,493.5	\$3,680.7
Other assets		
Deferred income taxes	\$119.3	\$108.1
Pension	118.4	118.4
Derivative asset	23.6	44.5
Other	271.4	264.1
Total	\$532.7	\$535.1

(millions)	December 31 2023	December 31 2022
Other current liabilities		
Discounts and rebates	\$438.8	\$357.8
Dividends payable	162.7	150.8
Interest payable	68.5	58.7
Taxes payable, other than income	153.2	162.9
Derivative liability	3.7	21.9
Restructuring	48.9	100.6
Contract liability	110.9	116.5
Operating lease liabilities	126.1	108.3
Other	222.1	208.4
Total	\$1,334.9	\$1,285.9
Accumulated other comprehensive income (loss)		
Unrealized (loss) gain on derivative financial instruments, net of tax	(\$4.1)	\$3.7
Unrecognized pension and postretirement benefit expense, net of tax	(534.7)	(467.4)
Cumulative translation, net of tax	(1,311.6)	(1,262.9)
Total	(\$1,850.4)	(\$1,726.6)

6. 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, 2023 and 2022:

	2023		2022	
(millions)	Carrying Value	Average Interest Rate	Carrying Value	Average Interest Rate
Short-term debt				
Commercial paper	\$-	- %	\$-	- %
Notes payable	1.8	8.29 %	3.7	7.28 %
Long-term debt, current maturities	628.6		501.4	
Total	\$630.4		\$505.1	

Line of Credit

As of December 31, 2023, 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, 2023 and 2022.

The Company has \$346 million of available bank supported letters of credit, surety bonds and guarantees available in support of its commercial business transactions of which \$155 million is outstanding as of December 31, 2023.

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 no outstanding commercial paper under its U.S. and Euro commercial paper programs as of December 31, 2023 and 2022.

As of December 31, 2023, 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, 2023 and 2022, the Company had \$1.8 million and \$3.7 million, respectively, outstanding under these credit lines. Approximately \$1,829 million and \$1,925 million of these credit lines were available for use as of December 31, 2023 and 2022, 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, 2023 and 2022:

(millions)	Maturity by Year	2023			2022		
		Carrying Value	Stated Interest Rate	Effective Interest Rate	Carrying Value	Stated Interest Rate	Effective Interest Rate
Long-term debt							
Public notes (2023 principal amount)							
Two year 2021 senior notes (\$500 million)	2023	\$-	- %	- %	\$498.7	0.90 %	1.19 %
Seven year 2016 senior notes (€575 million)	2024	625.9	1.00 %	1.19 %	596.9	1.00 %	1.03 %
Ten year 2015 senior notes (€575 million)	2025	625.1	2.63 %	2.88 %	596.7	2.63 %	2.81 %
Ten year 2016 senior notes (\$750 million)	2026	728.2	2.70 %	4.07 %	721.1	2.70 %	3.21 %
Ten year 2017 senior notes (\$500 million)	2027	448.3	3.25 %	8.43 %	433.9	3.25 %	4.77 %
Six Year 2021 senior notes (\$500 million)	2027	497.4	1.65 %	1.83 %	496.5	1.65 %	1.83 %
Five Year 2022 senior notes (\$500 million)	2028	494.2	5.25 %	5.60 %	492.7	5.25 %	5.36 %
Ten year 2020 senior notes (\$698 million)	2030	662.7	4.80 %	6.19 %	653.5	4.80 %	3.72 %
Ten year 2020 senior notes (\$600 million)	2031	561.0	1.30 %	3.21 %	555.2	1.30 %	1.70 %
Eleven year 2021 senior notes (\$650 million)	2032	645.2	2.13 %	2.06 %	644.6	2.13 %	2.24 %
Thirty year 2011 senior notes (\$389 million)	2041	384.7	5.50 %	5.62 %	384.5	5.50 %	5.62 %
Thirty year 2016 senior notes (\$200 million)	2046	197.4	3.70 %	3.80 %	197.3	3.70 %	3.81 %
Thirty year 2017 senior notes (\$484 million)	2047	426.8	3.95 %	4.79 %	425.5	3.95 %	4.79 %
Thirty year 2020 senior notes (\$500 million)	2050	491.1	2.13 %	2.23 %	490.7	2.13 %	2.23 %
Thirty year 2021 senior notes (\$850 million)	2051	839.3	2.70 %	2.78 %	838.9	2.70 %	2.78 %
Thirty-four year 2021 senior notes (\$685 million)	2055	539.2	2.75 %	3.86 %	537.2	2.75 %	3.86 %
Finance lease obligations and other		13.5			12.8		
Total debt		8,180.0			8,576.7		
Long-term debt, current maturities		(628.6)			(501.4)		
Total long-term debt		\$7,551.4			\$8,075.3		

Public Notes

In November 2022, the Company issued \$500 million in aggregate principal five year fixed rate notes with a coupon rate of 5.25% ("New 5-Year Note"). The proceeds are intended to be used for general corporate purposes, which may include, without limitation, repayment of commercial paper borrowings or other indebtedness. The notes mature January 2028.

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.

In January 2024, the Company repaid €575 million (\$630 million) of long-term debt.

Covenants and Future Maturities

The Company is in compliance with all covenants under the Company's outstanding indebtedness at December 31, 2023.

As of December 31, 2023, the aggregate annual maturities of long-term debt for the next five years were:

(millions)	
2024	\$629
2025	634
2026	729
2027	946
2028	495

Net Interest Expense

Interest expense and interest income incurred during 2023, 2022 and 2021 were as follows:

(millions)	2023	2022	2021
Interest expense	\$348.9	\$252.1	\$230.6
Interest income	(52.2)	(8.5)	(12.3)
Interest expense, net	\$296.7	\$243.6	\$218.3

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.

7. 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:

(millions)	December 31, 2023			
	Carrying Amount	Fair Value Measurements		
		Level 1	Level 2	Level 3
Assets				
Foreign currency forward contracts	\$26.6	\$-	\$26.6	\$-
Cross-currency swap derivative contracts	29.1	-	29.1	-
Liabilities				
Foreign currency forward contracts	27.0	-	27.0	-
Interest rate swap agreements	146.5	-	146.5	-
Cross-currency swap derivative contracts	24.9	-	24.9	-
(millions)	December 31, 2022			
	Carrying Amount	Fair Value Measurements		
		Level 1	Level 2	Level 3
Assets				
Foreign currency forward contracts	\$118.9	\$-	\$118.9	\$-
Cross-currency swap derivative contracts	58.7	-	58.7	-
Liabilities				
Foreign currency forward contracts	83.3	-	83.3	-
Interest rate swap agreements	181.4	-	181.4	-
Cross-currency swap derivative contracts	14.5	-	14.5	-

The carrying value of foreign currency forward contracts is at fair value, which is 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 agreements is at fair value, which is determined based on current forward interest rates as of the balance sheet date and are classified within Level 2. The cross-currency swap derivative contracts are 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 and the U.S. dollar and CNH (CNH is the Chinese Yuan traded in the offshore market). The carrying value of the cross-currency swap derivative contracts 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 are 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 8.

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 2023, 2022 and 2021 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, which includes adjustments related to the impact of interest rate swap agreements, premiums and discounts, and deferred debt issuance costs, and the estimated fair value of long-term debt, including current maturities, held by the Company was:

	December 31, 2023		December 31, 2022	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Long-term debt, including current maturities	\$8,180.0	\$7,552.5	\$8,576.7	\$7,643.6

8. 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 in the Consolidated Balance Sheets 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 Consolidated Statements 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 2023	December 31 2022	December 31 2023	December 31 2022
Derivatives designated as hedging instruments				
Foreign currency forward contracts	\$6.7	\$78.6	\$5.2	\$9.2
Interest rate swap agreements	-	-	146.5	181.4
Cross-currency swap derivative contracts	29.1	58.7	24.9	14.5
Derivatives not designated as hedging instruments				
Foreign currency forward contracts	19.9	40.3	21.8	74.1
Gross value of derivatives	55.7	177.6	198.4	279.2
Gross amounts offset in the Consolidated Balance Sheets	(28.8)	(75.6)	(28.8)	(75.6)
Net value of derivatives	\$26.9	\$102.0	\$169.6	\$203.6

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

(millions)	Notional Values	
	December 31 2023	December 31 2022
Foreign currency forward contracts	\$3,745	\$5,745
Interest rate swap agreements	1,500	1,500
Cross-currency swap derivative contracts	998	650

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 year. 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 aggregate, the Company has entered into a series of interest rate swap agreements to convert \$1.5 billion of its debt from a fixed interest rate to a floating interest rate. The fixed interest rates range from 1.3% to 4.8% and mature between 2026 and 2031. These interest rate swap agreements 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 as of December 31 2023 and 2022:

Line item in which the hedged item is included (millions)	Carrying amount of the hedged liabilities		Cumulative amount of the fair value hedging adjustment included in the carrying amount of the hedged liabilities	
	2023	2022	2023	2022
Long-term debt	\$1,353.7	\$1,317.5	(\$148.6)	(\$184.8)

Net Investment Hedges

In November 2023, the Company elected to de-designate as a net investment hedge €316 million of its Euro debt maturing on January 15, 2024. The Company designates its remaining outstanding €834 million (\$908 million as of year-end 2023) 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.

The Company entered into a series of Euro cross-currency swap derivative contracts maturing in 2026 and 2030. These cross-currency swap derivative contracts are designated as net investment hedges 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, 2023, the Company had a €625 million (\$690 million) cross-currency swap derivative contracts 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.

In August and October of 2023, the Company entered into CNH cross-currency swap derivative contracts with a notional amount of CNH 1,094 million and CNH 1,098 million, respectively, both maturing in 2032. The cross-currency swap derivative contracts are designated as net investment hedges of its Chinese Yuan ("CNY") denominated exposures from the Company's investments in certain CNY denominated functional currency subsidiaries. The cross-currency swap derivative contracts exchange fixed-rate payments in USD for fixed-rate payments in CNH. As of December 31, 2023, the Company had in aggregate, CNH 2,192 million (\$308 million) cross-currency swap derivative contracts 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. The interest income or expense from these swaps is 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 contracts, 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)	2023	2022	2021
Revaluation (loss) gain, net of tax:			
Euronotes	(\$42.3)	\$81.9	\$45.3
Cross-currency swap derivative contracts	(30.8)	26.4	6.3
Total revaluation (loss) gain, net of tax	(\$73.1)	\$108.3	\$51.6

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:

(millions)	2023			2022			2021		
	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	\$10.6	(\$18.9)	\$-	\$6.4	\$95.0	\$-	(\$11.0)	\$47.6	\$-
Amount excluded from the assessment of effectiveness recognized in earnings based on changes in fair value	-	-	7.7	-	-	13.9	-	-	21.0
Interest rate swap agreements									
Amount of (loss) gain reclassified from AOCI to income	-	-	(1.9)	-	-	(2.3)	-	-	(2.3)
Gain (loss) on derivatives not designated as hedging instruments:									
Foreign currency forward contracts									
Amount of (loss) gain recognized in income	-	(26.2)	-	-	62.0	-	-	73.7	-
Total gain (loss) of all derivative instruments	\$10.6	(\$45.1)	\$5.8	\$6.4	\$157.0	\$11.6	(\$11.0)	\$121.3	\$18.7

9. 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 8 for additional information related to the Company's derivatives and hedging transactions. Refer to Note 16 for additional information related to the Company's pension and postretirement benefits activity.

(millions)	2023	2022	2021
Derivative and Hedging Instruments			
Unrealized (loss) gain on derivative & hedging instruments			
Amount recognized in AOCI	(\$12.8)	\$112.9	\$87.5
(Gain) loss reclassified from AOCI into income			
COS	(10.6)	(6.4)	11.0
SG&A	18.9	(95.0)	(47.6)
Interest (income) expense, net	(5.8)	(11.6)	(18.7)
	2.5	(113.0)	(55.3)
Other activity	-	1.1	(1.7)
Tax impact	2.5	(2.2)	(4.5)
Net of tax	(\$7.8)	(\$1.2)	\$26.0
Pension and Postretirement Benefits			
Amount recognized in AOCI			
Current period net (loss) gain	(\$80.7)	\$83.3	\$270.7
Amount reclassified from AOCI into income			
Settlement (income) charge	(2.7)	51.6	38.8
Amortization of losses and prior period service credits, net	6.9	47.7	78.6
	4.2	99.3	117.4
Tax impact	21.4	(52.3)	(98.4)
Net of tax	(\$55.1)	\$130.3	\$289.7

10. SHAREHOLDERS' EQUITY

Authorized common stock, par value \$1.00 per share, was 800 million shares at December 31, 2023, 2022 and 2021. Treasury stock is stated at cost. Dividends declared per share of common stock were \$2.16 for 2023, \$2.06 for 2022 and \$1.95 for 2021.

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

Share Repurchase Authorization

In February 2015 and November 2022, the Company's Board of Directors authorized the repurchase of up to 20,000,000 and 10,000,000, respectively, additional shares of its common stock, including shares to be repurchased under Rule 10b5-1. As of December 31, 2023, 12,917,097 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 2023, 2022 and 2021, the Company reacquired 83,674, 3,038,107 and 502,132 shares, respectively, of its common stock, of which 0, 2,933,090 and 389,759, respectively, related to share repurchases through open market or private purchases, and 83,674, 105,017 and 112,373, respectively, related to shares withheld for taxes on exercise of stock options and vesting of stock awards and units.

The Inflation Reduction Act ("IRA") was signed into U.S. law on August 16, 2022 and is effective January 1, 2023. The IRA includes an excise tax on the repurchase of corporate stock. The Company does not anticipate the excise tax to have a material impact on the Company's financial statements.

11. 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, 2023, 2022 and 2021 were 18,840,265, 5,475,903 and 7,544,458, 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 40% stock options and 60% PBRsUs for 2023 and 50% stock options and 50% PBRsUs for 2022 and 2021. The Company also periodically grants RSUs. Total compensation expense related to all share-based compensation plans was \$95.1 million (\$81.4 million net of tax benefit), \$87.8 million (\$74.8 million net of tax benefit) and \$89.5 million (\$75.4 million net of tax benefit) for 2023, 2022 and 2021, respectively. As of December 31, 2023, there was \$174.0 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 2.2 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:

	2023		2022		2021	
	Number of Options	Exercise Price (a)	Number of Options	Exercise Price (a)	Number of Options	Exercise Price (a)
Outstanding, beginning of year	7,031,103	\$160.45	6,217,161	\$160.91	6,802,415	\$144.20
Granted	861,840	190.53	1,228,673	148.79	812,853	223.85
Exercised	(832,050)	119.41	(294,228)	101.08	(1,306,998)	110.91
Canceled	(139,537)	183.77	(120,503)	210.26	(91,109)	192.49
Outstanding, end of year	6,921,356	\$168.65	7,031,103	\$160.45	6,217,161	\$160.91
Exercisable, end of year	5,107,518	\$165.77	5,168,161	\$155.45	4,604,922	\$141.21
Vested and expected to vest, end of year	6,862,799	\$168.60				

(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 2023, 2022 and 2021 was \$47.7 million, \$21.0 million and \$148.1 million, respectively.

The total aggregate intrinsic value of options outstanding as of December 31, 2023 was \$244.4 million, with a corresponding weighted-average remaining contractual life of 6.3 years. The total aggregate intrinsic value of options exercisable as of December 31, 2023 was \$199.6 million, with a corresponding weighted-average remaining contractual life of 5.3 years. The total aggregate intrinsic value of options vested and expected to vest as of December 31, 2023 was \$242.5 million, with a corresponding weighted-average remaining contractual life of 6.3 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:

	2023	2022	2021
Weighted-average grant-date fair value of options granted at market prices	\$50.26	\$37.04	\$47.65
Assumptions			
Risk-free rate of return	4.1 %	3.5 %	1.2 %
Expected life	6 years	6 years	6 years
Expected volatility	22.4 %	23.5 %	23.0 %
Expected dividend yield	1.2 %	1.4 %	0.9 %

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 24 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, 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
Granted	291,496	142.24	240,370	146.90
Vested / Earned	(232,210)	152.63	(68,864)	163.81
Canceled	(24,645)	207.05	(18,683)	201.39
December 31, 2022	823,170	\$181.68	385,097	\$170.50
Granted	328,739	185.10	156,618	165.81
Vested / Earned	(180,674)	178.26	(61,776)	191.22
Canceled	(26,409)	175.05	(24,449)	166.22
December 31, 2023	944,826	\$183.71	455,490	\$166.31

(a) Represents weighted average price per share.

12. INCOME TAXES

Income before income taxes consisted of:

(millions)	2023	2022	2021
United States (U.S.)	\$408.9	\$295.6	\$277.7
International	1,346.6	1,047.8	1,136.5
Total	\$1,755.5	\$1,343.4	\$1,414.2

The provision (benefit) for income taxes consisted of:

(millions)	2023	2022	2021
U.S. federal and state	\$137.6	\$145.7	\$30.9
International	280.0	231.4	240.2
Total current	417.6	377.1	271.1
U.S. federal and state	(40.1)	(78.9)	3.6
International	(15.0)	(63.7)	(4.5)
Total deferred	(55.1)	(142.6)	(0.9)
Provision for income taxes	\$362.5	\$234.5	\$270.2

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

December 31 (millions)	2023	2022
Deferred tax assets		
Pension and post-retirement benefits	\$82.1	\$87.0
Other accrued liabilities	162.0	129.6
Lease liability	135.9	109.2
Credit carryforwards	83.7	97.8
Capitalization of R&D costs	180.9	84.5
Loss carryforwards	57.3	67.2
Share-based compensation	54.5	51.2
Deferred income	27.9	59.6
Other, net	113.3	98.8
Valuation allowance	(65.7)	(65.2)
Total deferred tax assets	831.9	719.7
Deferred tax liabilities		
Goodwill	(160.1)	(124.8)
Intangible assets	(451.3)	(486.3)
Property, plant and equipment	(332.3)	(319.7)
Lease asset	(136.1)	(109.1)
Financing	(32.1)	(33.5)
Other, net	(18.9)	(43.8)
Total deferred tax liabilities	(1,130.8)	(1,117.2)
Net deferred tax liabilities balance	(\$298.9)	(\$397.5)

Presentation of prior year amounts relating to goodwill and intangible assets are now presented separately and have been reclassified to conform with the current year presentation. These reclassifications had no effect on the reported results of operations.

As of December 31, 2023 the Company has tax effected federal, state and international net operating loss carryforwards of \$0.2 million, \$16.2 million and \$40.9 million, respectively, and a tax effected federal tax capital loss carryforward of \$3.6 million which will be available to offset future taxable income. The federal and state loss carryforwards of \$16.4 million expire from 2024 to 2044. The international loss carryforwards of \$14.1 million expire from 2024 to 2043 and \$26.8 million have no expiration. The federal capital loss carryforwards of \$3.6 million expire in 2025. The tax loss carryforwards expiring in 2024 are not material.

Additionally, the Company has \$83.7 million of net credit carryforwards that are primarily related to U.S. foreign tax credits and various state credits. The U.S. foreign tax credit carryforwards of \$74.7 million expire from 2030 to 2033. Other state and international credit carryforwards will expire from 2024 to 2038. The tax credit carryforwards expiring in 2024 are not material.

The Company has valuation allowances on certain deferred tax assets of \$65.7 million and \$65.2 million at December 31, 2023 and 2022, respectively. The increase in valuation allowance from year end 2022 to year end 2023 was primarily due to U.S. state tax attributes, foreign net operating losses and other deferred tax assets.

In connection with the implementation of Organization for Economic Co-operation and Development ("OECD") global minimum tax initiative known as Pillar Two, any existing deferred taxes not disclosed in the Company's 2023 financial statements will not be available in the future to reduce tax otherwise due under Pillar Two. Accordingly, the Company is disclosing the existence of gross tax loss carryforwards in Luxembourg of \$1.3 billion. The losses are determined to have a remote possibility of realization and, therefore, are not reported in the table above.

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 holiday for 2023 was \$6.6 million (\$0.02 per diluted share), 2022 was \$5.8 million (\$0.02 per diluted share) and 2021 was \$2.9 million (\$0.01 per diluted share).

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

	2023	2022	2021
Statutory U.S. rate	21.0 %	21.0 %	21.0 %
State income taxes, net of federal benefit	1.4	1.3	0.6
Foreign operations	(0.5)	(0.8)	(0.6)
Excess stock benefits	(0.3)	(0.4)	(2.0)
R&D credit	(1.3)	(1.4)	(1.3)
Foreign derived intangible income	(1.2)	(1.8)	(1.6)
Change in valuation allowance	0.5	0.7	0.5
Legal entity rationalization	0.1	(1.5)	-
One-time transfer of intangibles	-	-	1.8
Other, net	0.9	0.4	0.7
Effective income tax rate	20.6 %	17.5 %	19.1 %

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 2023 effective tax rate of 20.6% includes \$24.7 million of net tax benefits on special (gains) and charges, and net tax expense of \$11.2 million associated with discrete items. The net discrete tax expense 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 laws, audit settlements, share-based compensation excess tax benefit and other changes in estimates.

The Company's 2022 effective tax rate of 17.5% includes \$53.7 million of net tax benefits on special (gains) and charges, and net tax benefit of \$11.8 million associated with discrete items. Discrete items included a deferred tax benefits of \$14.6 million associated with utilization of tax attributes as a result of legal entity rationalization and share-based compensation excess tax benefits of \$6.0 million. The remaining discrete tax expense of \$8.8 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 laws, audit settlements and other changes in estimates.

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. 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 related 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.

A deferred tax liability of \$2.8 million is recorded as of December 31, 2023 related to deferred tax liabilities on unremitted earnings, which are not permanently reinvested. The Company otherwise 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)	2023	2022	2021
Balance at beginning of year	\$24.9	\$25.1	\$20.7
Additions based on tax positions related to the current year	5.8	2.7	3.8
Additions for tax positions of prior years	1.7	3.6	3.0
Current year acquisitions	-	-	4.4
Reductions for tax positions of prior years	-	(1.5)	-
Reductions for tax positions due to statute of limitations	(2.7)	(0.7)	(3.0)
Settlements	(5.5)	(3.4)	(3.7)
Foreign currency translation	-	(0.9)	(0.1)
Balance at end of year	\$24.2	\$24.9	\$25.1

The total amount of unrecognized tax benefits, if recognized would affect the effective tax rate by \$21.6 million as of December 31, 2023, \$23.1 million as of December 31, 2022 and \$22.8 million as of December 31, 2021.

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 through 2020 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 unrecognized tax benefits 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. The Company had \$4.0 million, \$4.0 million and \$3.2 million of accrued interest, including minor amounts for penalties, at December 31, 2023, 2022 and 2021, respectively.

13. 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)	2023	2022	2021
Operating lease cost*	\$215.4	\$196.9	\$179.4

*Includes immaterial short-term and variable lease costs

Future maturity of operating lease liabilities as of December 31, 2023 were as follows:

(millions)	
2024	\$147
2025	128
2026	101
2027	69
2028	39
Thereafter	148
Total lease payments	632
Less: imputed interest	80
Present value of lease liabilities	\$552

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

	December 31 2023	December 31 2022	December 31 2021
Weighted-average remaining lease terms (years)	6.44	6.71	5.99
Weighted-average discount rate	4.02 %	2.98 %	3.07 %

The Company's other lease information was as follows:

(millions)	December 31 2023	December 31 2022	December 31 2021
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases	\$170.6	\$157.3	\$157.0
Leased assets obtained in exchange for new operating lease liabilities	251.5	202.7	116.8

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 \$1,397.5 million and \$1,288.3 million, and related accumulated depreciation is \$878.9 million and \$811.2 million, as of December 31, 2023 and 2022, respectively.

The Company's operating lease revenue was as follows:

(millions)	2023	2022	2021
Operating lease revenue*	\$511.8	\$466.7	\$412.5

*Includes immaterial variable lease revenue

Future revenue from operating leases for existing contracts as of December 31, 2023 were as follows:

(millions)	
2024	\$424
2025	304
2026	243
2027	168
2028	84
Thereafter	49
Total lease revenue	\$1,272

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.

14. 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 \$192 million in 2023, \$190 million in 2022 and \$186 million in 2021. The Company did not participate in any material customer sponsored research during any of the years.

15. 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 12. The Company also has contractual obligations including lease commitments, which are discussed in Note 13.

The Company records liabilities when 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.

TPC Group Litigation

On November 27, 2019, a Butadiene production plant owned and operated by TPC Group, Inc. ("TPC") 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 asserted claims against Nalco.

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.

On June 1, 2022, TPC and seven of its affiliated companies filed for bankruptcy under Chapter 11 (Case No. 22-10493-CTG, United States Bankruptcy Court for the District of Delaware). In connection with the bankruptcy cases, TPC disclosed an estimated range of its liability related to the Port Neches incident to individuals and homeowners (including subrogation claims) of approximately \$152 million to \$520 million. As part of their bankruptcy plan, TPC and its affiliates announced a settlement which allows the MDL plaintiffs a \$500 million claim solely for purposes of claim allowance in the chapter 11 case and distribution of value pursuant to TPC's bankruptcy plan. Other key terms of the settlement between TPC and the MDL plaintiffs include the establishment of a settlement trust for the benefit of certain general unsecured creditors, which is funded with \$30 million and the assignment of TPC's claims and causes of action, if any, against certain third parties, including Nalco, related to the TPC plant explosion. As part of the bankruptcy process, TPC and its debtor affiliates received a discharge of all MDL related claims, as did certain non-debtor affiliates to the extent third parties did not opt out of the non-debtor releases. Nalco opted out of these releases, preserving any direct causes of action it may have against non-debtors. Furthermore, the allowance of the \$500 million claim should have no effect on any claims or defenses asserted against or by Nalco in the MDL litigation. On December 1, 2022, the bankruptcy court confirmed the TPC bankruptcy plan, including the approval of the settlement and establishment of the aforementioned settlement trust. On December 16, 2022, the TPC bankruptcy plan went effective.

The Company believes the claims asserted against Nalco in the lawsuits stemming from the TPC plant explosion are without merit and intends to defend the claims vigorously. The Company also believes any potential loss 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 25 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.

16. 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 U.S. non-contributory, non-qualified, defined benefit pension plans, which provide for benefits to employees in excess of limits permitted under its pension plans. The U.S. non-qualified plans are not funded and the recorded benefit obligations for the non-qualified plans were \$87 million and \$86 million at December 31, 2023 and 2022, respectively. The measurement date used for determining the U.S. pension plan assets and obligations is December 31.

Various international subsidiaries have defined benefit pension plans. 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 Company provides postretirement health care and life insurance benefits to certain U.S. employees and retirees. 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 Company also maintains several U.S. postretirement life insurance plans. The measurement date used to determine the U.S. postretirement health care and life insurance 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 benefit plans:

	U.S. Pensions		International Pensions		U.S. Postretirement Benefits	
(millions)	2023	2022	2023	2022	2023	2022
Accumulated benefit obligation, end of year	\$1,859.5	\$1,799.0	\$1,125.8	\$1,171.1	\$112.0	\$115.5
Projected benefit obligation						
Projected benefit obligation, beginning of year	\$1,799.0	\$2,462.7	\$1,221.9	\$1,779.7	\$115.5	\$155.4
Service cost	40.9	40.8	21.7	28.4	0.4	0.8
Interest cost	88.1	65.3	45.9	22.0	5.6	3.3
Participant contributions	-	-	2.8	3.0	3.8	3.7
Plan amendments	-	-	(1.5)	-	-	-
Actuarial (gain) loss	90.2	(479.8)	(101.0)	(436.8)	(0.1)	(33.7)
Assumed through acquisitions	-	-	-	15.1	-	-
Other events	-	-	2.9	-	-	-
Benefits paid	(158.7)	(290.0)	(69.8)	(54.3)	(13.2)	(14.0)
Foreign currency translation	-	-	51.1	(135.2)	-	-
Projected benefit obligation, end of year	\$1,859.5	\$1,799.0	\$1,174.0	\$1,221.9	\$112.0	\$115.5
Plan assets						
Fair value of plan assets, beginning of year	\$1,668.5	\$2,376.8	\$905.1	\$1,219.9	\$3.2	\$5.2
Actual returns on plan assets	149.1	(430.3)	(44.0)	(218.3)	0.2	(0.8)
Company contributions	60.8	12.0	35.4	38.3	12.2	12.8
Participant contributions	-	-	2.8	3.0	-	-
Acquired through acquisitions	-	-	2.9	15.1	-	-
Benefits paid	(158.7)	(290.0)	(67.6)	(54.3)	(13.2)	(14.0)
Foreign currency translation	-	-	36.6	(98.6)	-	-
Fair value of plan assets, end of year	\$1,719.7	\$1,668.5	\$871.2	\$905.1	\$2.4	\$3.2
Funded Status, end of year	(\$139.8)	(\$130.5)	(\$302.8)	(\$316.8)	(\$109.6)	(\$112.3)
Amounts recognized in the Consolidated Balance Sheets:						
Other assets	\$-	\$-	\$118.4	\$118.6	\$-	\$-
Other current liabilities	(\$9.2)	(9.2)	(33.0)	(28.6)	(8.7)	(7.6)
Postretirement healthcare and pension benefits	(\$130.6)	(121.3)	(388.2)	(406.8)	(100.9)	(104.7)
Net liability	(\$139.8)	(\$130.5)	(\$302.8)	(\$316.8)	(\$109.6)	(\$112.3)
Amounts recognized in accumulated other comprehensive loss (income):						
Unrecognized net actuarial loss (gain)	\$495.2	\$411.9	\$278.5	\$279.7	(\$40.8)	(\$43.6)
Unrecognized net prior service (benefits) costs	(16.7)	(21.2)	(0.4)	0.3	-	-
Tax (benefit) expense	(122.8)	(100.8)	(64.4)	(66.5)	6.2	7.7
Accumulated other comprehensive loss (income), net of tax	\$355.7	\$289.9	\$213.7	\$213.5	(\$34.6)	(\$35.9)
Change in accumulated other comprehensive loss (income):						
Amortization of net actuarial gain (loss)	(\$0.2)	(\$30.2)	(\$14.8)	(\$22.7)	\$3.1	\$0.6
Amortization of prior service credits	4.5	4.5	0.5	0.1	-	-
Current period net actuarial loss (gain)	83.5	97.0	(1.0)	(147.8)	(0.3)	(32.5)
Current period prior service costs	-	-	(1.5)	-	-	-
Curtailments and settlements	-	(51.6)	2.7	-	-	-
Tax (benefit) expense	(22.0)	(5.5)	2.1	51.3	(1.5)	6.5
Foreign currency translation	-	-	12.2	(35.1)	-	-
Other comprehensive loss (income)	\$65.8	\$14.2	\$0.2	(\$154.2)	\$1.3	(\$25.4)

Estimate amounts in accumulated other comprehensive loss expected to be reclassified to net period cost during 2024 were as follows:

	U.S. Pensions	International Pensions	U.S. Post- Retirement Benefits
(millions)			
Net actuarial loss (gain)	\$6.1	\$10.0	(\$3.2)
Net prior service benefits	(4.6)	(0.6)	-
Total	\$1.5	\$9.4	(\$3.2)

Service cost is included with employee compensation cost in either cost of sales and selling, general and administrative expenses in the Consolidated Statements of Income based on employee roles in the Company 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)	2023	2022
Aggregate projected benefit obligation	\$2,428.8	\$2,392.1
Accumulated benefit obligation	2,392.4	2,355.8
Fair value of plan assets	1,868.9	1,828.1

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.

For the year ended December 31, 2023, the year-over-year decrease in the Company's consolidated net benefit obligations was due to an increase in pension plan assets, partially offset by a smaller increase in pension plan liabilities. Pension liabilities increased on a global basis primarily due to decreases in pension discount rates for U.S. plans, partially offset by increases in pension discount rates for international plans. The Company's pension discount rates are largely determined based on observable yields of investment grade corporate bonds or government issued debt-securities. The Company's pension plan assets are reported at fair value. The fair value of the Company's pension assets increased on a global basis primarily due to higher returns on the Company's equity and fixed income investments compared to prior year.

For the year ended December 31, 2022, the year-over-year decrease in the Company's consolidated net benefit obligations was due to decreases in both pension liabilities and pension plan assets. Pension liabilities decreased on a global basis primarily due to increases in pension discount rates used to discount projected pension benefit payments. The Company's pension discount rates are largely determined based on observable yields of investment grade corporate bonds or government issued debt-securities. Yields on these securities increased sharply in 2022 due, in part, to actions taken by many central banks to curb global inflation. The Company's pension plan assets are reported at fair value. The fair value of the Company's pension assets decreased on a global basis primarily due to unfavorable returns on the Company's equity and fixed income investments.

Net Periodic Benefit Costs and Plan Assumptions

Pension and postretirement benefits expense for the Company's operations were as follows:

(millions)	U.S. Pensions			International Pensions			U.S. Postretirement Benefits		
	2023	2022	2021	2023	2022	2021	2023	2022	2021
Service cost	\$40.9	\$40.8	\$43.9	\$21.7	\$28.4	\$31.4	\$0.4	\$0.8	\$1.0
Interest cost on benefit obligation	88.1	65.3	51.4	45.9	22.0	17.3	5.6	3.3	2.9
Expected return on plan assets	(145.1)	(144.4)	(152.3)	(56.1)	(69.8)	(70.7)	(0.2)	(0.3)	(0.4)
Recognition of net actuarial loss (gain)	0.2	30.2	56.7	12.5	22.8	28.7	(3.1)	(0.6)	0.7
Amortization of prior service benefit	(4.5)	(4.5)	(6.9)	(0.5)	(0.1)	(0.1)	-	-	-
Curtailments and settlements (a)	-	51.6	35.3	(2.7)	-	3.5	-	-	-
Total expense (benefit)	(\$20.4)	\$39.0	\$28.1	\$20.8	\$3.3	\$10.1	\$2.7	\$3.2	\$4.2

(a) \$50.6 and \$37.2 of settlement expense was recognized as special charges in 2022 and 2021, respectively.

During 2022 and 2021, the Company incurred settlement expense in the U.S. of \$51.6 million (\$38.9 million after tax) and \$35.3 million (\$26.8 million after tax), respectively, related to lump-sum payments to retirees in its U.S. pension plans. In addition to the U.S. qualified plan settlements in 2022 and 2021, the Company has historically recognized settlements and curtailment gains and losses associated with its U.S. nonqualified pension plans and International pension plans, the amounts of which have been historically not material. These charges have been included as a component of other (income) expense on the Consolidated Statements of Income.

The measurement of the Company's pension and postretirement benefit obligations are dependent on a variety of assumptions determined by management and used by actuaries in their valuation method and calculations. The significant assumptions used in developing the required estimates of the projected benefit obligations are the discount rates, expected returns on assets, projected salary increases, and mortality tables. Assumptions for the Company were as follows:

Plan Assumptions	U.S. Pensions			International Pensions			U.S. Postretirement Benefits		
(percent)	2023	2022	2021	2023	2022	2021	2023	2022	2021
Weighted-average actuarial assumptions used to determine benefit obligations as of year end:									
Discount rate	4.95 %	5.17 %	2.86 %	4.34%	3.70 %	1.45 %	4.95 %	5.14 %	2.75 %
Projected salary increase	4.03	4.03	4.03	2.84	2.81	2.42			
Weighted-average actuarial assumptions used to determine net cost:									
Interest credit rate for cash balance plans	3.89	1.56	0.87	N/A	N/A	N/A	N/A	N/A	N/A
Discount rate	5.17	2.86	2.49	3.70	1.46	1.37	5.14	2.75	2.37
Expected return on plan assets	7.75	7.00	7.00	6.27	6.18	6.24	7.75	7.00	7.00
Projected salary increase	4.03	4.03	4.03	3.08	2.47	2.31			

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 bonds with maturities ranging from six months to thirty years. Discount rates are estimated for the U.S. plans based on the timing of the expected benefit payments.

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 respective 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 expected long-term rate of return 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 mortality tables appropriate in the circumstances, which generally are the recent available mortality tables as of the respective U.S. and international measurement dates. The Company's 2023 and 2022 year-end U.S. valuations reflect mortality tables that estimate the impacts of COVID in an endemic state. This represents a change from 2021 when the impact of COVID on future mortality could not be reasonably estimated.

For postretirement benefit measurement purposes as of December 31, 2023, the annual rates of increase in the per capita cost of covered health care were assumed to be 7.46% for pre-65 costs. Post-65 costs are no longer used. The rates are assumed to decrease each year until they reach 4.5% in 2034 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. Investment income is not a primary 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 U.S. 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 international retirement plans are managed in each local jurisdiction and asset allocation strategy is set in accordance with local rules, regulations and practices; therefore, no overall target asset allocation is presented. Although foreign 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 7 for definitions of these levels.

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

(millions)	Fair Value as of December 31, 2023			Fair Value as of December 31, 2022		
	Level 1	Level 2	Total	Level 1	Level 2	Total
Cash	\$30.1	\$-	\$30.1	\$54.8	\$-	\$54.8
Equity securities:						
Large cap equity	276.1	-	276.1	237.1	-	237.1
Small cap equity	14.6	29.6	44.2	15.4	25.1	40.5
International equity	40.4	19.2	59.6	37.4	17.2	54.6
Fixed income:						
Core fixed income	150.7	669.6	820.3	145.5	646.5	792.0
High-yield bonds	34.7	-	34.7	33.4	-	33.4
Emerging markets	-	24.8	24.8	-	25.4	25.4
Total investments at fair value	546.6	743.2	1,289.8	523.6	714.2	1,237.8
Investments measured at net asset value			432.3			433.9
Total	\$546.6	\$743.2	\$1,722.1	\$523.6	\$714.2	\$1,671.7

The Company had no Level 3 assets as part of its U.S. qualified pension plan assets as of December 31, 2023 or 2022.

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

Asset Category	Target Asset Allocation Percentage		Percentage of Plan Assets	
	2023	2022	2023	2022
December 31				
Cash	- %	- %	2 %	3 %
Equity securities:				
Large cap equity	21	21	16	14
Small cap equity	3	3	3	2
International equity	13	13	9	9
Fixed income:				
Core fixed income	48	48	48	47
High-yield bonds	3	3	2	2
Emerging markets	2	2	1	2
Other:				
Real estate	3	3	3	4
Private equity	5	5	14	15
Distressed debt	2	2	2	2
Total	100 %	100 %	100 %	100 %

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

(millions)	Fair Value as of December 31, 2023			Fair Value as of December 31, 2022		
	Level 1	Level 2	Total	Level 1	Level 2	Total
Cash	\$12.6	\$-	\$12.6	\$9.9	\$-	\$9.9
Equity securities:						
International equity	-	182.5	182.5	-	219.3	219.3
Fixed income:						
Corporate bonds	-	147.5	147.5	-	158.5	158.5
Government bonds	-	321.4	321.4	-	365.9	365.9
Insurance company accounts	-	163.4	163.4	-	106.2	106.2
Total investments at fair value	12.6	814.8	827.4	9.9	849.9	859.8
Investments measured at net asset value			43.8			45.3
Total	\$12.6	\$814.8	\$871.2	\$9.9	\$849.9	\$905.1

The Company had no Level 3 assets as part of its international plan assets as of December 31, 2023 or 2022.

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

Asset Category	Percentage of Plan Assets	
	2023	2022
December 31		
Cash	1 %	1 %
Equity securities:		
International equity	21	24
Fixed income:		
Corporate bonds	17	18
Government bonds	37	40
Total fixed income	54	58
Other:		
Insurance contracts	19	12
Real estate	5	5
Total	100 %	100 %

Cash Flows

As of year-end 2023, the Company's estimate of pension and postretirement benefits expected to be paid in each of the next five fiscal years and in the aggregate for the five fiscal years thereafter are as follows:

(millions)	All Plans
2024	\$242
2025	242
2026	241
2027	244
2028	246
2029 - 2033	1,215

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 a lump sum payout.

The Company is currently in compliance with all funding requirements of its U.S. pension and postretirement benefit plans. A \$50.0 million voluntary contribution was made to its non-contributory qualified U.S. pension plan in 2023. The Company is required to fund certain international pension benefit plans in accordance with local legal requirements. The Company estimates contributions to be made to its international plans will approximate \$47 million in 2024.

The Company seeks to maintain balance in its U.S. assets that meet the long-term funding requirements identified by the projections of the pension plans' 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").

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 \$88.2 million, \$81.6 million and \$78.2 million in 2023, 2022 and 2021, respectively.

17. 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.

On June 3, 2020, the Company completed the separation of its Upstream Energy business ("ChampionX"). The Company 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 and for a smaller set of products with limited suppliers over the next few years. 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 2023, 2022 and 2021 were \$69.0 million, \$123.8 million and \$139.1 million, respectively. As of December 31, 2023 and 2022, the Company had an outstanding accounts receivable balance for sales of product to ChampionX of \$3.8 and 12.9 million, respectively.

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. Refer to Note 13 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 18.

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

(millions)	2023	2022	2021
Global Industrial			
Product and sold equipment	\$6,331.0	\$5,937.0	\$5,372.4
Service and lease equipment	890.8	868.0	865.5
Global Institutional & Specialty			
Product and sold equipment	4,087.4	3,655.3	3,276.3
Service and lease equipment	911.8	776.8	690.5
Global Healthcare & Life Sciences			
Product and sold equipment	1,476.3	1,398.3	1,068.8
Service and lease equipment	109.7	112.2	112.8
Other			
Product and sold equipment	353.1	331.9	297.9
Service and lease equipment	1,091.1	984.5	909.8
Corporate			
Product and sold equipment	69.0	123.7	137.9
Service and lease equipment	-	0.1	1.2
Total			
Total product and sold equipment	\$12,316.8	\$11,446.2	\$10,153.3
Total service and lease equipment	3,003.4	2,741.6	2,579.8

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

	Global Industrial			Global Institutional & Specialty		
(millions)	2023	2022	2021	2023	2022	2021
United States	\$3,059.3	\$2,945.1	\$2,603.1	\$3,454.2	\$3,050.0	\$2,721.8
Europe	1,496.6	1,373.6	1,367.1	681.9	624.0	558.0
Asia Pacific	880.0	830.1	802.5	231.2	212.6	201.2
Latin America	737.2	621.7	551.5	188.3	162.3	135.0
Greater China	391.4	419.3	394.9	158.5	134.7	143.1
India, Middle East and Africa	452.1	419.4	344.4	67.0	54.6	44.2
Canada	205.2	195.8	174.4	218.1	193.9	163.5
Total	\$7,221.8	\$6,805.0	\$6,237.9	\$4,999.2	\$4,432.1	\$3,966.8

	Global Healthcare & Life Sciences			Other		
(millions)	2023	2022	2021	2023	2022	2021
United States	\$647.7	\$612.5	\$443.8	\$898.6	\$816.0	\$719.9
Europe	735.0	688.8	625.3	301.7	272.7	264.9
Asia Pacific	95.3	92.8	65.2	85.9	76.1	72.4
Latin America	25.5	24.7	5.5	57.6	51.9	50.3
Greater China	51.2	61.0	10.1	69.2	68.6	69.2
India, Middle East and Africa	24.8	25.0	25.4	9.0	10.3	11.6
Canada	6.5	5.7	6.3	22.2	20.8	19.4
Total	\$1,586.0	\$1,510.5	\$1,181.6	\$1,444.2	\$1,316.4	\$1,207.7

	Corporate		
(millions)	2023	2022	2021
United States	\$55.6	\$107.5	\$98.1
Europe	3.0	3.0	3.9
Asia Pacific	3.7	4.1	5.5
Latin America	5.6	7.3	24.6
Greater China	-	0.1	2.3
India, Middle East and Africa	-	0.3	3.4
Canada	1.1	1.5	1.3
Total	\$69.0	\$123.8	\$139.1

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 12%, 12%, and 10% of consolidated net sales in 2023, 2022 and 2021, 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 2023	December 31 2022
Contract liability as of beginning of the year	\$116.5	\$91.7
Revenue recognized in the year from:		
Amounts included in the contract liability at the beginning of the year	(116.5)	(91.7)
Increases due to billings excluding amounts recognized as revenue during the year ended	110.9	116.5
Contract liability as of end of year	\$110.9	\$116.5

18. OPERATING SEGMENTS AND GEOGRAPHIC INFORMATION

The Company's organizational structure consists of global business unit and global regional leadership teams. The Company's ten 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 and Paper 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 4. Corporate also includes intangible asset amortization specifically from the Nalco and Purolite acquisitions 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 January 1, 2023, the Company's former Downstream operating segment is now part of the Water operating segment. This change did not have any impact on the Global Industrial reportable segment.

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 international operations at fixed currency exchange rates established by management at the beginning of 2023, rather than the 2022 established rates. The difference between the fixed currency exchange rates and the actual currency exchange rates is reported within the "Effect of foreign currency translation" row in the following table. The "Other" column shown in the following table reflects immaterial changes between reportable segments, including the movement of certain customers and cost allocations.

The impact of the preceding changes on previously reported full year 2022 and 2021 reportable segment net sales and operating income is summarized as follows:

December 31, 2022				
(millions)	2022 Reported Valued at 2022 Fixed Currency Rates	Other	Fixed Currency Rate Change	2022 Reported Valued at 2023 Fixed Currency Rates
Net Sales				
Global Industrial	\$6,944.0	\$-	(\$207.7)	\$6,736.3
Global Institutional & Specialty	4,480.0	10.2	(75.9)	4,414.3
Global Healthcare & Life Sciences	1,570.0	-	(64.2)	1,505.8
Other	1,355.0	(10.2)	(31.5)	1,313.3
Corporate	124.1	-	(0.4)	123.7
Subtotal at fixed currency rates	14,473.1	-	(379.7)	14,093.4
Effect of foreign currency translation	(285.3)	-	379.7	94.4
Consolidated reported GAAP net sales	\$14,187.8	\$-	\$-	\$14,187.8
Operating Income				
Global Industrial	\$977.0	\$0.8	(\$42.0)	\$935.8
Global Institutional & Specialty	634.5	(1.6)	(11.2)	621.7
Global Healthcare & Life Sciences	205.0	(1.8)	(9.9)	193.3
Other	212.8	2.6	(5.5)	209.9
Corporate	(416.7)	-	2.3	(414.4)
Subtotal at fixed currency rates	1,612.6	-	(66.3)	1,546.3
Effect of foreign currency translation	(50.1)	-	66.3	16.2
Consolidated reported GAAP operating income	\$1,562.5	\$-	\$-	\$1,562.5

December 31, 2021				
(millions)	2021 Reported Valued at 2022 Fixed Currency Rates	Segment Change	Fixed Currency Rate Change	2021 Reported Valued at 2023 Fixed Currency Rates
Net Sales				
Global Industrial	\$6,086.8	\$-	(\$178.3)	\$5,908.5
Global Institutional & Specialty	3,908.8	10.9	(63.0)	3,856.7
Global Healthcare & Life Sciences	1,149.6	-	(48.5)	1,101.1
Other	1,201.0	(10.9)	(27.6)	1,162.5
Corporate	137.4	-	-	137.4
Subtotal at fixed currency rates	12,483.6	-	(317.4)	12,166.2
Effect of foreign currency translation	249.5	-	317.4	566.9
Consolidated reported GAAP net sales	\$12,733.1	\$-	\$-	\$12,733.1
Operating Income				
Global Industrial	\$985.7	\$0.4	(\$42.7)	\$943.4
Global Institutional & Specialty	545.7	(1.4)	(7.6)	536.7
Global Healthcare & Life Sciences	152.3	(1.6)	(9.7)	141.0
Other	184.0	2.6	(5.3)	181.3
Corporate	(316.6)	-	2.3	(314.3)
Subtotal at fixed currency rates	1,551.1	-	(63.0)	1,488.1
Effect of foreign currency translation	47.5	-	63.0	110.5
Consolidated reported GAAP operating income	\$1,598.6	\$-	\$-	\$1,598.6

Reportable Segment Information

Financial information for each of the Company's reportable segments were as follows:

(millions)	Net Sales			Operating Income (Loss)		
	2023	2022	2021	2023	2022	2021
Global Industrial	\$7,193.1	\$6,736.3	\$5,908.5	\$1,080.7	\$935.8	\$943.4
Global Institutional & Specialty	4,994.0	4,414.3	3,856.7	823.0	621.7	536.7
Global Healthcare & Life Sciences	1,576.9	1,505.8	1,101.1	160.0	193.3	141.0
Other	1,442.3	1,313.3	1,162.5	255.0	209.9	181.3
Corporate	69.1	123.7	137.4	(331.7)	(414.4)	(314.3)
Subtotal at fixed currency	15,275.4	14,093.4	12,166.2	1,987.0	1,546.3	1,488.1
Effect of foreign currency translation	44.8	94.4	566.9	5.3	16.2	110.5
Consolidated reported GAAP	\$15,320.2	\$14,187.8	\$12,733.1	\$1,992.3	\$1,562.5	\$1,598.6

The profitability of the Company's operating segments is evaluated by management based on operating income.

Consistent with the Company's internal management reporting, Corporate amounts in the table above include sales to ChampionX in accordance with the long-term supply agreement entered into with the Transaction, as discussed in Note 17. Corporate also includes intangible asset amortization specifically from the Nalco and Purolite acquisitions and special (gains) and charges, as discussed in Note 3, that are not allocated to the Company's reportable segments.

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 were as follows:

(millions)	Long-Lived Assets, net	
	2023	2022
United States	\$2,708.6	\$2,508.9
Europe	631.2	574.3
Asia Pacific	213.0	210.3
Latin America	175.1	146.5
Greater China	167.4	176.6
India, Middle East and Africa	68.2	64.1
Canada	64.6	60.9
Total	\$4,028.1	\$3,741.6

Geographic data for long-lived assets is based on physical location of those assets. Refer to Note 17 for net sales by geographic region.

19. QUARTERLY FINANCIAL DATA (UNAUDITED)

(millions, except per share)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year
2023					
Net sales	\$3,571.6	\$3,852.1	\$3,958.1	\$3,938.4	\$15,320.2
Operating expenses					
Cost of sales (a)	2,205.2	2,334.8	2,330.5	2,284.4	9,154.9
Selling, general and administrative expenses	990.3	1,011.6	1,024.9	1,034.8	4,061.6
Special (gains) and charges	24.5	21.0	36.7	29.2	111.4
Operating income	351.6	484.7	566.0	590.0	1,992.3
Other (income) expense (b)	(13.1)	(14.4)	(14.5)	(17.9)	(59.9)
Interest expense, net	74.2	77.8	74.3	70.4	296.7
Income before income taxes	290.5	421.3	506.2	537.5	1,755.5
Provision for income taxes	52.4	86.6	96.8	126.7	362.5
Net income including noncontrolling interest	238.1	334.7	409.4	410.8	1,393.0
Net income attributable to noncontrolling interest	4.7	5.0	5.4	5.6	20.7
Net income attributable to Ecolab	\$233.4	\$329.7	\$404.0	\$405.2	\$1,372.3
Earnings attributable to Ecolab per common share					
Basic	\$ 0.82	\$ 1.16	\$ 1.42	\$ 1.42	\$ 4.82
Diluted	\$ 0.82	\$ 1.15	\$ 1.41	\$ 1.41	\$ 4.79
Weighted-average common shares outstanding					
Basic	284.6	284.9	285.1	285.3	285.0
Diluted	285.9	286.3	286.9	287.1	286.5
2022					
Net sales	\$3,266.7	\$3,580.6	\$3,669.3	\$3,671.2	\$14,187.8
Operating expenses					
Cost of sales (a)	2,073.4	2,211.1	2,291.6	2,254.9	8,831.0
Selling, general and administrative expenses	914.7	940.1	876.9	922.1	3,653.8
Special (gains) and charges	24.1	3.6	17.8	95.0	140.5
Operating income	254.5	425.8	483.0	399.2	1,562.5
Other (income) expense (b)	(18.8)	(19.5)	5.7	8.1	(24.5)
Interest expense, net	53.0	56.0	65.1	69.5	243.6
Income before income taxes	220.3	389.3	412.2	321.6	1,343.4
Provision for income taxes	45.6	76.6	60.2	52.1	234.5
Net income including noncontrolling interest	174.7	312.7	352.0	269.5	1,108.9
Net income attributable to noncontrolling interest	2.8	4.4	4.9	5.1	17.2
Net income attributable to Ecolab	\$171.9	\$308.3	\$347.1	\$264.4	\$1,091.7
Earnings attributable to Ecolab per common share					
Basic	\$ 0.60	\$ 1.08	\$ 1.22	\$ 0.93	\$ 3.83
Diluted	\$ 0.60	\$ 1.08	\$ 1.21	\$ 0.93	\$ 3.81
Weighted-average common shares outstanding					
Basic	286.2	285.1	284.9	284.6	285.2
Diluted	288.1	286.6	286.3	285.8	286.6

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.

- (a) Cost of sales includes special charges of \$3.2, \$8.1, \$5.9 and \$5.3 in Q1, Q2, Q3 and Q4 of 2023, respectively, and \$52.9, \$1.7, \$7.1 and \$8.2 in Q1, Q2, Q3 and Q4 of 2022, respectively.
- (b) Other (income) expense includes special charges of \$24.8 and \$25.8 in Q3 and Q4 of 2022, 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, 2023, we carried out an evaluation, under the supervision and with the participation of our management, including our Chairman 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 Chairman and Chief Executive Officer and our Chief Financial Officer concluded that, as of December 31, 2023, our disclosure controls and procedures were effective.

Management's Report on Internal Control Over Financial Reporting

Refer to page 47 of this Annual Report for "Management's Report on Internal Control Over Financial Reporting."

Report of Registered Public Accounting Firm

Refer to page 48 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, 2023 through December 31, 2023 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.

Rule 10b5-1 Plan Adoptions and Modifications.

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 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” 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 2023
- Compensation Risk Analysis
- Compensation & Human Capital Management Committee Interlocks and Insider Participation
- Compensation & Human Capital Management Committee Report
- Compensation Discussion and Analysis
- Summary Compensation Table for 2023
- Grants of Plan-Based Awards for 2023
- Outstanding Equity Awards at Fiscal Year End for 2023
- Option Exercises and Stock Vested for 2023
- Pension Benefits for 2023
- Non-Qualified Deferred Compensation for 2023
- 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. Information appearing under the heading entitled “Equity Compensation Plan Information” located in the Proxy Statement is incorporated herein by reference.

A total of 201,743 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, 2023 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	8,525,989 (1)	\$ 168.65 (1)	18,840,264
Total	8,525,989	\$ 168.65	18,840,264

- (1) Includes 204,317 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, 944,826 Common Stock equivalents under our 2010 and 2023 Stock Incentive Plans representing performance-based restricted stock units payable to employees, and 455,490 Common Stock equivalents under our 2010 and 2023 Stock Incentive Plans 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.

Document:	Page:
(i) Report of Independent Registered Public Accounting Firm. (PCAOB ID 238)	48
(ii) Consolidated Statements of Income for the years ended December 31, 2023, 2022 and 2021.	50
(iii) Consolidated Statements of Comprehensive Income for the years ended December 31, 2023, 2022 and 2021.	51
(iv) Consolidated Balance Sheets at December 31, 2023 and 2022.	52
(v) Consolidated Statements of Cash Flows for the years ended December 31, 2023, 2022 and 2021.	53
(vi) Consolidated Statements of Equity for the years ended December 31, 2023, 2022 and 2021.	54
(vii) Notes to Consolidated Financial Statements.	55

Exhibit No.:	Document:	Method of Filing:
(a)(2)	Financial Statement Schedules. 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.
(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.
(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.
(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.
(3.2)	By-Laws, as amended through May 24, 2023.	Incorporated by reference to Exhibit (3.1) of our Form 8-K, dated May 4, 2023.
(4.1)	Common Stock.	See Exhibits (3.1) and (3.2)

Exhibit No.:	Document:	Method of Filing:
(4.2)	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.
(4.3)	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.
(4.4)	Form of 5.500% Notes due 2041.	Included in Exhibit (4.3) above.
(4.5)	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.
(4.6)	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.
(4.7)	Form of 2.625% Euro Notes due 2025.	Included in Exhibit (4.6) above.
(4.8)	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.
(4.9)	Forms of 2.700% Notes due 2026 and 3.700% Notes due 2046.	Included in Exhibit (4.8) above.
(4.10)	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.
(4.11)	Form of 3.250% Notes due 2027.	Included in Exhibit (4.10) above.
(4.12)	Form of 3.950% Notes due 2047.	Included in Exhibit (4.10) above.
(4.13)	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.
(4.14)	Form of 4.800% Notes due 2030.	Included in Exhibit (4.13) above.
(4.15)	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 on August 13, 2020.
(4.16)	Form of 1.300% Notes due 2031.	Included in Exhibit (4.15) above.
(4.17)	Form of 2.125% Notes due 2050.	Included in Exhibit (4.15) above.

Exhibit No.:	Document:	Method of Filing:
(4.18)	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.
(4.19)	Form of 2.750% Notes due 2055.	Included in Exhibit (4.18) above.
(4.20)	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 on December 15, 2021.
(4.21)	Form of 1.650% Notes due 2027.	Included in Exhibit (4.20) above.
(4.22)	Form of 2.125% Notes due 2032.	Included in Exhibit (4.20) above.
(4.23)	Form of 2.700% Notes due 2051.	Included in Exhibit (4.20) above.
(4.24)	Twelfth Supplemental Indenture, dated as of November 17, 2022, between Ecolab Inc. and Computershare Trust Company, N.A., as Trustee.	Incorporated by reference to Exhibit (4.2) of our Form 8-K filed on November 17, 2022.
(4.25)	Form of 5.250% Notes due 2028.	Included in Exhibit (4.24) above.
(4.27)	Description of Securities.	Filed herewith electronically.
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)	(i) 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. (ii) First Amendment, dated as of March 17, 2023, to the Third Amended and Restated Multicurrency Credit Agreement dated as of April 16, 2021, among Ecolab Inc., the banks from time to time party thereto and Bank of America, N.A., as Agent.	Incorporated by reference to Exhibit (10.1) of our Form 8-K, dated April 20, 2021. Incorporated by reference to Exhibit (10.1) of our Form 10-Q, for the quarter ended March 31, 2023.
(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 30 October 2023, between Ecolab Inc., Ecolab NL 10 B.V., Ecolab NL 11 B.V. and Nalco Overseas Holding B.V. (as Issuers), Ecolab Inc. (as Guarantor in respect of the notes issued by Ecolab NL 10 B.V., Ecolab NL 11 B.V. and Nalco Overseas Holding B.V.), Barclays Bank PLC (as Arranger), and Barclays Bank Ireland PLC, Barclays Bank PLC, Citigroup Global Markets Europe AG and Citigroup Global Markets Limited (as Dealers).	Filed herewith electronically.

Exhibit No.:	Document:	Method of Filing:
	(b) Amended and Restated Note Agency Agreement, dated 30 October 2023, between Ecolab Inc., Ecolab NL 10 B.V. Ecolab NL 11 B.V. and Nalco Overseas Holding B.V. (as Issuers), Ecolab Inc. (as Guarantor in respect of the notes issued by Ecolab NL 10 B.V., Ecolab NL 11 B.V. and Nalco Overseas Holding B.V.), and Citibank, N.A., London Branch (as Issue and Paying Agent).	Filed herewith electronically.
	(c) Deed of Covenant made on 30 October 2023 by Ecolab Inc., Ecolab NL 10 B.V., Ecolab NL 11 B.V. and Nalco Overseas Holding B.V. (as Issuers).	Filed herewith electronically.
	(d) Deed of Guarantee made on 30 October 2023 by Ecolab Inc. (in respect of notes issued by Ecolab NL 10 B.V., Ecolab NL 11 B.V. and Nalco Overseas Holding B.V.).	Filed herewith electronically.
(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., 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.
	(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.
	(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.
(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.
	† (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.
	† (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.
	† (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.
(10.4)	† Form of Indemnification Agreement, effective as of December 7, 2023. Substantially identical agreements are in effect as to each of our directors and certain of our officers.	Filed herewith electronically.
(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.

Exhibit No.:	Document:	Method of Filing:
	† (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.
	† (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.
	† (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.
	† (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.
	† (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.
	† (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.
(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..
	† (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.
(10.7)	† (i) Ecolab Supplemental Executive Retirement Plan, as amended and restated, effective as of January 1, 2022.	Incorporated by reference to Exhibit (10.7)(i) of our Form 10-K Annual Report for the year ended December 31, 2021..
(10.8)	† (i) Ecolab Mirror Savings Plan, as amended and restated, effective as of January 1, 2022.	Incorporated by reference to Exhibit (10.8)(i) of our Form 10-K Annual Report for the year ended December 31, 2021..
(10.9)	† (i) Ecolab Mirror Pension Plan, as amended and restated, effective as of January 1, 2022.	Incorporated by reference to Exhibit (10.9)(i) of our Form 10-K Annual Report for the year ended December 31, 2021..
(10.10)	† (i) Ecolab Inc. Administrative Document for Non-Qualified Plans, as amended and restated, effective as of January 1, 2022.	Incorporated by reference to Exhibit (10.10)(i) of our Form 10-K Annual Report for the year ended December 31, 2021..
(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.
	† (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.
(10.12)	† Description of Ecolab Management Incentive Plan.	Filed herewith electronically.
(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.
	† (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, for the quarter ended March 31, 2019.

Exhibit No.:	Document:	Method of Filing:
	† (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.
	† (iv) 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.
	† (v) 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.
	† (vi) Sample form of Performance-Based Restricted Stock Unit Award Agreement under the Ecolab Inc. 2010 Stock Incentive Plan, adopted December 1, 2021.	Incorporated by reference to Exhibit (10.13)(ix) of our Form 10-K Annual Report for the year ended December 31, 2021..
(10.14)	† (i) Ecolab Inc. 2023 Stock Incentive Plan, as amended and restated, effective as of May 4, 2023.	Incorporated by reference to Exhibit (10.1) of our Form 10-Q, for the quarter ended June 30, 2023.
	† (ii) Sample form of Non-Statutory Stock Option Agreement under the Ecolab Inc. 2023 Stock Incentive Plan, adopted May 4, 2023.	Incorporated by reference to Exhibit (10.2) of our Form 10-Q, for the quarter ended June 30, 2023.
	† (iii) Sample form of Restricted Stock Unit Award Agreement under the Ecolab Inc. 2023 Stock Incentive Plan, adopted May 4, 2023.	Incorporated by reference to Exhibit (10.4) of our Form 10-Q, for the quarter ended June 30, 2023.
	† (iv) Sample form of Performance-Based Restricted Stock Unit Award Agreement under the Ecolab Inc. 2023 Stock Incentive Plan, adopted December 6, 2023.	Filed herewith electronically.
(10.15)	† Nalco Company Supplemental Retirement Income Plan, as Amended and Restated effective as of December 31, 2012.	Incorporated by reference to Exhibit (10.3) of our Form 10-Q, for the quarter ended March 31, 2023.
(10.16)	† Nalco Company Supplemental Profit Sharing Plan, as Amended and Restated effective as of December 31, 2012.	Incorporated by reference to Exhibit (10.4) of our Form 10-Q, for the quarter ended March 31, 2023.
(10.17)	† 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)
(10.18)	† Death Benefit Agreement between Nalco Company and Laurie M. Marsh effective as of December 17, 2009.	Incorporated by reference to Exhibit (10.5) of our Form 10-Q, for the quarter ended March 31, 2023.
(10.19)	† Offer letter relating to employment of Lanesha Minnix dated April 19, 2022, and accompanying signing bonus payback agreement, sign on bonus repayment agreement and relocation repayment agreement referenced therein.	Incorporated by reference to Exhibit (10.2) of our Form 10-Q, for the quarter ended March 31, 2023.
(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.
(97.1)	Ecolab Inc. Rule 10D-1 Clawback Policy, adopted November 2, 2023.	Filed herewith electronically.

Exhibit No.:	Document:	Method of Filing:
(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 23rd day of February, 2024.

ECOLAB INC.
(Registrant)

By: /s/ Christophe Beck
Christophe Beck
Chairman 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 23rd day of February, 2024.

<u>/s/ Christophe Beck</u> Christophe Beck	Chairman and Chief Executive Officer (Principal Executive Officer and Director)
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<u>/s/ Scott D. Kirkland</u> Scott D. Kirkland	Chief Financial Officer (Principal Financial Officer)
---	--

<u>/s/ Jennifer J. Bradway</u> Jennifer J. Bradway	Senior Vice President and Corporate Controller (duly authorized officer and Principal Accounting Officer)
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<u>/s/ Lanesha T. Minnix</u> Lanesha T. Minnix	Directors
---	-----------

as attorney-in-fact for:
Shari L. Ballard, Barbara J. Beck, Eric M. Green, 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

ANNUAL MEETING

Ecolab's annual meeting of stockholders will be held virtually on May 2, 2024, by means of a live webcast. To attend, vote and submit questions during our Annual Meeting, visit www.virtualshareholdermeeting.com/ECL2024 and enter the 16-digit control number included in your Notice of Internet Availability of Proxy Materials, voting instruction form or proxy card.

COMMON STOCK

Our stock trading symbol is ECL. Ecolab common stock is listed and traded on the New York Stock Exchange (NYSE). Ecolab stock also is traded on an unlisted basis on certain other exchanges. Options are traded on the NYSE.

Ecolab common stock is included in the S&P 500 Materials sector of the Global Industry Classification Standard. As of January 31, 2024, Ecolab had 4,797 stockholders of record. The closing stock price on the NYSE on January 31, 2024, was 198.22 per share.

DIVIDEND POLICY

Ecolab has paid common stock dividends for 87 consecutive years. Quarterly cash dividends are typically paid on the 15th of January, April, July and October, or the ensuing business day.

DIVIDEND REINVESTMENT PLAN

Stockholders of record may elect to reinvest their dividends. Plan participants also may elect to purchase Ecolab common stock through this service. To enroll in the plan, stockholders may contact the plan sponsor, Computershare, for a brochure and enrollment form.

GOVERNANCE

Disclosures concerning our board of directors' policies, governance principles and corporate ethics practices, including our Code of Conduct, are available online at www.investor.ecolab.com/corporate-governance.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

PricewaterhouseCoopers LLP
45 South Seventh Street, Suite 3400
Minneapolis, MN 55402

INVESTOR INQUIRIES

Securities analysts, portfolio managers and representatives of financial institutions should contact:

Ecolab Investor Relations
1 Ecolab Place
St. Paul, MN 55102
Phone: 651.250.2500

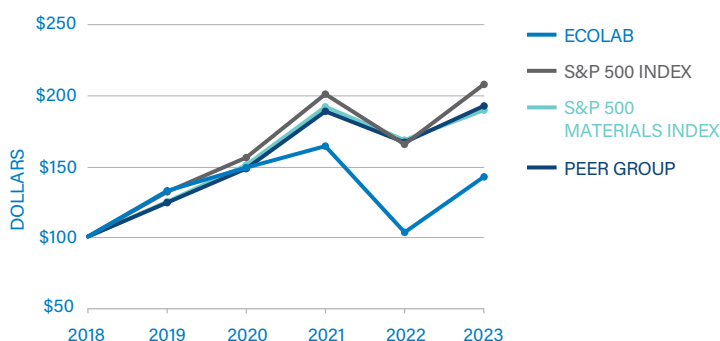
INVESTOR RESOURCES

SEC FILINGS: Copies of Ecolab's Form 10-K, 10-Q and 8-K reports as filed with the Securities and Exchange Commission (SEC) are available free of charge. These documents may be obtained on our website at www.investor.ecolab.com/financials/sec-filings promptly after such reports are filed with, or furnished to, the SEC, or by contacting:

Ecolab Inc.
Attn: Corporate Secretary
1 Ecolab Place
St. Paul, MN 55102
Email: investor.info@ecolab.com

INVESTMENT PERFORMANCE

The following stock performance graph assumes investment of \$100 on December 31, 2018, in Ecolab Common Stock, the Standard & Poor's 500 Index, the S&P 500 Materials Index (the company's newly selected index) and the composite peer previously selected by the company for the 2022 Annual Report and daily reinvestment of all dividends.



For purposes of this graph, the company is transitioning from the self-selected peer group to the S&P 500 Materials Index in an effort to provide a more general comparison to companies in our sector and minimize year-over-year variability in the peer group. The companies comprising the peer group are set forth below.

PEER GROUP

3M Co.	DuPont de Nemours, Inc.	LyondellBasell Industries N.V.
Air Products and Chemicals, Inc.	Eastman Chemical Co.	PPG Industries, Inc.
Celanese Corp.	Eaton Corporation plc	Republic Services, Inc.
Cintas Corp.	Emerson Electric Co.	Roper Technologies, Inc.
Danaher Corp.	General Mills, Inc.	The Clorox Company
Dover Corp.	Illinois Tool Works Inc.	The Sherwin-Williams Co.
Dow Inc.	Linde plc	Waste Management, Inc.

TRANSFER AGENT, REGISTRAR AND DIVIDEND PAYING AGENT

Stockholders of record may contact the transfer agent, Computershare Trust Company, N.A., to request assistance with a change of address, transfer of share ownership, replacement of lost stock certificates, dividend payment or tax reporting issues. If your Ecolab stock is held in a bank or brokerage account, please contact your bank or broker for assistance.

COURIER ADDRESS:

Computershare
150 Royall St., Suite 101
Canton, MA 02021

GENERAL CORRESPONDENCE AND DIVIDEND REINVESTMENT PLAN CORRESPONDENCE:

Computershare
150 Royall St., Suite 101
Canton, MA 02021

WEBSITE:

www.computershare.com

TELEPHONE:

1.312.360.5203 or 1.800.322.8325

HEARING IMPAIRED:

1.312.588.4110 or 1.800.822.2794

Computershare provides telephone assistance to stockholders Monday through Friday from 8:30 a.m. to 6 p.m. (Eastern Time). Around-the-clock service also is available online and via the telephone Interactive Voice Response system.

BOARD OF DIRECTORS

Judson Althoff

Executive Vice President and Chief Commercial Officer, Microsoft Corporation (technology provider), Director since 2024, Audit and Finance Committees

Shari L. Ballard

Chief Executive Officer of Minnesota United FC (professional soccer team of Minnesota), Director since 2018, Audit and Safety, Health & Environment Committees

Barbara J. Beck

Executive Advisor to American Securities LLC (private equity firm), Director since 2008, Compensation & Human Capital Management* and Governance Committees

Christophe Beck

Chairman and Chief Executive Officer of Ecolab Inc., Director since 2020, Safety, Health & Environment Committee

Eric M. Green

Chairman, President and Chief Executive Officer of West Pharmaceutical Services Inc. (life sciences company), Director since 2022, Compensation & Human Capital Management and Governance Committees

Arthur J. Higgins

Operating Advisor to Abu Dhabi Investment Authority (investment company), Director since 2010, Compensation & Human Capital Management and Safety, Health & Environment Committees

Michael Larson

Chief Investment Officer to William H. Gates, III and Business Manager of Cascade Investment, L.L.C., Director since 2012, Finance* and Safety, Health & Environment Committees

David W. MacLennan

Lead independent director. Former Chairman and Chief Executive Officer of Cargill, Incorporated (food, agricultural, financial, and industrial products and services company), Director since 2015, Audit and Governance* Committees

Tracy B. McKibben

Founder and Chief Executive Officer of MAC Energy Advisors LLC (consulting company for alternative energy and clean technology investments), Director since 2015, Audit and Finance Committees

Lionel L. Nowell III

Former Senior Vice President and Treasurer of PepsiCo, Inc. (food and beverage company), Director since 2018, Audit* and Finance Committees

Victoria J. Reich

Former Senior Vice President and Chief Financial Officer of Essendant Inc. (wholesale distributor of business products), Director since 2009, Audit and Governance Committees

Suzanne M. Vautrinot

President of Kilovolt Consulting Inc. (consulting company for cyber security strategy and technology) and a retired Major General of the U.S. Air Force, Director since 2014, Audit and Safety, Health & Environment* Committees

John J. Zillmer

Chief Executive Officer and Director of Aramark (provider of food, facilities management, and uniform services), Director since 2006, Compensation & Human Capital Management and Finance Committees

*Denotes committee chair

COMMUNICATION WITH DIRECTORS

Stakeholders and other interested parties, including our investors and associates, with substantive matters requiring the attention of our board (e.g., governance issues or potential accounting, control or auditing irregularities) may use the contact information for our board located on our website at www.investor.ecolab.com/corporate-governance/contact-the-board.

Matters not requiring the direct attention of our board — such as employment inquiries, sales solicitations, questions about our products and other such matters — should be submitted to the company's management at our Global Headquarters in St. Paul, MN. In addition to online communication, interested parties may direct correspondence to our board at:

Ecolab Inc.
Attn: Corporate Secretary
1 Ecolab Place
St. Paul, MN 55102

CORPORATE OFFICERS

Christophe Beck

Chairman and Chief Executive Officer

Nicholas J. Alfano

Executive Vice President and President — Global Industrial Group

Larry L. Berger

Executive Vice President and Chief Technical Officer

David L. Bingenheimer

Executive Vice President and Chief Information Officer

Melissa Blais

Vice President — Tax

Jennifer J. Bradway

Senior Vice President and Corporate Controller

Darrell R. Brown

President and Chief Operating Officer

Angela M. Busch

Executive Vice President — Corporate Strategy & Business Development

Gregory B. Cook

Executive Vice President and President — Institutional Group

Alexander (Sam) De Boo

Executive Vice President and President — Global Markets

Machiel (Mike) Duijser

Executive Vice President and Chief Supply Chain Officer

Nicolas A. Granucci

Executive Vice President and President — Global Pest

Scott D. Kirkland

Chief Financial Officer

Catherine Loh

Vice President and Treasurer

Laurie M. Marsh

Executive Vice President — Human Resources

Lanesha T. Minnix

Executive Vice President, General Counsel and Secretary

Joanne Jirik Mullen

Senior Vice President and Chief Compliance Officer

Gail Peterson

Executive Vice President — Global Marketing and Communications

Gergely (GG) Sved

Executive Vice President and President — Global Healthcare & Life Sciences



Delivering innovations for the next century.

Protecting people and the resources vital to life

Ecolab offers water, hygiene and infection prevention solutions and services to advance food safety, maintain clean and safe environments and optimize water and energy use.

REDUCE, REUSE, RECYCLE

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