UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM 10-Q

(Mark One)

X **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2022

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 number 1-1070

Olin Corporation
(Exact name of registrant as specified in its charter)

Virginia	**13-1872319**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
190 Carondelet Plaza, Suite 1530, Clayton, MO	**63105**
(Address of principal executive offices)	(Zip Code)

(314) 480-1400
(Registrant's telephone number, including area code)

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

Title of each class:	Trading symbol:	Name of each exchange on which registered:
Common Stock, $1.00 par value per share	OLN	New York Stock Exchange

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 X 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 X 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 X Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

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

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

As of June 30, 2022, 145,144,508 shares of the registrant's common stock were outstanding.

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Part I — Financial Information

Item 1. Financial Statements.

OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES
Condensed Balance Sheets
(In millions, except per share data)
(Unaudited)

	June 30, 2022	December 31, 2021	June 30, 2021
Assets			
Current assets:			
Cash and cash equivalents	$ 304.6	$ 180.5	$ 272.8
Receivables, net	1,299.2	1,106.5	1,033.7
Income taxes receivable	8.0	0.3	62.4
Inventories, net	945.7	868.3	736.5
Other current assets	109.0	92.7	112.7
Total current assets	2,666.5	2,248.3	2,218.1
Property, plant and equipment (less accumulated depreciation of $4,217.9, $4,076.5 and $3,893.8)	2,755.0	2,913.6	3,005.6
Operating lease assets, net	360.1	372.4	370.7
Deferred income taxes	86.5	99.3	111.0
Other assets	1,090.0	1,131.8	1,165.9
Intangible assets, net	296.2	331.7	365.7
Goodwill	1,420.9	1,420.6	1,420.2
Total assets	$ 8,675.2	$ 8,517.7	$ 8,657.2
Liabilities and Shareholders' Equity			
Current liabilities:			
Current installments of long-term debt	$ 201.1	$ 201.1	$ 1.1
Accounts payable	983.7	847.7	806.3
Income taxes payable	112.9	98.4	35.1
Current operating lease liabilities	75.1	76.8	76.9
Accrued liabilities	483.8	458.1	426.3
Total current liabilities	1,856.6	1,682.1	1,345.7
Long-term debt	2,579.6	2,578.2	3,381.8
Operating lease liabilities	292.1	302.0	299.8
Accrued pension liability	322.6	381.9	683.2
Deferred income taxes	582.1	558.9	521.9
Other liabilities	346.1	362.4	350.1
Total liabilities	5,979.1	5,865.5	6,582.5
Commitments and contingencies			
Shareholders' equity:			
Common stock, $1.00 par value per share: authorized, 240.0 shares; issued and outstanding, 145.1, 156.8 and 160.5 shares	145.1	156.8	160.5
Additional paid-in capital	1,318.5	1,969.6	2,187.9
Accumulated other comprehensive loss	(535.5)	(488.0)	(654.3)
Retained earnings	1,768.0	1,013.8	380.6
Total shareholders' equity	2,696.1	2,652.2	2,074.7
Total liabilities and shareholders' equity	$ 8,675.2	$ 8,517.7	$ 8,657.2

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

OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES
Condensed Statements of Operations
(In millions, except per share data)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	**2021**	**2022**	**2021**
Sales	$ 2,616.1	$ 2,221.3	$ 5,077.5	$ 4,140.1
Operating expenses:				
Cost of goods sold	1,951.4	1,712.2	3,758.9	3,136.0
Selling and administration	99.0	100.6	203.3	207.5
Restructuring charges	3.6	14.0	6.7	20.9
Other operating income	3.3	0.5	3.3	0.5
Operating income	565.4	395.0	1,111.9	776.2
Interest expense	34.5	65.9	67.4	150.4
Interest income	0.3	—	0.7	0.1
Non-operating pension income	9.5	8.2	19.1	17.5
Income before taxes	540.7	337.3	1,064.3	643.4
Income tax provision (benefit)	118.6	(18.5)	249.2	44.0
Net income	$ 422.1	$ 355.8	$ 815.1	$ 599.4
Net income per common share:				
Basic	$ 2.83	$ 2.23	$ 5.37	$ 3.77
Diluted	$ 2.76	$ 2.17	$ 5.24	$ 3.69
Average common shares outstanding:				
Basic	149.2	159.9	151.9	159.2
Diluted	152.8	163.8	155.6	162.3

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

OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES
Condensed Statements of Comprehensive Income (Loss)
(In millions)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Net income	$ 422.1	$ 355.8	$ 815.1	$ 599.4
Other comprehensive (loss) income, net of tax:				
Foreign currency translation adjustments	(26.0)	2.4	(36.5)	(9.0)
Unrealized (losses) gains on derivative contracts, net	(55.0)	16.3	(24.3)	23.3
Amortization of prior service costs and actuarial losses, net	6.7	10.7	13.3	21.3
Total other comprehensive (loss) income, net of tax	(74.3)	29.4	(47.5)	35.6
Comprehensive income	$ 347.8	$ 385.2	$ 767.6	$ 635.0

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

OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES
Condensed Statements of Shareholders' Equity
(In millions, except per share data)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Common Stock				
Balance at beginning of period	$ 151.8	$ 159.2	$ 156.8	$ 158.0
Common stock repurchased and retired	(7.4)	—	(12.6)	—
Common stock issued for:				
Stock options exercised	0.7	1.2	0.9	2.4
Other transactions	—	0.1	—	0.1
Balance at end of period	$ 145.1	$ 160.5	$ 145.1	$ 160.5
Additional Paid-In Capital				
Balance at beginning of period	$ 1,719.3	$ 2,164.3	$ 1,969.6	$ 2,137.8
Common stock repurchased and retired	(419.1)	—	(677.1)	—
Common stock issued for:				
Stock options exercised	15.0	23.3	20.0	47.8
Other transactions	0.8	1.2	3.0	2.6
Stock-based compensation	2.5	(0.9)	3.0	(0.3)
Balance at end of period	$ 1,318.5	$ 2,187.9	$ 1,318.5	$ 2,187.9
Accumulated Other Comprehensive Loss				
Balance at beginning of period	$ (461.2)	$ (683.7)	$ (488.0)	$ (689.9)
Other comprehensive (loss) income	(74.3)	29.4	(47.5)	35.6
Balance at end of period	$ (535.5)	$ (654.3)	$ (535.5)	$ (654.3)
Retained Earnings (Accumulated Deficit)				
Balance at beginning of period	$ 1,376.0	$ 56.8	$ 1,013.8	$ (155.1)
Net income	422.1	355.8	815.1	599.4
Common stock dividends paid	(30.1)	(32.0)	(60.9)	(63.7)
Balance at end of period	$ 1,768.0	$ 380.6	$ 1,768.0	$ 380.6
Total Shareholders' Equity	$ 2,696.1	$ 2,074.7	$ 2,696.1	$ 2,074.7
Dividends declared per share of common stock	$ 0.20	$ 0.20	$ 0.40	$ 0.40

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

OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES
Condensed Statements of Cash Flows
(In millions)
(Unaudited)

	Six Months Ended June 30, 2022	Six Months Ended June 30, 2021
Operating Activities		
Net income	$ 815.1	$ 599.4
Adjustments to reconcile net income to net cash and cash equivalents provided by (used for) operating activities:		
Stock-based compensation	6.3	1.3
Loss on Debt Extinguishment	—	38.9
Depreciation and amortization	300.5	287.2
Deferred income taxes	31.9	(26.8)
Qualified pension plan contributions	(0.8)	(0.6)
Qualified pension plan income	(16.3)	(13.7)
Change in:		
Receivables	(228.5)	(274.5)
Income taxes receivable/payable	12.8	(22.6)
Inventories	(90.4)	(67.6)
Other current assets	(16.1)	12.0
Accounts payable and accrued liabilities	138.6	143.6
Other assets	2.5	(2.5)
Other noncurrent liabilities	0.7	32.2
Other operating activities	2.9	1.3
Net operating activities	959.2	707.6
Investing Activities		
Capital expenditures	(103.9)	(86.4)
Net investing activities	(103.9)	(86.4)
Financing Activities		
Long-term debt:		
Borrowings	115.0	365.0
Repayments	(115.5)	(855.2)
Debt Early Redemption Premiums	—	(31.0)
Common stock repurchased and retired	(689.7)	—
Stock options exercised	20.9	50.2
Dividends paid	(60.9)	(63.7)
Debt issuance costs	—	(3.1)
Net financing activities	(730.2)	(537.8)
Effect of exchange rate changes on cash and cash equivalents	(1.0)	(0.3)
Net increase in cash and cash equivalents	124.1	83.1
Cash and cash equivalents, beginning of year	180.5	189.7
Cash and cash equivalents, end of period	$ 304.6	$ 272.8
Cash paid for interest and income taxes:		
Interest, net	$ 63.5	$ 153.5
Income taxes, net of refunds	$ 185.6	$ 82.6
Non-cash investing activities:		
Decrease in capital expenditures included in accounts payable and accrued liabilities	$ 15.3	$ 26.1

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

OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES
Notes to Condensed Financial Statements
(Unaudited)

NOTE 1. DESCRIPTION OF BUSINESS

Olin Corporation (Olin) is a Virginia corporation, incorporated in 1892, having its principal executive offices in Clayton, MO. We are a manufacturer concentrated in three business segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. The Chlor Alkali Products and Vinyls segment manufactures and sells chlorine and caustic soda, ethylene dichloride (EDC) and vinyl chloride monomer, methyl chloride, methylene chloride, chloroform, carbon tetrachloride, perchloroethylene, hydrochloric acid, hydrogen, bleach products and potassium hydroxide. The Epoxy segment produces and sells a full range of epoxy materials and precursors, including aromatics (acetone, bisphenol, cumene and phenol), allyl chloride, epichlorohydrin, liquid epoxy resins, solid epoxy resins and downstream products such as converted epoxy resins and additives. The Winchester segment produces and sells sporting ammunition, reloading components, small caliber military ammunition and components, and industrial cartridges.

We have prepared the condensed financial statements included herein, without audit, pursuant to the rules and regulations of the United States (U.S.) Securities and Exchange Commission (SEC). The preparation of the financial statements requires estimates and assumptions that affect amounts reported and disclosed in the financial statements and related notes. In our opinion, these financial statements reflect all adjustments (consisting only of normal accruals), which are necessary to present fairly the results for interim periods. Certain information and footnote disclosures normally included in financial statements prepared in accordance with generally accepted accounting principles have been condensed or omitted pursuant to such rules and regulations; however, we believe that the disclosures are appropriate. We recommend that you read these condensed financial statements in conjunction with the financial statements, accounting policies and the notes thereto and Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2021. Certain reclassifications were made to prior year amounts to conform to the 2022 presentation.

NOTE 2. RECENT ACCOUNTING PRONOUNCEMENTS

We do not believe that any recently issued effective pronouncements, or pronouncements issued but not yet effective, if adopted, would have a material effect on the accompanying condensed financial statements.

NOTE 3. RESTRUCTURING CHARGES

Olin committed to a productivity initiative to align the organization with our new operating model and improve efficiencies (collectively, Productivity Plan). These actions and related activities were completed during the second quarter of 2021. For both the three and six months ended June 30, 2021, we recorded pretax restructuring charges of $10.1 million for employee severance and related benefit costs related to these actions. We do not expect to incur additional restructuring charges related to these actions.

On March 15, 2021, we announced that we had made the decision to permanently close approximately 50% of our diaphragm-grade chlor alkali capacity, representing 200,000 tons, at our McIntosh, AL facility. The closure was completed in the first quarter of 2021. On October 21, 2021, we announced that we had made a decision to permanently cease operations of the remaining 50% of our diaphragm-grade chlor alkali capacity, representing an additional 200,000 tons, at our McIntosh, AL facility (collectively, McIntosh Plan). The closure is expected to be completed by the end of the third quarter of 2022. For the three months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $0.7 million and $0.4 million, respectively, for lease and other contract termination costs and for facility exit costs related to this action. For the six months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $1.6 million and $4.8 million, respectively, for lease and other contract termination costs and for facility exit costs related to this action. We expect to incur additional restructuring charges through 2026 of approximately $35 million related to these actions.

On January 18, 2021, we announced we had made the decision to permanently close our trichloroethylene and anhydrous hydrogen chloride liquefaction facilities in Freeport, TX (collectively, Freeport 2021 Plan), which were completed in the fourth quarter of 2021. For the three months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $1.2 million and $2.8 million, respectively, for facility exit costs related to these actions. For the six months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $1.5 million and $4.1 million, respectively, for facility exit costs related to these actions. We expect to incur additional restructuring charges through 2024 of approximately $20 million related to these actions.

On December 11, 2019, we announced that we had made the decision to permanently close a chlor alkali plant with a capacity of 230,000 tons and our vinylidene chloride (VDC) production facility, both in Freeport, TX (collectively, Freeport 2019 Plan). The VDC facility and related chlor alkali plant were closed during the fourth quarter of 2020 and second quarter of 2021, respectively. For the three months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $1.5 million and $0.4 million, respectively, for facility exit costs related to these actions. For the six months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $3.2 million and $1.2 million, respectively, for facility exit costs related to these actions. We expect to incur additional restructuring charges through 2025 of approximately $40 million related to these actions.

On March 21, 2016, we announced that we had made the decision to close a combined total of 433,000 tons of chlor alkali capacity across three separate locations (collectively, Chlor Alkali 2016 Plan). Associated with this action, we have permanently closed our Henderson, NV chlor alkali plant with 153,000 tons of capacity and have reconfigured the site to manufacture bleach and distribute caustic soda and hydrochloric acid. Also, the capacity of our Niagara Falls, NY chlor alkali plant has been reduced from 300,000 tons to 240,000 tons and the chlor alkali capacity at our Freeport, TX facility was reduced by 220,000 tons. This 220,000 ton reduction was entirely from diaphragm cell capacity. For the three months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $0.2 million and $0.3 million, respectively, for facility exit costs and lease and other contract termination costs related to these actions. For the six months ended June 30, 2022 and 2021, we recorded pretax restructuring charges of $0.4 million and $0.7 million, respectively, for facility exit costs and lease and other contract termination costs related to these actions. We expect to incur additional restructuring charges through 2022 of approximately less than $1 million related to these capacity reductions.

The following table summarizes the 2022 and 2021 activities by major component of these restructuring actions and the remaining balances of accrued restructuring costs as of June 30, 2022 and 2021:

	Employee severance and related benefit costs	*Lease and other contract termination costs*	*Facility exit costs*	*Write-off of equipment and facility*	*Total*
			($ in millions)		
Balance at January 1, 2021	$ 1.8	$ 1.7	$ —	$ —	$ 3.5
Restructuring charges:					
First quarter	—	4.6	2.3	—	6.9
Second quarter	10.1	0.5	3.4	—	14.0
Amounts utilized	(1.3)	(0.7)	(5.7)	—	(7.7)
Balance at June 30, 2021	$ 10.6	$ 6.1	$ —	$ —	$ 16.7
Balance at January 1, 2022	$ 6.9	$ 5.4	$ —	$ —	$ 12.3
Restructuring charges:					
First quarter	—	0.1	2.6	0.4	3.1
Second quarter	—	0.2	3.1	0.3	3.6
Amounts utilized	(3.7)	(1.0)	(5.7)	(0.7)	(11.1)
Balance at June 30, 2022	$ 3.2	$ 4.7	$ —	$ —	$ 7.9

The following table summarizes the cumulative restructuring charges of these restructuring actions by major component through June 30, 2022:

	Chlor Alkali Products and Vinyls				*Corporate/other*	
	McIntosh Plan	*Freeport 2021 Plan*	*Freeport 2019 Plan*	*Chlor Alkali 2016 Plan*	*Productivity Plan*	*Total*
				($ in millions)		
Write-off of equipment and facility	$ —	$ —	$ 58.9	$ 78.1	$ —	$ 137.0
Employee severance and related benefit costs	—	—	2.1	6.7	10.3	19.1
Facility exit costs	0.8	8.0	8.8	53.2	—	70.8
Employee relocation costs	—	—	—	1.7	—	1.7
Lease and other contract termination costs	6.4	—	—	43.0	—	49.4
Total cumulative restructuring charges	$ 7.2	$ 8.0	$ 69.8	$ 182.7	$ 10.3	$ 278.0

As of June 30, 2022, we have incurred cash expenditures of $131.3 million and non-cash charges of $138.8 million related to these restructuring actions. The remaining balance of $7.9 million is expected to be paid out through 2028.

NOTE 4. ACCOUNTS RECEIVABLES

We maintain a $300.0 million Receivables Financing Agreement (Receivables Financing Agreement) that is scheduled to mature on September 28, 2024. The Receivables Financing Agreement includes a minimum borrowing requirement of 50% of the facility limit or available borrowing capacity, whichever is less. Under the Receivables Financing Agreement, our eligible trade receivables are used for collateralized borrowings and continue to be serviced by us. In addition, the Receivables Financing Agreement incorporates the net leverage ratio covenant that is contained in the $1,615.0 million senior credit facility. As of June 30, 2022, $666.3 million of our trade receivables were pledged as collateral and we had $300.0 million drawn with no additional borrowing capacity available under the Receivables Financing Agreement. As of December 31, 2021 and June 30, 2021, we had $300.0 million and $125.0 million, respectively, drawn under the Receivables Financing Agreement.

Olin also has trade accounts receivable factoring arrangements (AR Facilities) and pursuant to the terms of the AR Facilities, certain of our domestic subsidiaries may sell their accounts receivable up to a maximum of $250.0 million and certain of our foreign subsidiaries may sell their accounts receivable up to a maximum of €43.4 million. We will continue to service the outstanding accounts sold. These receivables qualify for sales treatment under ASC 860 "Transfers and Servicing" and, accordingly, the proceeds are included in net cash provided by operating activities in the condensed statements of cash flows. The following table summarizes the AR Facilities activity:

	June 30,	
	2022	*2021*
	($ in millions)	
Balance at beginning of year	$ 83.3	$ 48.8
Gross receivables sold	477.2	487.3
Payments received from customers on sold accounts	(450.6)	(450.4)
Balance at end of period	$ 109.9	$ 85.7

The factoring discount paid under the AR Facilities is recorded as interest expense on the condensed statements of operations. The factoring discount was $0.4 million and $0.3 million for the three months ended June 30, 2022 and 2021, respectively, and $0.9 million and $0.7 million for the six months ended June 30, 2022 and 2021, respectively. The agreements are without recourse and therefore no recourse liability had been recorded as of June 30, 2022, December 31, 2021 or June 30, 2021.

Our condensed balance sheets included an allowance for doubtful accounts receivables of $15.0 million, $12.3 million and $12.4 million and other receivables of $50.3 million, $65.3 million and $72.8 million at June 30, 2022, December 31, 2021 and June 30, 2021, respectively, which were included in receivables, net.

NOTE 5. INVENTORIES

Inventories consisted of the following:

	June 30, 2022	December 31, 2021	June 30, 2021
		($ in millions)	
Supplies	$ 136.8	$ 115.6	$ 115.0
Raw materials	202.0	180.7	145.1
Work in process	192.7	155.2	145.1
Finished goods	580.2	523.3	420.9
Inventories excluding LIFO reserve	1,111.7	974.8	826.1
LIFO reserve	(166.0)	(106.5)	(89.6)
Inventories, net	$ 945.7	$ 868.3	$ 736.5

Inventories under the LIFO method are based on annual estimates of quantities and costs as of year-end; therefore, the condensed financial statements at June 30, 2022 reflect certain estimates relating to inventory quantities and costs at December 31, 2022. The replacement cost of our inventories would have been approximately $166.0 million, $106.5 million and $89.6 million higher than reported at June 30, 2022, December 31, 2021 and June 30, 2021, respectively.

NOTE 6. OTHER ASSETS

Included in other assets were the following:

	June 30, 2022	December 31, 2021	June 30, 2021
		($ in millions)	
Supply contracts	$ 1,026.9	$ 1,061.8	$ 1,091.0
Other	63.1	70.0	74.9
Other assets	$ 1,090.0	$ 1,131.8	$ 1,165.9

Amortization expense of $17.6 million and $17.3 million for the three months ended June 30, 2022 and 2021, respectively, and amortization expense of $35.2 million and $34.8 million for the six months ended June 30, 2022 and 2021, respectively, was recognized within cost of goods sold related to our long-term supply contracts and is reflected in depreciation and amortization on the condensed statements of cash flows.

NOTE 7. GOODWILL AND INTANGIBLE ASSETS

Changes in the carrying value of goodwill were as follows:

	Chlor Alkali Products and Vinyls	Epoxy	Total
		($ in millions)	
Balance at January 1, 2021	$ 1,275.3	$ 144.9	$ 1,420.2
Foreign currency translation adjustment	—	—	—
Balance at June 30, 2021	$ 1,275.3	$ 144.9	$ 1,420.2
Balance at January 1, 2022	$ 1,275.6	$ 145.0	$ 1,420.6
Foreign currency translation adjustment	0.3	—	0.3
Balance at June 30, 2022	$ 1,275.9	$ 145.0	$ 1,420.9

Intangible assets consisted of the following:

	June 30, 2022			December 31, 2021			June 30, 2021		
	Gross Amount	Accumulated Amortization	Net	Gross Amount	Accumulated Amortization	Net	Gross Amount	Accumulated Amortization	Net
					($ in millions)				
Customers, customer contracts and relationships	$ 667.4	$ (382.2)	$ 285.2	$ 674.4	$ (359.8)	$ 314.6	$ 678.2	$ (336.3)	$ 341.9
Acquired technology	92.7	(82.8)	9.9	93.9	(77.9)	16.0	94.5	(71.9)	22.6
Other	1.8	(0.7)	1.1	1.8	(0.7)	1.1	1.8	(0.6)	1.2
Total intangible assets	$ 761.9	$ (465.7)	$ 296.2	$ 770.1	$ (438.4)	$ 331.7	$ 774.5	$ (408.8)	$ 365.7

NOTE 8. EARNINGS PER SHARE

Basic and diluted net income per share are computed by dividing net income by the weighted-average number of common shares outstanding. Diluted net income per share reflects the dilutive effect of stock-based compensation.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Computation of Net Income per Share		(In millions, except per share data)		
Net income	$ 422.1	$ 355.8	$ 815.1	$ 599.4
Basic shares	149.2	159.9	151.9	159.2
Basic net income per share	$ 2.83	$ 2.23	$ 5.37	$ 3.77
Diluted shares:				
Basic shares	149.2	159.9	151.9	159.2
Stock-based compensation	3.6	3.9	3.7	3.1
Diluted shares	152.8	163.8	155.6	162.3
Diluted net income per share	$ 2.76	$ 2.17	$ 5.24	$ 3.69

The computation of dilutive shares does not include 0.8 million and 0.1 million shares for the three months ended June 30, 2022 and 2021, respectively, and 0.8 million and 1.1 million shares for the six months ended June 30, 2022 and 2021, respectively, as their effect would have been anti-dilutive.

NOTE 9. ENVIRONMENTAL

We are party to various government and private environmental actions associated with past manufacturing facilities and former waste disposal sites. Environmental provisions charged to income, which are included in costs of goods sold, were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
	($ in millions)			
Provisions charged to income	$ 5.0	$ 4.7	$ 10.6	$ 7.2
Recoveries for costs incurred and expensed	—	—	—	(2.2)
Environmental expense	$ 5.0	$ 4.7	$ 10.6	$ 5.0

Environmental expense for the six months ended June 30, 2021 includes $2.2 million of insurance recoveries for environmental costs incurred and expensed in prior periods. The condensed balance sheets included reserves for future environmental expenditures to investigate and remediate known sites amounting to $148.9 million, $147.3 million and $148.4 million at June 30, 2022, December 31, 2021 and June 30, 2021, respectively, of which $123.9 million, $122.3 million and $129.4 million, respectively, were classified as other noncurrent liabilities.

Environmental exposures are difficult to assess for numerous reasons, including the identification of new sites, developments at sites resulting from investigatory studies, advances in technology, changes in environmental laws and regulations and their application, changes in regulatory authorities, the scarcity of reliable data pertaining to identified sites, the difficulty in assessing the involvement and financial capability of other Potentially Responsible Parties (PRPs), our ability to obtain contributions from other parties and the lengthy time periods over which site remediation occurs. It is possible that some of these matters (the outcomes of which are subject to various uncertainties) may be resolved unfavorably to us, which could materially adversely affect our financial position or results of operations.

NOTE 10. COMMITMENTS AND CONTINGENCIES

Olin, K.A. Steel Chemicals (a wholly owned subsidiary of Olin) and other caustic soda producers were named as defendants in six purported class action civil lawsuits filed March 22, 25 and 26, 2019 and April 12, 2019 in the U.S. District Court for the Western District of New York. Those cases were consolidated on May 22, 2019; the claims in the consolidated "Direct Purchaser" lawsuit, as modified, are on behalf of the respective named plaintiffs and a putative class comprised of all persons and entities who purchased certain types of caustic soda in the U.S. directly from one or more of the defendants, their parents, predecessors, subsidiaries or affiliates at any time on or after October 1, 2015 through December 31, 2018. Olin, K.A. Steel Chemicals and other caustic soda producers were also named as defendants in two purported class action civil lawsuits filed July 25 and 29, 2019 in the U.S. District Court for the Western District of New York on behalf of the respective named plaintiffs and a putative class comprised of all persons and entities who purchased caustic soda in the U.S. indirectly from distributors at any time on or after October 1, 2015. Those cases were consolidated and a consolidated, amended complaint in the "Indirect Purchaser" lawsuit was filed on August 23, 2021. The other current defendants in the Direct Purchaser and Indirect Purchaser lawsuits are Occidental Chemical Corporation d/b/a OxyChem, Westlake Chemical Corporation, Shin-Etsu Chemical Co., Ltd., and Formosa Plastics Corporation, U.S.A. The Direct Purchaser and Indirect Purchaser lawsuits allege the defendants conspired to fix, raise, maintain and stabilize the price of caustic soda, restrict domestic (U.S.) supply of caustic soda and allocate caustic soda customers. Plaintiffs seek damages and injunctive relief.

Olin, K.A. Steel Chemical, Olin Canada ULC, 3229897 Nova Scotia Co. (wholly owned subsidiaries of Olin) and other alleged caustic soda producers were named as defendants in a proposed class action civil lawsuit filed on October 7, 2020 in the Quebec Superior Court (Province of Quebec) on behalf of the respective named plaintiff and a putative class comprised of all Canadian persons and entities who, between October 1, 2015 and the date of the eventual class action certification, directly or indirectly purchased caustic soda or products containing caustic soda, produced by one or more of the defendants. Olin, K.A. Steel Chemical, Olin Canada ULC, 3229897 Nova Scotia Co. and other alleged caustic soda producers were also named as defendants in a proposed class action civil lawsuit filed November 13, 2020 in the Federal Court of Canada on behalf of the respective named plaintiff and a putative class comprised of all legal persons in Canada who, at any time on or after October 1, 2015 to the present, directly or indirectly purchased caustic soda. The other defendants named in the two Canadian lawsuits are Occidental Petroleum Corporation, Occidental Chemical Corporation, Oxy Canada Sales, Inc., Westlake Chemical Corporation, Axiall Canada, Inc., Shin-Etsu Chemical Co., Ltd., Shintech Incorporated, Formosa Plastics Corporation, and Formosa Plastics Corporation, U.S.A. The lawsuits allege the defendants conspired to fix, raise, maintain control, and stabilize the price of caustic soda, divide and allocate markets, sales, customers and territories, fix, maintain, control, prevent, restrict, lessen or eliminate production and supply of caustic soda, and agree to idle capacity of production and/or refrain from increasing their production capacity. Plaintiffs seek damages, including punitive damages.

We believe we have meritorious legal positions and will continue to represent our interests vigorously in the above matters. Any losses related to this matter are not currently estimable because of unresolved questions of fact and law, but if resolved unfavorably to Olin, could have a material adverse effect on our financial position, cash flows or results of operations.

We, and our subsidiaries, are defendants in various other legal actions (including proceedings based on alleged exposures to asbestos) incidental to our past and current business activities. As of June 30, 2022, December 31, 2021 and June 30, 2021, our condensed balance sheets included accrued liabilities for these other legal actions of $14.5 million, $14.2 million and $12.9 million, respectively. These liabilities do not include costs associated with legal representation. Based on our analysis, and considering the inherent uncertainties associated with litigation, we do not believe that it is reasonably possible that these other legal actions will materially adversely affect our financial position, cash flows or results of operations.

During the ordinary course of our business, contingencies arise resulting from an existing condition, situation or set of circumstances involving an uncertainty as to the realization of a possible gain contingency. In certain instances, such as environmental projects, we are responsible for managing the cleanup and remediation of an environmental site. There exists the possibility of recovering a portion of these costs from other parties. We account for gain contingencies in accordance with the provisions of ASC 450 "Contingencies" and, therefore, do not record gain contingencies and recognize income until it is earned and realizable.

NOTE 11. SHAREHOLDERS' EQUITY

On July 28, 2022, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $2.0 billion. This program will terminate upon the purchase of $2.0 billion of common stock. On November 1, 2021, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $1.0 billion. This program will terminate upon the purchase of $1.0 billion of our common stock. On April 26, 2018, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $500.0 million. This program terminated upon the purchase of $500.0 million of our common stock during the first quarter of 2022.

For the six months ended June 30, 2022, 12.6 million shares of common stock were repurchased and retired at a total value of $689.7 million. There were zero shares repurchased for the six months ended June 30, 2021. As of June 30, 2022, 11.6 million shares of common stock have been repurchased and retired at a total value of $637.5 million under the 2021 Repurchase Authorization program, and $362.5 million of common stock remained authorized to be repurchased under the program.

We issued 0.9 million and 2.4 million shares representing stock options exercised for the six months ended June 30, 2022 and 2021, respectively, with a total value of $20.9 million and $50.2 million, respectively.

The following table represents the activity included in accumulated other comprehensive loss:

	Foreign Currency Translation Adjustment	*Unrealized (Losses) Gains on Derivative Contracts (net of taxes)*	*Pension and Other Postretirement Benefits (net of taxes)*	*Accumulated Other Comprehensive Loss*
		($ in millions)		
Balance at January 1, 2021	$ 19.4	$ 21.4	$ (730.7)	$ (689.9)
Unrealized (losses) gains:				
First quarter	(11.4)	122.0	—	110.6
Second quarter	2.4	41.8	—	44.2
Reclassification adjustments of (gains) losses into income:				
First quarter	—	(112.8)	13.7	(99.1)
Second quarter	—	(20.4)	13.7	(6.7)
Tax provision:				
First quarter	—	(2.2)	(3.1)	(5.3)
Second quarter	—	(5.1)	(3.0)	(8.1)
Net change	(9.0)	23.3	21.3	35.6
Balance at June 30, 2021	$ 10.4	$ 44.7	$ (709.4)	$ (654.3)
Balance at January 1, 2022	$ (10.9)	$ 22.8	$ (499.9)	$ (488.0)
Unrealized (losses) gains:				
First quarter	(10.5)	52.8	—	42.3
Second quarter	(26.0)	(36.4)	—	(62.4)
Reclassification adjustments of (gains) losses into income:				
First quarter	—	(12.4)	8.9	(3.5)
Second quarter	—	(36.1)	9.0	(27.1)
Tax (provision) benefit :				
First quarter	—	(9.7)	(2.3)	(12.0)
Second quarter	—	17.5	(2.3)	15.2
Net change	(36.5)	(24.3)	13.3	(47.5)
Balance at June 30, 2022	$ (47.4)	$ (1.5)	$ (486.6)	$ (535.5)

Net income and cost of goods sold included reclassification adjustments for realized gains and losses on derivative contracts from accumulated other comprehensive loss.

Net income and non-operating pension income included the amortization of prior service costs and actuarial losses from accumulated other comprehensive loss.

NOTE 12. SEGMENT INFORMATION

We define segment results as income (loss) before interest expense, interest income, other operating income (expense), non-operating pension income, other income and income taxes. We have three operating segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. The three operating segments reflect the organization used by our management for purposes of allocating resources and assessing performance. Chlorine used in our Epoxy segment is transferred at cost from the Chlor Alkali Products and Vinyls segment. Sales are attributed to geographic areas based on customer location.

	Three Months Ended June 30,		*Six Months Ended June 30,*	
	2022	***2021***	***2022***	***2021***
Sales:	*($ in millions)*			
Chlor Alkali Products and Vinyls	$ 1,403.5	$ 967.3	$ 2,648.7	$ 1,834.3
Epoxy	772.7	850.0	1,562.2	1,512.6
Winchester	439.9	404.0	866.6	793.2
Total sales	$ 2,616.1	$ 2,221.3	$ 5,077.5	$ 4,140.1
Income before taxes:				
Chlor Alkali Products and Vinyls	$ 346.5	$ 168.9	$ 675.1	$ 440.0
Epoxy	139.9	165.3	277.9	230.5
Winchester	119.3	109.9	238.2	195.0
Corporate/other:				
Environmental expense	(5.0)	(4.7)	(10.6)	(5.0)
Other corporate and unallocated costs	(35.0)	(30.9)	(65.3)	(63.9)
Restructuring charges	(3.6)	(14.0)	(6.7)	(20.9)
Other operating income	3.3	0.5	3.3	0.5
Interest expense	(34.5)	(65.9)	(67.4)	(150.4)
Interest income	0.3	—	0.7	0.1
Non-operating pension income	9.5	8.2	19.1	17.5
Income before taxes	$ 540.7	$ 337.3	$ 1,064.3	$ 643.4

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Sales by geography:	($ in millions)			
Chlor Alkali Products and Vinyls				
United States	$ 946.4	$ 713.6	$ 1,765.8	$ 1,290.6
Europe	82.4	39.4	152.8	68.9
Other foreign	374.7	214.3	730.1	474.8
Total Chlor Alkali Products and Vinyls	1,403.5	967.3	2,648.7	1,834.3
Epoxy				
United States	252.8	253.6	495.7	411.9
Europe	354.5	403.8	713.4	723.8
Other foreign	165.4	192.6	353.1	376.9
Total Epoxy	772.7	850.0	1,562.2	1,512.6
Winchester				
United States	401.2	373.6	803.1	738.6
Europe	16.8	6.3	19.5	10.1
Other foreign	21.9	24.1	44.0	44.5
Total Winchester	439.9	404.0	866.6	793.2
Total				
United States	1,600.4	1,340.8	3,064.6	2,441.1
Europe	453.7	449.5	885.7	802.8
Other foreign	562.0	431.0	1,127.2	896.2
Total sales	$ 2,616.1	$ 2,221.3	$ 5,077.5	$ 4,140.1

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
Sales by product line:	($ in millions)			
Chlor Alkali Products and Vinyls				
Caustic soda	$ 635.1	$ 400.8	$ 1,154.0	$ 747.8
Chlorine, chlorine-derivatives and other co-products	768.4	566.5	1,494.7	1,086.5
Total Chlor Alkali Products and Vinyls	1,403.5	967.3	2,648.7	1,834.3
Epoxy				
Aromatics and allylics	384.1	366.5	776.1	678.5
Epoxy resins	388.6	483.5	786.1	834.1
Total Epoxy	772.7	850.0	1,562.2	1,512.6
Winchester				
Commercial	320.6	281.5	634.8	542.5
Military and law enforcement	119.3	122.5	231.8	250.7
Total Winchester	439.9	404.0	866.6	793.2
Total sales	$ 2,616.1	$ 2,221.3	$ 5,077.5	$ 4,140.1

NOTE 13. STOCK-BASED COMPENSATION

Stock-based compensation granted includes stock options, performance stock awards, restricted stock awards and deferred directors' compensation. Stock-based compensation expense (benefit) was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2022	2021	2022	2021
	($ in millions)			
Stock-based compensation	$ 9.6	$ 7.2	$ 14.2	$ 11.9
Mark-to-market adjustments	(5.6)	6.0	(8.5)	14.1
Total expense	$ 4.0	$ 13.2	$ 5.7	$ 26.0

The fair value of each stock option granted, which typically vests ratably over three years, but not less than one year, was estimated on the date of grant, using the Black-Scholes option-pricing model with the following weighted-average assumptions:

Grant date	***2022***
Dividend yield	1.60 %
Risk-free interest rate	1.93 %
Expected volatility of Olin common stock	48 %
Expected life (years)	7.0
Weighted-average grant fair value (per option)	$ 21.18
Weighted-average exercise price	$ 49.71
Options granted	737,100

Dividend yield was based on our current dividend yield as of the option grant date. Risk-free interest rate was based on zero coupon U.S. Treasury securities rates for the expected life of the options. Expected volatility of Olin common stock was based on our historical stock price movements, as we believe that historical experience is the best available indicator of the expected volatility. Expected life of the option grant was based on historical exercise and cancellation patterns, as we believe that historical experience is the best estimate of future exercise patterns.

Performance share awards are denominated in shares of our stock and are paid half in cash and half in stock. Payouts for performance share awards are based on two criteria: (1) 50% of the award is based on Olin's total shareholder returns (TSR) over the applicable three-year performance cycle in relation to the TSR over the same period among a portfolio of public companies which are selected in concert with outside compensation consultants and (2) 50% of the award is based on Olin's net income over the applicable three-year performance cycle in relation to the net income goal for such period as set by the compensation committee of Olin's Board of Directors. The expense associated with performance shares is recorded based on our estimate of our performance relative to the respective target. The fair value of each performance stock award based on net income was estimated on the date of grant, using the current stock price. The fair value of each performance stock award based on TSR was estimated on the date of grant, using a Monte Carlo simulation model with the following weighted average assumptions:

Grant date	***2022***
Risk-free interest rate	1.74 %
Expected volatility of Olin common stock	59 %
Expected average volatility of peer companies	47 %
Average correlation coefficient of peer companies	0.51
Expected life (years)	3.0
Grant date fair value (TSR based award)	$ 64.13
Grant date fair value (net income based award)	$ 49.71
Awards granted	184,000

Risk-free interest rate was based on zero coupon U.S. Treasury securities rates for the expected life of the performance stock awards. Expected volatility of Olin common stock and peer companies was based on historical stock price movements, as we believe that historical experience is the best available indicator of the expected volatility. The average correlation coefficient of peer companies was determined based on historical trends of Olin's common stock price compared to the peer companies.

NOTE 14. DEBT

Senior Credit Facility

We maintain a $1,615.0 million senior credit facility (Senior Credit Facility) which includes a senior delayed-draw term loan facility with aggregate commitments of $315.0 million (Delayed Draw Term Loan), a senior term loan facility with aggregate commitments of $500.0 million (2020 Term Loan and together with the Delayed Draw Term Loan, the Senior Term Loans) and a senior revolving credit facility with aggregate commitments in an amount equal to $800.0 million (Senior Revolving Credit Facility). The maturity date for the Senior Credit Facility is July 16, 2024.

On March 30, 2021, Olin drew the entire $315.0 million of the Delayed Draw Term Loan and used the proceeds to fund the redemption of the 10.00% senior notes due October 15, 2025 (2025 Notes). During 2021, we repaid $465.0 million of the Senior Term Loans. These repayments satisfied all future required quarterly installments of the Senior Term Loans. The Senior Revolving Credit Facility includes a $100.0 million letter of credit subfacility. At June 30, 2022, we had $799.6 million available under our $800.0 million Senior Revolving Credit Facility because we had issued $0.4 million of letters of credit.

We were in compliance with all covenants and restrictions under all our outstanding credit agreements as of June 30, 2022, and no event of default had occurred that would permit the lenders under our outstanding credit agreements to accelerate the debt if not cured. In the future, our ability to generate sufficient operating cash flows, among other factors, will determine the amounts available to be borrowed under these facilities. As a result of our restrictive covenant related to the net leverage ratio, the maximum additional borrowings available to us could be limited in the future. The limitation, if an amendment or waiver from our lenders is not obtained, could restrict our ability to borrow the maximum amounts available under the Senior Revolving Credit Facility and the Receivables Financing Agreement. As of June 30, 2022, there were no covenants or other restrictions that limited our ability to borrow.

Other Financing

Interest expense for the three and six months ended June 30, 2021 included a loss on extinguishment of debt of $15.4 million and $38.9 million, which included $12.3 million and $31.0 million, respectively, of bond redemption premiums and $3.1 million and $7.9 million, respectively, for write-off of deferred debt issuance costs and recognition of deferred fair value interest rate swap losses related to financing transactions during 2021. The cash payments related to the early redemption premiums for the debt extinguishments are classified as cash outflows from financing activities on the consolidated statements of cash flows for the six months ended June 30, 2021

For the six months ended June 30, 2021, we paid debt issuance costs of $3.1 million primarily for the amendments to our Senior Credit Facility.

NOTE 15. CONTRIBUTING EMPLOYEE OWNERSHIP PLAN

The Contributing Employee Ownership Plan (CEOP) is a defined contribution plan available to essentially all domestic employees. We provide a contribution to an individual retirement contribution account maintained with the CEOP equal to an amount of between 5.0% and 7.5% of the employee's eligible compensation. The defined contribution plan expense for the three months ended June 30, 2022 and 2021 was $8.8 million and $8.6 million, respectively, and for the six months ended June 30, 2022 and 2021 was $19.4 million and $17.3 million, respectively.

Company matching contributions are invested in the same investment allocation as the employee's contribution. Our matching contributions for eligible employees for the three months ended June 30, 2022 and 2021 were $3.6 million and $3.7 million, respectively, and for the six months ended June 30, 2022 and 2021 were $6.7 million and $6.9 million, respectively.

NOTE 16. PENSION PLANS AND RETIREMENT BENEFITS

We sponsor domestic and foreign defined benefit pension plans for eligible employees and retirees. Most of our domestic employees participate in defined contribution plans. However, a portion of our bargaining hourly employees continue to participate in our domestic qualified defined benefit pension plans under a flat-benefit formula. Our funding policy for the qualified defined benefit pension plans is consistent with the requirements of federal laws and regulations. Our foreign subsidiaries maintain pension and other benefit plans, which are consistent with local statutory practices.

Our domestic qualified defined benefit pension plan provides that if, within three years following a change of control of Olin, any corporate action is taken or filing made in contemplation of, among other things, a plan termination or merger or other transfer of assets or liabilities of the plan, and such termination, merger, or transfer thereafter takes place, plan benefits would automatically be increased for affected participants (and retired participants) to absorb any plan surplus (subject to applicable collective bargaining requirements).

We also provide certain postretirement healthcare (medical) and life insurance benefits for eligible active and retired domestic employees. The healthcare plans are contributory with participants' contributions adjusted annually based on medical rates of inflation and plan experience.

	Pension Benefits		*Other Postretirement Benefits*	
	Three Months Ended June 30,		*Three Months Ended June 30,*	
	2022	*2021*	*2022*	*2021*
Components of Net Periodic Benefit (Income) Cost	*($ in millions)*			
Service cost	$ 2.2	$ 2.8	$ 0.3	$ 0.3
Interest cost	15.5	12.8	0.3	0.3
Expected return on plans' assets	(34.3)	(35.0)	—	—
Amortization of prior service cost	(0.2)	(0.2)	0.1	0.1
Recognized actuarial loss	8.6	13.2	0.5	0.6
Net periodic benefit (income) cost	$ (8.2)	$ (6.4)	$ 1.2	$ 1.3

	Pension Benefits		*Other Postretirement Benefits*	
	Six Months Ended June 30,		*Six Months Ended June 30,*	
	2022	*2021*	*2022*	*2021*
Components of Net Periodic Benefit (Income) Cost	*($ in millions)*			
Service cost	$ 4.5	$ 5.8	$ 0.6	$ 0.7
Interest cost	30.9	25.6	0.6	0.6
Expected return on plans' assets	(68.5)	(71.1)	—	—
Amortization of prior service cost	(0.4)	(0.3)	0.1	0.1
Recognized actuarial loss	17.2	26.3	1.0	1.3
Net periodic benefit (income) cost	$ (16.3)	$ (13.7)	$ 2.3	$ 2.7

We made cash contributions to our international qualified defined benefit pension plans of $0.8 million and $0.6 million for the six months ended June 30, 2022 and 2021, respectively.

NOTE 17. INCOME TAXES

The effective tax rate for the three months ended June 30, 2022 included a benefit associated with prior year tax positions and stock-based compensation, resulting in a net $8.5 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended June 30, 2022 of 23.5% was higher than the 21% U.S. federal statutory rate primarily due to state and foreign income taxes, partially offset by foreign income exclusions and favorable permanent salt depletion deductions. The effective tax rate for the three months ended June 30, 2021 included a benefit from a net decrease in the valuation allowance related to deferred tax assets in foreign jurisdictions, a benefit associated with prior year tax positions, a benefit associated with stock-based compensation and an expense from a change in tax contingencies. These factors resulted in a net $93.9 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended June 30, 2021 of 22.4% was higher than the 21% U.S. federal statutory rate primarily due to state taxes, foreign income inclusions and foreign income taxes, partially offset by a net decrease in the valuation allowance related to utilization of losses in foreign jurisdictions and favorable permanent salt depletion deductions.

The effective tax rate for the six months ended June 30, 2022 included a benefit associated with prior year tax positions and stock-based compensation, resulting in a net $10.8 million tax benefit. After giving consideration to these items, the effective tax rate for the six months ended June 30, 2022 of 24.4% was higher than the 21% U.S. federal statutory rate primarily due to state and foreign income taxes, partially offset by foreign income exclusions and favorable permanent salt depletion deductions. The effective tax rate for the six months ended June 30, 2021 included a benefit from a net decrease in the valuation allowance related to deferred tax assets in foreign jurisdictions, a benefit associated with prior year tax positions, a benefit associated with stock-based compensation, an expense from remeasurement of deferred taxes due to an increase in our state effective tax rates and an expense from a change in tax contingencies. These factors resulted in a net $95.2 million tax benefit. After giving consideration to these items, the effective tax rate for the six months ended June 30, 2021 of 21.6% was higher than the 21% U.S. federal statutory rate primarily due to state taxes, foreign income inclusions and foreign income taxes, partially offset by a net decrease in the valuation allowance related to utilization of losses in foreign jurisdictions and favorable permanent salt depletion deductions.

As of June 30, 2022, we had $46.0 million of gross unrecognized tax benefits, which would have a net $45.4 million impact on the effective tax rate, if recognized. As of June 30, 2021, we had $40.8 million of gross unrecognized tax benefits, of which $40.6 million would have impacted the effective tax rate, if recognized. The amount of unrecognized tax benefits was as follows:

	June 30,	
	2022	2021
	($ in millions)	
Balance at beginning of year	$ 43.4	$ 21.3
Increases for prior year tax positions	0.3	20.5
Decreases for prior year tax positions	(0.7)	(3.8)
Increases for current year tax positions	5.3	2.8
Foreign currency translation adjustments	(2.3)	—
Balance at end of period	$ 46.0	$ 40.8

As of June 30, 2022, we believe it is reasonably possible that our total amount of unrecognized tax benefits will decrease by approximately $12.3 million over the next twelve months. The anticipated reduction primarily relates to settlements with taxing authorities and the expiration of federal, state and foreign statutes of limitation.

We operate globally and file income tax returns in numerous jurisdictions. Our tax returns are subject to examination by various federal, state and local tax authorities. Examinations are ongoing in various states and foreign jurisdictions. We believe we have adequately provided for all tax positions; however, amounts asserted by taxing authorities could be greater than our accrued position. For our primary tax jurisdictions, the tax years that remain subject to examination are as follows:

	Tax Years
U.S. federal income tax	2018 - 2021
U.S. state income tax	2012 - 2021
Canadian federal income tax	2014 - 2021
Brazil	2015 - 2021
Germany	2015 - 2021
China	2014 - 2021
The Netherlands	2016 - 2021

NOTE 18. DERIVATIVE FINANCIAL INSTRUMENTS

We are exposed to market risk in the normal course of our business operations due to our purchases of certain commodities, our ongoing investing and financing activities and our operations that use foreign currencies. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows and future earnings. We have established policies and procedures governing our management of market risks and the use of financial instruments to manage exposure to such risks. ASC 815 "Derivatives and Hedging" (ASC 815) requires an entity to recognize all derivatives as either assets or liabilities in the condensed balance sheets and measure those instruments at fair value. In accordance with ASC 815, we designate derivative contracts as cash flow hedges of forecasted purchases of commodities and forecasted interest payments related to variable-rate borrowings and designate certain interest rate swaps as fair value hedges of fixed-rate borrowings. We do not enter into any derivative instruments for trading or speculative purposes.

Energy costs, including electricity and natural gas, and certain raw materials used in our production processes are subject to price volatility. Depending on market conditions, we may enter into futures contracts, forward contracts, commodity swaps and put and call option contracts in order to reduce the impact of commodity price fluctuations. The majority of our commodity derivatives expire within one year.

We actively manage currency exposures that are associated with net monetary asset positions, currency purchases and sales commitments denominated in foreign currencies and foreign currency denominated assets and liabilities created in the normal course of business. We enter into forward sales and purchase contracts to manage currency risk to offset our net exposures, by currency, related to the foreign currency denominated monetary assets and liabilities of our operations. At June 30, 2022, we had outstanding forward contracts to buy foreign currency with a notional value of $235.5 million and to sell foreign currency with a notional value of $81.0 million. All of the currency derivatives expire within one year and are for U.S. dollar (USD) equivalents. The counterparties to the forward contracts are large financial institutions; however, the risk of loss to us in the event of nonperformance by a counterparty could be significant to our financial position or results of operations. At December 31, 2021, we had outstanding forward contracts to buy foreign currency with a notional value of $199.0 million and to sell foreign currency with a notional value of $124.4 million. At June 30, 2021, we had outstanding forward contracts to buy foreign currency with a notional value of $270.8 million and to sell foreign currency with a notional value of $99.7 million.

Cash Flow Hedges

For derivative instruments that are designated and qualify as a cash flow hedge, the change in fair value of the derivative is recognized as a component of other comprehensive income (loss) until the hedged item is recognized in earnings.

We had the following notional amounts of outstanding commodity contracts that were entered into to hedge forecasted purchases:

	June 30, 2022	December 31, 2021	June 30, 2021
		($ in millions)	
Natural gas	$ 98.0	$ 37.7	$ 57.3
Ethane	52.7	60.3	44.8
Metals	157.9	126.3	148.7
Total notional	$ 308.6	$ 224.3	$ 250.8

As of June 30, 2022, the counterparties to these commodity contracts were Wells Fargo Bank, N.A., Citibank, N.A., JPMorgan Chase Bank, National Association and Bank of America Corporation, all of which are major financial institutions.

We use cash flow hedges for certain raw material and energy costs such as copper, zinc, lead, ethane, electricity and natural gas to provide a measure of stability in managing our exposure to price fluctuations associated with forecasted purchases of raw materials and energy used in our manufacturing process. At June 30, 2022, we had open derivative contract positions through 2027. If all open futures contracts had been settled on June 30, 2022, we would have recognized a pretax loss of $1.9 million.

If commodity prices were to remain at June 30, 2022 levels, approximately $4.0 million of deferred losses, net of tax, would be reclassified into earnings during the next twelve months. The actual effect on earnings will be dependent on actual commodity prices when the forecasted transactions occur.

Fair Value Hedges

We use interest rate swaps as a means of managing interest expense and floating interest rate exposure to optimal levels. For derivative instruments that are designated and qualify as a fair value hedge, the gain or loss on the derivative as well as the offsetting loss or gain on the hedged item attributable to the hedged risk are recognized in current earnings. We include the gain or loss on the hedged items (fixed-rate borrowings) in the same line item, interest expense, as the offsetting loss or gain on the related interest rate swaps.

In 2021, we redeemed the 2025 Notes, which resulted in recognition of the outstanding deferred swap loss. For the three and six months ended June 30, 2021, \$0.6 million and \$1.8 million, respectively, of expense was recorded to interest expense on the accompanying condensed statements of operations related to these swap agreements.

Financial Statement Impacts

We present our derivative assets and liabilities in our condensed balance sheets on a net basis whenever we have a legally enforceable master netting agreement with the counterparty to our derivative contracts. We use these agreements to manage and substantially reduce our potential counterparty credit risk.

The following table summarizes the location and fair value of the derivative instruments on our condensed balance sheets. The table disaggregates our net derivative assets and liabilities into gross components on a contract-by-contract basis before giving effect to master netting arrangements:

	June 30, 2022	December 31, 2021	June 30, 2021
		($ in millions)	
Asset derivatives:			
Other current assets			
Derivatives designated as hedging instruments:			
Commodity contracts - gains	$ 27.1	$ 31.8	$ 45.5
Commodity contracts - losses	(1.3)	(6.2)	(1.3)
Derivatives not designated as hedging instruments:			
Foreign exchange contracts - gains	2.2	2.0	—
Foreign exchange contracts - losses	(0.2)	(0.8)	—
Total other current assets	27.8	26.8	44.2
Other assets			
Derivatives designated as hedging instruments:			
Commodity contracts - gains	5.4	7.9	14.9
Total other assets	5.4	7.9	14.9
Total asset derivatives(1)	$ 33.2	$ 34.7	$ 59.1
Liability derivatives:			
Accrued liabilities			
Derivatives designated as hedging instruments:			
Commodity contracts - losses	$ 38.7	$ 3.6	$ 0.7
Commodity contracts - gains	(7.6)	(0.7)	(0.7)
Derivatives not designated as hedging instruments:			
Foreign exchange contracts - losses	—	0.7	6.5
Foreign exchange contracts - gains	—	(0.1)	(0.4)
Total accrued liabilities	31.1	3.5	6.1
Other liabilities			
Derivatives designated as hedging instruments:			
Commodity contracts - losses	2.0	0.3	—
Total other liabilities	2.0	0.3	—
Total liability derivatives(1)	$ 33.1	$ 3.8	$ 6.1

(1) Does not include the impact of cash collateral received from or provided to counterparties.

The following table summarizes the effects of derivative instruments on our condensed statements of operations:

		Amount of Gain (Loss)			
		Three Months Ended June 30,		*Six Months Ended June 30,*	
	Location of Gain (Loss)	*2022*	*2021*	*2022*	*2021*
Derivatives – Cash Flow Hedges		*($ in millions)*			
Recognized in other comprehensive loss:					
Commodity contracts	———	$ (36.4)	$ 41.8	$ 16.4	$ 163.8
Reclassified from accumulated other comprehensive loss into income:					
Commodity contracts	Cost of goods sold	$ 36.1	$ 20.4	$ 48.5	$ 133.2
Derivatives – Fair Value Hedges					
Interest rate contracts	Interest expense	$ —	$ (0.6)	$ —	$ (1.8)
Derivatives Not Designated as Hedging Instruments					
Commodity contracts	Cost of goods sold	$ —	$ —	$ 0.5	$ —
Foreign exchange contracts	Selling and administration	$ (8.5)	$ (6.2)	$ (27.1)	$ (8.2)

Credit Risk and Collateral

By using derivative instruments, we are exposed to credit and market risk. If a counterparty fails to fulfill its performance obligations under a derivative contract, our credit risk will equal the fair value gain in a derivative. Generally, when the fair value of a derivative contract is positive, this indicates that the counterparty owes us, thus creating a repayment risk for us. When the fair value of a derivative contract is negative, we owe the counterparty and, therefore, assume no repayment risk. We minimize the credit (or repayment) risk in derivative instruments by entering into transactions with high-quality counterparties. We monitor our positions and the credit ratings of our counterparties, and we do not anticipate non-performance by the counterparties.

Based on the agreements with our various counterparties, cash collateral is required to be provided when the net fair value of the derivatives, with the counterparty, exceeds a specific threshold. If the threshold is exceeded, cash is either provided by the counterparty to us if the value of the derivatives is our asset, or cash is provided by us to the counterparty if the value of the derivatives is our liability. As of June 30, 2022, December 31, 2021 and June 30, 2021, this threshold was not exceeded. In all instances where we are party to a master netting agreement, we offset the receivable or payable recognized upon payment of cash collateral against the fair value amounts recognized for derivative instruments that have also been offset under such master netting agreements.

NOTE 19. FAIR VALUE MEASUREMENTS

Fair value is defined as the price at which an asset could be exchanged in a current transaction between knowledgeable, willing parties or the amount that would be paid to transfer a liability to a new obligor, not the amount that would be paid to settle the liability with the creditor. Where available, fair value is based on observable market prices or parameters or derived from such prices or parameters. Where observable prices or inputs are not available, valuation models are applied. These valuation techniques involve some level of management estimation and judgment, the degree of which is dependent on the price transparency for the instruments or market and the instruments' complexity.

Assets and liabilities recorded at fair value in the condensed balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair value. Hierarchical levels, defined by ASC 820 "Fair Value Measurements and Disclosures" (ASC 820) are directly related to the amount of subjectivity associated with the inputs to fair valuation of these assets and liabilities, and are as follows:

Level 1 — Inputs were unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

Level 2 — Inputs (other than quoted prices included in Level 1) were either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument's anticipated life.

Level 3 — Inputs reflected management's best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration was given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

We are required to separately disclose assets and liabilities measured at fair value on a recurring basis, from those measured at fair value on a nonrecurring basis. Nonfinancial assets measured at fair value on a nonrecurring basis are intangible assets and goodwill, which are reviewed for impairment annually in the fourth quarter and/or when circumstances or other events indicate that impairment may have occurred.

Determining which hierarchical level an asset or liability falls within requires significant judgment. We evaluate our hierarchy disclosures each quarter. The following table summarizes the assets and liabilities measured at fair value in the condensed balance sheets:

	Fair Value Measurements			
Balance at June 30, 2022	*Level 1*	*Level 2*	*Level 3*	*Total*
		($ in millions)		
Assets				
Commodity contracts	$ —	$ 31.2	$ —	$ 31.2
Foreign exchange contracts	—	2.0	—	2.0
Total Assets	$ —	$ 33.2	$ —	$ 33.2
Liabilities				
Commodity contracts	$ —	$ 33.1	$ —	$ 33.1
Foreign exchange contracts	—	—	—	—
Total Liabilities	$ —	$ 33.1	$ —	$ 33.1
Balance at December 31, 2021				
Assets				
Commodity contracts	$ —	$ 33.5	$ —	$ 33.5
Foreign exchange contracts	—	1.2	—	1.2
Total Assets	$ —	$ 34.7	$ —	$ 34.7
Liabilities				
Commodity contracts	$ —	$ 3.2	$ —	$ 3.2
Foreign exchange contracts	—	0.6	—	0.6
Total Liabilities	$ —	$ 3.8	$ —	$ 3.8
Balance at June 30, 2021				
Assets				
Commodity contracts	$ —	$ 59.1	$ —	$ 59.1
Total Assets	$ —	$ 59.1	$ —	$ 59.1
Liabilities				
Foreign exchange contracts	$ —	$ 6.1	$ —	$ 6.1
Total Liabilities	$ —	$ 6.1	$ —	$ 6.1

Commodity Contracts

Commodity contract financial instruments were valued primarily based on prices and other relevant information observable in market transactions involving identical or comparable assets or liabilities including both forward and spot prices for commodities. We use commodity derivative contracts for certain raw materials and energy costs such as copper, zinc, lead, ethane, electricity and natural gas to provide a measure of stability in managing our exposure to price fluctuations.

Foreign Currency Contracts

Foreign currency contract financial instruments were valued primarily based on relevant information observable in market transactions involving identical or comparable assets or liabilities including both forward and spot prices for currencies. We enter into forward sales and purchase contracts to manage currency risk resulting from purchase and sale commitments denominated in foreign currencies.

Financial Instruments

The carrying values of cash and cash equivalents, accounts receivable and accounts payable approximated fair values due to the short-term maturities of these instruments. Since our long-term debt instruments may not be actively traded, the inputs used to measure the fair value of our long-term debt are based on current market rates for debt of similar risk and maturities and is classified as Level 2 in the fair value measurement hierarchy. As of June 30, 2022, December 31, 2021 and June 30, 2021, the fair value measurements of debt were $2,635.3 million, $2,921.0 million and $3,669.2 million, respectively.

Nonrecurring Fair Value Measurements

In addition to assets and liabilities that are recorded at fair value on a recurring basis, we record assets and liabilities at fair value on a nonrecurring basis as required by ASC 820. There were no assets or liabilities measured at fair value on a nonrecurring basis as of June 30, 2022, December 31, 2021 and June 30, 2021.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Business Background

Olin Corporation (Olin) is a Virginia corporation, incorporated in 1892, having its principal executive offices in Clayton, MO. We are a leading vertically-integrated global manufacturer and distributor of chemical products and a leading U.S. manufacturer of ammunition. Our operations are concentrated in three business segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. All of our business segments are capital intensive manufacturing businesses. The Chlor Alkali Products and Vinyls segment manufactures and sells chlorine and caustic soda, ethylene dichloride (EDC) and vinyl chloride monomer, methyl chloride, methylene chloride, chloroform, carbon tetrachloride, perchloroethylene, hydrochloric acid, hydrogen, bleach products and potassium hydroxide. The Epoxy segment produces and sells a full range of epoxy materials and precursors, including aromatics (acetone, bisphenol, cumene and phenol), allyl chloride, epichlorohydrin, liquid epoxy resins, solid epoxy resins and downstream products such as converted epoxy resins and additives. The Winchester segment produces and sells sporting ammunition, reloading components, small caliber military ammunition and components, and industrial cartridges.

Executive Summary

2022 Overview

Net income for the three and six months ended June 30, 2022 was $422.1 million and $815.1 million, respectively, compared to $355.8 million and $599.4 million, respectively, for the comparable prior year periods in 2021. For the six months ended June 30, 2022, the increase in results from the prior year was primarily due to improved operating results across all our business segments. For the three months ended June 30, 2022, the increase in results from the prior year was primarily due to improved operating results within our Chlor Alkali Products and Vinyls and Winchester business segments, partially offset by a decline in Epoxy results.

During first quarter 2022, our Epoxy segment experienced weaker epoxy resin demand in Europe, which was exacerbated by the uncertainty following the Russian invasion of Ukraine. The Epoxy business was unwilling to sell incremental volume into a poor-quality market and operating the epoxy resin facility at less than 50% operating rates was impractical. As a result of these factors, the high natural gas and electrical power costs in Europe, and facility maintenance, we suspended epoxy resin production at our Stade, Germany facility in March and subsequently resumed production in May. During second quarter 2022, our Epoxy segment experienced weaker epoxy resin demand in North America and South America. As a result, late in the second quarter we announced we are temporarily suspending epoxy and related upstream inputs production at our Freeport, TX and Guaruja, Brazil facilities.

During April 2022, our Chlor Alkali Products and Vinyls facility at Plaquemine, LA experienced an unplanned production outage. Approximately half of the facility returned to operations during June and the remainder is expected to return to operations in early August 2022. With the resumption of its Plaquemine, LA operations, high electrical power costs in Texas and considering the poor-quality EDC market conditions, we announced late in the second quarter 2022 our Chlor Alkali Products and Vinyls segment is temporarily suspending a significant portion of its EDC and related chlor alkali production at its Freeport, TX facility.

Chlor Alkali Products and Vinyls reported segment income of $346.5 million and $675.1 million for the three and six months ended June 30, 2022, respectively. Chlor Alkali Products and Vinyls segment results were higher than in the comparable prior year periods primarily due to higher product pricing across all products, partially offset by higher raw material and operating costs and lower volumes.

Epoxy reported segment income of $139.9 million and $277.9 million for the three and six months ended June 30, 2022, respectively. Epoxy first half segment results were higher than in the comparable prior year period primarily due to higher product prices, partially offset by higher raw material costs, primarily benzene and propylene, lower volumes and higher operating costs. Epoxy second quarter 2022 segment results continued to be negatively impacted by weaker epoxy resin demand, resulting in lower volumes compared to the prior year period. As a result, Epoxy segment results for the second quarter declined from the prior year.

Winchester reported segment income of $119.3 million and $238.2 million for the three and six months ended June 30, 2022, respectively. Winchester segment results were higher than in the comparable prior year period primarily due to increased commercial ammunition pricing, partially offset by higher commodity and operating costs.

On July 28, 2022, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $2.0 billion. This program will terminate upon the purchase of $2.0 billion of common stock. During the six months ended June 30, 2022, we repurchased and retired 12.6 million shares of common stock at a total value of $689.7 million. As of June 30, 2022, we have $362.5 million of remaining authorized common stock to be purchased under our 2021 $1.0 billion share repurchase program. The authorization remaining available under the $1.0 billion 2021 share repurchase program is not affected by the authorization of the $2.0 billion 2022 share repurchase program.

Other Events

The invasion of Ukraine by Russia and the sanctions imposed in response to this crisis have increased the level of economic and political uncertainty. Russia sales represented less than 0.5% of our total sales for the full year 2021 and were minimal for 2022. During the first quarter of 2022, we ceased all sales to and purchases from Russia. Additionally, sanctions from the U.S., and the European Union continue to evolve, along with the overall impact the invasion has on the global economic and political environment. We continue to closely monitor the changing environment, including the increased volatility and heightened degree of uncertainty resulting from the invasion. As of now, the direct impact on our operations has not been significant, but we are unable to fully determine the future impact the invasion and the corresponding global response will have on our business.

Consolidated Results of Operations

	Three Months Ended June 30,		*Six Months Ended June 30,*	
	2022	*2021*	*2022*	*2021*
	($ in millions, except per share data)			
Sales	$ 2,616.1	$ 2,221.3	$ 5,077.5	$ 4,140.1
Cost of goods sold	1,951.4	1,712.2	3,758.9	3,136.0
Gross margin	664.7	509.1	1,318.6	1,004.1
Selling and administration	99.0	100.6	203.3	207.5
Restructuring charges	3.6	14.0	6.7	20.9
Other operating income	3.3	0.5	3.3	0.5
Operating income	565.4	395.0	1,111.9	776.2
Interest expense	34.5	65.9	67.4	150.4
Interest income	0.3	—	0.7	0.1
Non-operating pension income	9.5	8.2	19.1	17.5
Income before taxes	540.7	337.3	1,064.3	643.4
Income tax provision (benefit)	118.6	(18.5)	249.2	44.0
Net income	$ 422.1	$ 355.8	$ 815.1	$ 599.4
Net income per common share:				
Basic	$ 2.83	$ 2.23	$ 5.37	$ 3.77
Diluted	$ 2.76	$ 2.17	$ 5.24	$ 3.69

Three Months Ended June 30, 2022 Compared to Three Months Ended June 30, 2021

Sales for the three months ended June 30, 2022 were $2,616.1 million compared to $2,221.3 million in the same period last year, an increase of $394.8 million, or 18%. Chlor Alkali Products and Vinyls sales increased by $436.2 million due to higher product pricing across all products, partially offset by lower volumes. Winchester sales increased by $35.9 million, primarily due to increased commercial ammunition pricing partially offset by lower volumes. Epoxy sales decreased by $77.3 million due to lower volumes partially offset by higher product pricing.

Gross margin increased $155.6 million for the three months ended June 30, 2022 compared to the prior year. Chlor Alkali Products and Vinyls gross margin increased by $177.7 million primarily due to higher product pricing, partially offset by higher raw material and operating costs. Winchester gross margin increased by $11.5 million, primarily due to higher commercial ammunition pricing partially offset by higher costs. Epoxy gross margin decreased by $28.9 million primarily due to lower volumes and higher costs, partially offset by higher product pricing. Gross margin as a percentage of sales increased to 25% in 2022 from 23% in 2021.

Selling and administration expenses for the three months ended June 30, 2022 were $99.0 million, a decrease of $1.6 million from the prior year. The decrease was primarily due to lower variable incentive compensation expense of $7.8 million, which includes mark-to-market adjustments on stock-based compensation expense, partially offset by higher legal and legal-related settlement expenses of $4.5 million and an unfavorable foreign currency impact of $4.7 million. Selling and administration expenses as a percentage of sales decreased to 4% in 2022 from 5% in 2021.

Restructuring charges for the three months ended June 30, 2022 and 2021 were $3.6 million and $14.0 million, respectively. During the second quarter of 2021, we committed to a productivity initiative to align the organization with our new operating model and improve efficiencies which resulted in pretax restructuring charges of $10.1 million for the six months ended June 30, 2021.

Interest expense decreased by $31.4 million for the three months ended June 30, 2022. Interest expense for the three months ended June 30, 2021 included $12.3 million of bond redemption premiums and $3.1 million for write-off of deferred debt issuance costs and recognition of deferred fair value interest rate swap losses related to financing transactions during second quarter 2021. Without these items, interest expense decreased by $16.0 million, primarily due to a lower level of debt outstanding and lower average interest rates.

The effective tax rate for the three months ended June 30, 2022 included a benefit associated with prior year tax positions and stock-based compensation, resulting in a net $8.5 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended June 30, 2022 of 23.5% was higher than the 21% U.S. federal statutory rate primarily due to state and foreign income taxes, partially offset by foreign income exclusions and favorable permanent salt depletion deductions. The effective tax rate for the three months ended June 30, 2021 included a benefit from a net decrease in the valuation allowance related to deferred tax assets in foreign jurisdictions, a benefit associated with prior year tax positions, a benefit associated with stock-based compensation and an expense from a change in tax contingencies. These factors resulted in a net $93.9 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended June 30, 2021 of 22.4% was higher than the 21% U.S. federal statutory rate primarily due to state taxes, foreign income inclusions and foreign income taxes, partially offset by a net decrease in the valuation allowance related to utilization of losses in foreign jurisdictions and favorable permanent salt depletion deductions.

Six Months Ended June 30, 2022 Compared to Six Months Ended June 30, 2021

Sales for the six months ended June 30, 2022 were $5,077.5 million compared to $4,140.1 million in the same period last year, an increase of $937.4 million, or 23%. Chlor Alkali Products and Vinyls sales increased by $814.4 million due to higher product pricing across all products, partially offset by lower volumes. Winchester sales increased by $73.4 million, primarily due to increased commercial ammunition pricing partially offset by lower volumes. Epoxy sales increased by $49.6 million due to higher product prices, partially offset by lower volumes.

Gross margin increased $314.5 million for the six months ended June 30, 2022 compared to the prior year. Chlor Alkali Products and Vinyls gross margin increased by $233.0 million, Epoxy gross margin increased by $44.5 million and Winchester gross margin increased by $48.1 million. Gross margin across all of our businesses increased due to higher product pricing, partially offset by higher raw material and operating costs and lower volumes. Gross margin as a percentage of sales increased to 26% in 2022 from 24% in 2021.

Selling and administration expenses for the six months ended June 30, 2022 were $203.3 million, a decrease of $4.2 million from the prior year. The decrease was primarily due to lower variable incentive compensation expense of $15.5 million, which includes mark-to-market adjustments on stock-based compensation expense, partially offset by higher legal and legal-related settlement expenses of $7.4 million and an unfavorable foreign currency impact of $3.9 million. Selling and administration expenses as a percentage of sales decreased to 4% in 2022 from 5% in 2021.

Restructuring charges for the six months ended June 30, 2022 and 2021 were $6.7 million and $20.9 million, respectively. During the second quarter of 2021, we committed to a productivity initiative to align the organization with our new operating model and improve efficiencies which resulted in pretax restructuring charges of $10.1 million for the six months ended June 30, 2021. On March 15, 2021, we announced that we had made the decision to permanently close approximately 50% of our diaphragm-grade chlor alkali capacity, representing 200,000 tons, at our McIntosh, AL facility which resulted in pretax restructuring charges of $4.8 million for the six months ended June 30, 2021.

Interest expense decreased by $83.0 million for the six months ended June 30, 2022. Interest expense for the six months ended June 30, 2021 included $31.0 million of bond redemption premiums and $7.9 million for write-off of deferred debt issuance costs and recognition of deferred fair value interest rate swap losses related to financing transactions during the first and second quarter 2021. Without these items, interest expense decreased by $44.1 million, primarily due to a lower level of debt outstanding and lower average interest rates.

The effective tax rate for the six months ended June 30, 2022 included a benefit associated with prior year tax positions, stock-based compensation and a change in tax contingencies, resulting in a net $10.8 million tax benefit. After giving consideration to these items, the effective tax rate for the six months ended June 30, 2022 of 24.4% was higher than the 21% U.S. federal statutory rate primarily due to state and foreign income taxes, partially offset by foreign income exclusions and favorable permanent salt depletion deductions. The effective tax rate for the six months ended June 30, 2021 included a benefit from a net decrease in the valuation allowance related to deferred tax assets in foreign jurisdictions, a benefit associated with prior year tax positions, a benefit associated with stock-based compensation, an expense from remeasurement of deferred taxes due to an increase in our state effective tax rates and an expense from a change in tax contingencies. These factors resulted in a net $95.2 million tax benefit. After giving consideration to these items, the effective tax rate for the six months ended June 30, 2021 of 21.6% was higher than the 21% U.S. federal statutory rate primarily due to state taxes, foreign income inclusions and foreign income taxes, partially offset by a net decrease in the valuation allowance related to utilization of losses in foreign jurisdictions and favorable permanent salt depletion deductions.

Segment Results

We define segment results as income (loss) before interest expense, interest income, other operating income (expense), non-operating pension income, other income and income taxes. We have three operating segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. The three operating segments reflect the organization used by our management for purposes of allocating resources and assessing performance. Chlorine used in our Epoxy segment is transferred at cost from the Chlor Alkali Products and Vinyls segment.

	Three Months Ended June 30,		*Six Months Ended June 30,*	
	2022	*2021*	*2022*	*2021*
Sales:	*($ in millions)*			
Chlor Alkali Products and Vinyls	$ 1,403.5	$ 967.3	$ 2,648.7	$ 1,834.3
Epoxy	772.7	850.0	1,562.2	1,512.6
Winchester	439.9	404.0	866.6	793.2
Total sales	$ 2,616.1	$ 2,221.3	$ 5,077.5	$ 4,140.1
Income before taxes:				
Chlor Alkali Products and Vinyls	$ 346.5	$ 168.9	$ 675.1	$ 440.0
Epoxy	139.9	165.3	277.9	230.5
Winchester	119.3	109.9	238.2	195.0
Corporate/other:				
Environmental expense(1)	(5.0)	(4.7)	(10.6)	(5.0)
Other corporate and unallocated costs	(35.0)	(30.9)	(65.3)	(63.9)
Restructuring charges	(3.6)	(14.0)	(6.7)	(20.9)
Other operating income	3.3	0.5	3.3	0.5
Interest expense(2)	(34.5)	(65.9)	(67.4)	(150.4)
Interest income	0.3	—	0.7	0.1
Non-operating pension income	9.5	8.2	19.1	17.5
Income before taxes	$ 540.7	$ 337.3	$ 1,064.3	$ 643.4

(1) Environmental expense for the six months ended June 30, 2021 includes $2.2 million of insurance recoveries for environmental costs incurred and expensed in prior periods.

(2) Interest expense for the three and six months ended June 30, 2021 included a loss on extinguishment of debt of $15.4 million and $38.9 million, respectively, which includes bond redemption premiums, write-off of deferred debt issuance costs and recognition of deferred fair value interest rate swap losses associated with the optional prepayment of existing debt.

Chlor Alkali Products and Vinyls

Three Months Ended June 30, 2022 Compared to Three Months Ended June 30, 2021

Chlor Alkali Products and Vinyls sales for the three months ended June 30, 2022 were $1,403.5 million compared to $967.3 million for the same period in 2021, an increase of $436.2 million, or 45%. The sales increase was primarily due to higher product pricing across all products, partially offset by lower volumes.

Chlor Alkali Products and Vinyls segment income was $346.5 million for the three months ended June 30, 2022 compared to $168.9 million for the same period in 2021. The increase in segment results of $177.6 million was primarily due to higher product prices ($515.9 million) across all products, partially offset by higher raw material and operating costs ($190.5 million), primarily increased natural gas and electrical power costs, increased costs associated with product purchased from other parties ($85.9 million) and lower volumes ($61.9 million). Chlor Alkali Products and Vinyls segment results included depreciation and amortization expense of $120.4 million and $114.5 million for the three months ended June 30, 2022 and 2021, respectively.

Six Months Ended June 30, 2022 Compared to Six Months Ended June 30, 2021

Chlor Alkali Products and Vinyls sales for the six months ended June 30, 2022 were $2,648.7 million compared to $1,834.3 million for the same period in 2021, an increase of $814.4 million, or 44%. The sales increase was primarily due to higher product pricing across all products, partially offset by lower volumes.

Chlor Alkali Products and Vinyls segment income was $675.1 million for the six months ended June 30, 2022 compared to $440.0 million for the same period in 2021. Chlor Alkali Products and Vinyls first half 2021 operating results were favorably impacted by Winter Storm Uri ($121.4 million), which includes a net one-time benefit associated with Olin's customary financial hedges and contracts maintained to provide protection from rapid and dramatic changes in energy costs, partially offset by unabsorbed fixed manufacturing costs and storm-related maintenance costs. Without the impact of Winter Storm Uri, the increase in segment results of $356.5 million was primarily due to higher product prices ($900.3 million) across all products, partially offset by higher raw material and operating costs ($284.7 million), primarily increased natural gas and electrical power costs, lower volumes ($135.0 million) and increased costs associated with product purchased from other parties ($124.1 million). Chlor Alkali Products and Vinyls segment results included depreciation and amortization expense of $243.5 million and $230.3 million for the six months ended June 30, 2022 and 2021, respectively.

Epoxy

Three Months Ended June 30, 2022 Compared to Three Months Ended June 30, 2021

Epoxy sales for the three months ended June 30, 2022 were $772.7 million compared to $850.0 million for the same period in 2021, a decrease of $77.3 million, or 9%. The sales decrease was primarily due to lower volumes ($218.1 million), primarily liquid epoxy resins and solid epoxy resins, and an unfavorable effect of foreign currency translation ($37.8 million), partially offset by higher product prices ($178.6 million).

Epoxy segment income was $139.9 million for the three months ended June 30, 2022 compared to $165.3 million for the same period in 2021. The decrease in segment results of $25.4 million was primarily due to lower volumes ($109.4 million), higher raw material costs ($77.2 million), primarily benzene and propylene, and higher operating costs ($17.4 million). These decreases were partially offset by higher product prices ($178.6 million). A significant percentage of our Euro denominated sales are of products manufactured within Europe. As a result, the impact of foreign currency translation on revenue is primarily offset by the impact of foreign currency translation on raw materials and manufacturing costs also denominated in Euros. Epoxy segment results included depreciation and amortization expense of $20.4 million and $20.3 million for the three months ended June 30, 2022 and 2021, respectively.

Six Months Ended June 30, 2022 Compared to Six Months Ended June 30, 2021

Epoxy sales for the six months ended June 30, 2022 were $1,562.2 million compared to $1,512.6 million for the same period in 2021, an increase of $49.6 million, or 3%. The sales increase was primarily due to higher product prices ($460.1 million), partially offset by lower volumes ($345.5 million) and an unfavorable effect of foreign currency translation ($65.0 million).

Epoxy segment income was $277.9 million for the six months ended June 30, 2022 compared to $230.5 million for the same period in 2021. Epoxy first half 2021 operating results were unfavorably impacted by Winter Storm Uri ($21.5 million), which included unabsorbed fixed manufacturing costs and storm-related maintenance costs. Without the impact of Winter Storm Uri, the increase in segment results of $25.9 million was primarily due to higher product prices ($460.1 million), partially offset by higher raw material costs ($206.5 million), primarily benzene and propylene, lower volumes ($164.6 million) and higher operating costs ($63.1 million), primarily increased natural gas and electrical power costs. A significant percentage of our Euro denominated sales are of products manufactured within Europe. As a result, the impact of foreign currency translation on revenue is primarily offset by the impact of foreign currency translation on raw materials and manufacturing costs also denominated in Euros. Epoxy segment results included depreciation and amortization expense of $40.8 million and $42.4 million for the six months ended June 30, 2022 and 2021, respectively.

Winchester

Three Months Ended June 30, 2022 Compared to Three Months Ended June 30, 2021

Winchester sales were $439.9 million for the three months ended June 30, 2022 compared to $404.0 million for the same period in 2021, an increase of $35.9 million, or 9%. The increase was due to higher ammunition sales to commercial customers ($39.1 million) and law enforcement agencies ($2.6 million), partially offset by lower sales to military customers ($5.8 million). Commercial ammunition sales benefited from improved pricing partially offset by lower volumes.

Winchester segment income was $119.3 million for the three months ended June 30, 2022 compared to $109.9 million for the same period in 2021, an increase of $9.4 million. The increase in segment results was due to higher product pricing ($43.4 million), partially offset by higher commodity and operating costs ($31.4 million) and lower volumes ($2.6 million). Winchester segment income included depreciation and amortization expense of $5.9 million and $5.5 million for the six months ended June 30, 2022 and 2021, respectively.

Six Months Ended June 30, 2022 Compared to Six Months Ended June 30, 2021

Winchester sales were $866.6 million for the six months ended June 30, 2022 compared to $793.2 million for the same period in 2021, an increase of $73.4 million, or 9%. The increase was due to higher ammunition sales to commercial customers ($92.3 million) and law enforcement agencies ($4.1 million), partially offset by lower sales to military customers ($23.0 million). Commercial ammunition sales benefited from improved pricing partially offset by lower volumes.

Winchester segment income was $238.2 million for the six months ended June 30, 2022 compared to $195.0 million for the same period in 2021, an increase of $43.2 million. The increase in segment results was due to higher product pricing ($99.9 million), partially offset by higher commodity and operating costs ($55.2 million) and lower volumes ($1.5 million). Winchester segment income included depreciation and amortization expense of $12.1 million and $11.1 million for the six months ended June 30, 2022 and 2021, respectively.

Corporate/Other

Three Months Ended June 30, 2022 Compared to Three Months Ended June 30, 2021

For the three months ended June 30, 2022, charges to income for environmental investigatory and remedial activities were $5.0 million compared to $4.7 million for the three months ended June 30, 2021. These charges related primarily to expected future investigatory and remedial activities associated with past manufacturing operations and former waste disposal sites.

For the three months ended June 30, 2022, other corporate and unallocated costs were $35.0 million compared to $30.9 million for the three months ended June 30, 2021, an increase of $4.1 million. The increase was primarily due to an unfavorable foreign currency impact ($4.7 million) and higher legal and legal-related settlement expenses ($3.3 million), partially offset lower variable incentive compensation costs ($4.0 million), which includes mark-to-market adjustments on stock-based compensation expense.

Six Months Ended June 30, 2022 Compared to Six Months Ended June 30, 2021

For the six months ended June 30, 2022, charges to income for environmental investigatory and remedial activities were $10.6 million compared to $5.0 million for the six months ended June 30, 2021, which included $2.2 million of insurance recoveries for environmental costs incurred and expensed in prior periods. Without these recoveries, charges to income for environmental investigatory and remedial activities for the six months ended June 30, 2021 would have been $7.2 million. These charges related primarily to expected future investigatory and remedial activities associated with past manufacturing operations and former waste disposal sites.

For the six months ended June 30, 2022, other corporate and unallocated costs were $65.3 million compared to $63.9 million for the six months ended June 30, 2021, an increase of $1.4 million. The increase was primarily due to higher legal and legal-related settlement expenses ($6.9 million) and an unfavorable foreign currency impact ($3.9 million), partially offset by lower variable incentive compensation costs ($12.7 million), which includes mark-to-market adjustments on stock-based compensation expense.

Outlook

We expect operating income for the third quarter 2022 to be lower than second quarter 2022 of $565.4 million. We expect our third quarter 2022 Chemicals businesses results to be lower than second quarter 2022, primarily due to lower participation in chlorine derivative markets and operating at lower rates combined with sequentially higher raw material and operating costs, mainly increased natural gas and electrical power costs. We expect Winchester third quarter results to be lower than second quarter 2022 levels primarily due to higher commodity and other materials costs.

Other Corporate and Unallocated costs in 2022 are expected to be comparable to the $135.1 million in 2021.

During 2022, we anticipate environmental expenses in the $25 million to $30 million range compared to $14.0 million in 2021.

We expect non-operating pension income in 2022 to be in the $40 million range compared to $35.7 million in 2021. Based on our plan assumptions and estimates, we will not be required to make any cash contributions to our domestic qualified defined benefit pension plan in 2022. We have several international qualified defined benefit pension plans for which we anticipate cash contributions of less than $5 million in 2022.

In 2022, we currently expect our capital spending to be in the $200 million to $250 million range. We expect 2022 depreciation and amortization expense to be in the $575 million to $600 million range.

We currently believe the 2022 effective and cash tax rates will be approximately 25%.

Environmental Matters

Environmental provisions charged to income, which are included in costs of goods sold, were as follows:

	Three Months Ended June 30,		*Six Months Ended June 30,*	
	2022	*2021*	*2022*	*2021*
	($ in millions)			
Provisions charged to income	$ 5.0	$ 4.7	$ 10.6	$ 7.2
Recoveries for costs incurred and expensed	—	—	—	(2.2)
Environmental expense	$ 5.0	$ 4.7	$ 10.6	$ 5.0

Environmental expense for the six months ended June 30, 2021 includes $2.2 million of insurance recoveries for environmental costs incurred and expensed in prior periods.

Our liabilities for future environmental expenditures were as follows:

	June 30,	
	2022	*2021*
	($ in millions)	
Balance at beginning of year	$ 147.3	$ 147.2
Charges to income	10.6	7.2
Remedial and investigatory spending	(9.0)	(6.2)
Foreign currency translation adjustments	—	0.2
Balance at end of period	$ 148.9	$ 148.4

Environmental investigatory and remediation activities spending was associated with former waste disposal sites and past manufacturing operations. Spending in 2022 for investigatory and remedial efforts, the timing of which is subject to regulatory approvals and other uncertainties, is estimated to be approximately $25 million. Cash outlays for remedial and investigatory activities associated with former waste disposal sites and past manufacturing operations were not charged to income, but instead, were charged to reserves established for such costs identified and expensed to income in prior periods. Associated costs of investigatory and remedial activities are provided for in accordance with generally accepted accounting principles governing probability and the ability to reasonably estimate future costs. Our ability to estimate future costs depends on whether our investigatory and remedial activities are in preliminary or advanced stages. With respect to unasserted claims, we accrue liabilities for costs that, in our experience, we expect to incur to protect our interests against those unasserted claims. Our accrued liabilities for unasserted claims amounted to $9.3 million at June 30, 2022. With respect to asserted claims, we accrue liabilities based on remedial investigation, feasibility study, remedial action and operation, maintenance and monitoring (OM&M) expenses that, in our experience, we expect to incur in connection with the asserted claims. Required site OM&M expenses are estimated and accrued in their entirety for required periods not exceeding 30 years, which reasonably approximates the typical duration of long-term site OM&M. Charges to income for investigatory and remedial efforts may be material to our operating results in 2022.

The condensed balance sheets included reserves for future environmental expenditures to investigate and remediate known sites amounting to $148.9 million, $147.3 million and $148.4 million at June 30, 2022, December 31, 2021 and June 30, 2021, respectively, of which $123.9 million, $122.3 million and $129.4 million, respectively, were classified as other noncurrent liabilities. These amounts do not take into account any discounting of future expenditures or any consideration of insurance recoveries or advances in technology. These liabilities are reassessed periodically to determine if environmental circumstances have changed and/or remediation efforts and our estimate of related costs have changed. As a result of these reassessments, future charges to income may be made for additional liabilities.

Environmental exposures are difficult to assess for numerous reasons, including the identification of new sites, developments at sites resulting from investigatory studies, advances in technology, changes in environmental laws and regulations and their application, changes in regulatory authorities, the scarcity of reliable data pertaining to identified sites, the difficulty in assessing the involvement and financial capability of other Potentially Responsible Parties (PRPs), our ability to obtain contributions from other parties and the lengthy time periods over which site remediation occurs. It is possible that some of these matters (the outcomes of which are subject to various uncertainties) may be resolved unfavorably to us, which could materially adversely affect our financial position or results of operations.

Legal Matters and Contingencies

Discussion of legal matters and contingencies can be referred to under Item 1, within Note 10, "Commitments and Contingencies."

Liquidity and Capital Resources

Cash Flow Data

	Six Months Ended June 30,	
	2022	***2021***
Provided By (Used For)	*($ in millions)*	
Net operating activities	$ 959.2	$ 707.6
Capital expenditures	(103.9)	(86.4)
Long-term debt repayments, net	(0.5)	(490.2)
Debt early redemption premiums	—	(31.0)
Common stock repurchased and retired	(689.7)	—
Stock options exercised	20.9	50.2
Debt issuance costs	—	(3.1)
Net financing activities	(730.2)	(537.8)

Operating Activities

For the six months ended June 30, 2022, cash provided by operating activities increased by $251.6 million from the six months ended June 30, 2021, primarily due to an increase in operating results. For the six months ended June 30, 2022, working capital increased $183.6 million compared to an increase of $209.1 million for the six months ended June 30, 2021. The working capital increase reflects normal seasonal working capital growth. Receivables increased by $228.5 million from December 31, 2021, primarily as a result of higher sales during the second quarter of 2022. Inventories increased by $90.4 million from December 31, 2021 and accounts payable and accrued liabilities increased $138.6 million primarily as a result of increased raw material costs.

Investing Activities

Capital spending of $103.9 million for the six months ended June 30, 2022 was $17.5 million higher than the corresponding period in 2021. For the total year 2022, we currently expect our capital spending to be in the $200 million to $250 million range. We expect 2022 depreciation and amortization expense to be in the $575 million to $600 million range.

Financing Activities

For the six months ended June 30, 2022 and 2021, we had long-term debt repayments, net of long-term debt borrowings of $0.5 million and $490.2 million, respectively.

During the six months ended June 30, 2021, we repaid $150.0 million of the Senior Secured Term Loans.

During the six months ended June 30, 2021, we repurchased, through open market transactions, a principal amount of $26.5 million of the outstanding aggregate principal amount of 5.625% senior notes due August 1, 2029 (2029 Notes) and $8.0 million of the outstanding aggregate principal amount of 5.00% senior notes due February 1, 2030 (2030 Notes). These actions resulted in a total redemption premium of $3.1 million for both the three and six months ended June 30, 2021.

On March 31, 2021, Olin redeemed $315.0 million of the outstanding 10.00% senior notes due October 15, 2025 (2025 Notes) and on May 14, 2021, Olin redeemed the remaining $185.0 million of the outstanding 2025 Notes. The 2025 Notes were redeemed at 105.0% of the principal amount of the 2025 Notes, resulting in a redemption premium of $25.0 million. The 2025 Notes were redeemed by drawing $315.0 million of the Delayed Draw Term Loan along with utilizing cash on hand.

On January 15, 2021, Olin redeemed the remaining $120.0 million of the 9.75% senior notes due 2023 (2023 Notes). The 2023 Notes were redeemed at 102.438% of the principal amount of the 2023 Notes, resulting in a redemption premium of $2.9 million. The remaining 2023 Notes were redeemed by utilizing cash on hand.

For the six months ended June 30, 2022, 12.6 million shares of common stock were repurchased and retired at a total value of $689.7 million.

We issued 0.9 million and 2.4 million shares representing stock options exercised for the six months ended June 30, 2022 and 2021, respectively, with a total value of $20.9 million and $50.2 million, respectively.

For the six months ended June 30, 2021, we paid debt issuance costs of $3.1 million for the amendments to our Senior Credit Facility.

The percent of total debt to total capitalization decreased to 50.8% as of June 30, 2022 from 51.2% as of December 31, 2021 as a result of higher shareholders' equity primarily resulting from our operating results.

In the first and second quarters of 2022 and 2021, we paid a quarterly dividend of $0.20 per share. Dividends paid for the six months ended June 30, 2022 and 2021, were $60.9 million and $63.7 million, respectively. On July 28, 2022, our Board of Directors declared a dividend of $0.20 per share on our common stock, payable on September 9, 2022 to shareholders of record on August 10, 2022.

The payment of cash dividends is subject to the discretion of our Board of Directors and will be determined in light of then-current conditions, including our earnings, our operations, our financial condition, our capital requirements and other factors deemed relevant by our Board of Directors. In the future, our Board of Directors may change our dividend policy, including the frequency or amount of any dividend, in light of then-existing conditions.

Liquidity and Other Financing Arrangements

Our principal sources of liquidity are from cash and cash equivalents, cash flow from operations and borrowings under our Senior Revolving Credit Facility, Receivables Financing Agreement and AR Facilities. Additionally, we believe that we have access to the high-yield debt and equity markets.

We maintain a $1,615.0 million senior credit facility (Senior Credit Facility) which includes a senior delayed-draw term loan facility with aggregate commitments of $315.0 million (Delayed Draw Term Loan), a senior term loan facility with aggregate commitments of $500.0 million (2020 Term Loan and together with the Delayed Draw Term Loan, the Senior Term Loans) and a senior revolving credit facility with aggregate commitments in an amount equal to $800.0 million (Senior Revolving Credit Facility). The maturity date for the Senior Credit Facility is July 16, 2024.

On March 30, 2021, Olin drew the entire $315.0 million of the Delayed Draw Term Loan and used the proceeds to fund the redemption of the 2025 Notes. During 2021, we repaid $465.0 million of the Senior Term Loans. These repayments satisfied all future required quarterly installments of the Senior Term Loans. The Senior Revolving Credit Facility includes a $100.0 million letter of credit subfacility. At June 30, 2022, we had $799.6 million available under our $800.0 million Senior Revolving Credit Facility because we had issued $0.4 million of letters of credit.

We were in compliance with all covenants and restrictions under all our outstanding credit agreements as of June 30, 2022, and no event of default had occurred that would permit the lenders under our outstanding credit agreements to accelerate the debt if not cured. In the future, our ability to generate sufficient operating cash flows, among other factors, will determine the amounts available to be borrowed under these facilities. As a result of our restrictive covenant related to the net leverage ratio, the maximum additional borrowings available to us could be limited in the future. The limitation, if an amendment or waiver from our lenders is not obtained, could restrict our ability to borrow the maximum amounts available under the Senior Revolving Credit Facility and the Receivables Financing Agreement. As of June 30, 2022, there were no covenants or other restrictions that limited our ability to borrow.

The overall increase in cash for the six months ended June 30, 2022 primarily reflects our operating results, partially offset by share repurchases, capital spending, and dividends paid. We believe, based on current and projected levels of cash flow from our operations, together with our cash and cash equivalents on hand and the availability to borrow under our Senior Revolving Credit Facility, Receivables Financing Agreement and AR Facilities, we have sufficient liquidity to meet our short-term and long-term needs to make required payments of interest on our debt, fund our operating needs, working capital and our capital expenditure requirements.

On July 28, 2022, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $2.0 billion. This program will terminate upon the purchase of $2.0 billion of common stock. On November 1, 2021, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $1.0 billion. This program will terminate upon the purchase of $1.0 billion of our common stock. On April 26, 2018, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $500.0 million. This program terminated upon the purchase of $500.0 million of our common stock during the first quarter of 2022.

For the six months ended June 30, 2022, 12.6 million shares of common stock have been repurchased and retired at a total value of $689.7 million. As of June 30, 2022, 11.6 million shares of common stock have been repurchased and retired at a total value of $637.5 million under the 2021 Repurchase Authorization program, and $362.5 million of common stock remained authorized to be repurchased under the program.

We maintain a $300.0 million Receivables Financing Agreement (Receivables Financing Agreement) that is scheduled to mature on September 28, 2024. The Receivables Financing Agreement includes a minimum borrowing requirement of 50% of the facility limit or available borrowing capacity, whichever is less. Under the Receivables Financing Agreement, our eligible trade receivables are used for collateralized borrowings and continue to be serviced by us. In addition, the Receivables Financing Agreement incorporates the net leverage ratio covenant that is contained in the Senior Credit Facility. As of June 30, 2022, $666.3 million of our trade receivables were pledged as collateral and we had $300.0 million drawn with no additional borrowing capacity available under the Receivables Financing Agreement. As of December 31, 2021 and June 30, 2021, we had $300.0 million and $125.0 million, respectively, drawn under the Receivables Financing Agreement.

Olin also has trade accounts receivable factoring arrangements (AR Facilities) and pursuant to the terms of the AR Facilities, certain of our domestic subsidiaries may sell their accounts receivable up to a maximum of $250.0 million and certain of our foreign subsidiaries may sell their accounts receivable up to a maximum of €43.4 million. We will continue to service the outstanding accounts sold. These receivables qualify for sales treatment under ASC 860 and, accordingly, the proceeds are included in net cash provided by operating activities in the condensed statements of cash flows. The gross amount of receivables sold for the three months ended June 30, 2022 and 2021 totaled $477.2 million and $487.3 million, respectively. The factoring discount paid under the AR Facilities is recorded as interest expense on the condensed statements of operations. The factoring discount was $0.4 million and $0.3 million for the three months ended June 30, 2022 and 2021, respectively, and $0.9 million and $0.7 million for the six months ended June 30, 2022 and 2021, respectively. The agreements are without recourse and therefore no recourse liability has been recorded as of June 30, 2022, December 31, 2021 and June 30, 2021. As of June 30, 2022, December 31, 2021 and June 30, 2021, $109.9 million, $83.3 million and $85.7 million, respectively, of receivables qualifying for sales treatment were outstanding and will continue to be serviced by us.

At June 30, 2022, we had total letters of credit of $80.7 million outstanding, of which $0.4 million were issued under our Senior Revolving Credit Facility. The letters of credit were used to support certain long-term debt, certain workers compensation insurance policies, certain plant closure and post-closure obligations, certain international payment obligations and certain international pension funding requirements.

Our current debt structure is used to fund our business operations. As of June 30, 2022, we had long-term borrowings, including the current installment and finance lease obligations, of $2,780.7 million, of which $805.9 million were at variable rates. Included within long-term borrowings on the condensed balance sheets were deferred debt issuance costs and unamortized bond original issue discount of $20.9 million as of June 30, 2022. Commitments from banks under our Senior Revolving Credit Facility, Receivables Financing Agreement and AR Facilities are additional sources of liquidity.

Contractual Obligations

Purchasing commitments are utilized in our normal course of business for our projected needs. We have supply contracts with various third parties for certain raw materials including ethylene, electricity, propylene and benzene. These agreements are maintained through long-term cost based contracts that provide us with a reliable supply of key raw materials.
There have been no material changes in our contractual obligations and commitments as disclosed in our Annual Report on Form 10-K for the year ended December 31, 2021 other than those which occur in the ordinary course of business.

New Accounting Pronouncements

Discussion of new accounting pronouncements can be referred to under Item 1, within Note 2, "Recent Accounting Pronouncements."

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

We are exposed to market risk in the normal course of our business operations due to our purchases of certain commodities, our ongoing investing and financing activities and our operations that use foreign currencies. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows and future earnings. We have established policies and procedures governing our management of market risks and the use of financial instruments to manage exposure to such risks.

Energy costs, including electricity and natural gas, and certain raw materials used in our production processes are subject to price volatility. Depending on market conditions, we may enter into futures contracts, forward contracts, commodity swaps and put and call option contracts in order to reduce the impact of commodity price fluctuations. As of June 30, 2022, we maintained open positions on commodity contracts with a notional value totaling $308.6 million ($224.3 million at December 31, 2021 and $250.8 million at June 30, 2021). Assuming a hypothetical 10% increase in commodity prices which are currently hedged, as of June 30, 2022, we would experience a $30.9 million ($22.4 million at December 31, 2021 and $25.1 million at June 30, 2021) increase in our cost of inventory purchased, which would be substantially offset by a corresponding increase in the value of related hedging instruments.

We transact business in various foreign currencies other than the USD which exposes us to movements in exchange rates which may impact revenue and expenses, assets and liabilities and cash flows. Our significant foreign currency exposure is denominated with European currencies, primarily the Euro, although exposures also exist in other currencies of Asia Pacific, Latin America, Middle East and Africa. For all derivative positions, we evaluated the effects of a 10% shift in exchange rates between those currencies and the USD, holding all other assumptions constant. Unfavorable currency movements of 10% would negatively affect the fair values of the derivatives held to hedge currency exposures by $31.3 million. These unfavorable changes would generally have been offset by favorable changes in the values of the underlying exposures.

We are exposed to changes in interest rates primarily as a result of our investing and financing activities. Our current debt structure is used to fund business operations, and commitments from banks under our Senior Revolving Credit Facility, Receivables Financing Agreement and AR Facilities are additional sources of liquidity. As of June 30, 2022, December 31, 2021 and June 30, 2021, we had long-term borrowings, including current installments and finance lease obligations, of $2,780.7 million, $2,779.3 million and $3,382.9 million, respectively, of which $805.9 million, $805.9 million and $945.9 million at June 30, 2022, December 31, 2021 and June 30, 2021, respectively, were issued at variable rates. Included within long-term borrowings on the condensed balance sheets were deferred debt issuance costs and unamortized bond original issue discount.

Assuming no changes in the $805.9 million of variable-rate debt levels from June 30, 2022, we estimate that a hypothetical change of 100-basis points in the LIBOR interest rates would impact annual interest expense by $8.1 million.

If the actual changes in commodities, foreign currency, or interest pricing is substantially different than expected, the net impact of commodity risk, foreign currency risk, or interest rate risk on our cash flow may be materially different than that disclosed above.

We do not enter into any derivative financial instruments for speculative purposes.

Item 4. Controls and Procedures.

Our chief executive officer and our chief financial officer evaluated the effectiveness of our disclosure controls and procedures as of June 30, 2022. Based on that evaluation, our chief executive officer and chief financial officer have concluded that, as of such date, our disclosure controls and procedures were effective to ensure that information Olin is required to disclose in the reports that it files or submits with the SEC under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, and to ensure that information we are required to disclose in such reports is accumulated and communicated to our management, including our chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

There have been no changes in our internal control over financial reporting that occurred during the quarter ended June 30, 2022, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Cautionary Statement Regarding Forward-Looking Statements

This quarterly report on Form 10-Q includes forward-looking statements. These statements relate to analyses and other information that are based on management's beliefs, certain assumptions made by management, forecasts of future results, and current expectations, estimates and projections about the markets and economy in which we and our various segments operate. The statements contained in this quarterly report on Form 10-Q that are not statements of historical fact may include forward-looking statements that involve a number of risks and uncertainties.

We have used the words "anticipate," "intend," "may," "expect," "believe," "should," "plan," "outlook," "project," "estimate," "forecast," "optimistic," "target," and variations of such words and similar expressions in this quarterly report to identify such forward-looking statements. These forward-looking statements include, but are not limited to, statements regarding the Company's intent to repurchase, from time to time, the Company's common stock. These statements are not guarantees of future performance and involve certain risks, uncertainties and assumptions, which are difficult to predict and many of which are beyond our control. Therefore, actual outcomes and results may differ materially from those matters expressed or implied in such forward-looking statements. We undertake no obligation to update publicly any forward-looking statements, whether as a result of future events, new information or otherwise. The payment of cash dividends is subject to the discretion of our Board of Directors and will be determined in light of then-current conditions, including our earnings, our operations, our financial conditions, our capital requirements and other factors deemed relevant by our Board of Directors. In the future, our Board of Directors may change our dividend policy, including the frequency or amount of any dividend, in light of then-existing conditions.

The risks, uncertainties and assumptions involved in our forward-looking statements, many of which are discussed in more detail in our filings with the SEC, including without limitation the "Risk Factors" section of our Annual Report on Form 10-K for the year ended December 31, 2021, and our Quarterly Reports on Form 10-Q and other reports furnished or filed with the SEC, include, but are not limited to, the following:

Business, Industry and Operational Risks

- sensitivity to economic, business and market conditions in the United States and overseas, including economic instability or a downturn in the sectors served by us;
- declines in average selling prices for our products and the supply/demand balance for our products, including the impact of excess industry capacity or an imbalance in demand for our chlor alkali products;
- unsuccessful execution of our strategic operating model, which prioritizes Electrochemical Unit (ECU) margins over sales volumes;
- failure to control costs and inflation impacts or failure to achieve targeted cost reductions;
- our reliance on a limited number of suppliers for specified feedstock and services and our reliance on third-party transportation;
- higher-than-expected raw material, energy, transportation, and/or logistics costs;
- the occurrence of unexpected manufacturing interruptions and outages, including those occurring as a result of labor disruptions, production hazards and weather-related events;
- the failure or an interruption of our information technology systems;
- failure to identify, attract, develop, retain and motivate qualified employees throughout the organization;
- our inability to complete future acquisitions or successfully integrate them into our business;
- our substantial amount of indebtedness and significant debt service obligations;
- risks associated with our international sales and operations, including economic, political or regulatory changes;
- the negative impact from the COVID-19 pandemic and the global response to the pandemic, including without limitation adverse impacts in complying with governmental mandates;

- weak industry conditions affecting our ability to comply with the financial maintenance covenants in our senior credit facility;

- adverse conditions in the credit and capital markets, limiting or preventing our ability to borrow or raise capital;

- the effects of any declines in global equity markets on asset values and any declines in interest rates or other significant assumptions used to value the liabilities in, and funding of, our pension plans;

- our long-range plan assumptions not being realized causing a non-cash impairment charge of long-lived assets;

Legal, Environmental and Regulatory Risks

- changes in, or failure to comply with, legislation or government regulations or policies, including changes regarding our ability to manufacture or use certain products and changes within the international markets in which we operate;

- new regulations or public policy changes regarding the transportation of hazardous chemicals and the security of chemical manufacturing facilities;

- unexpected outcomes from legal or regulatory claims and proceedings;

- costs and other expenditures in excess of those projected for environmental investigation and remediation or other legal proceedings;

- various risks associated with our Lake City U.S. Army Ammunition Plant contract and performance under other governmental contracts; and

- failure to effectively manage environmental, social and governance (ESG) issues and related regulations, including climate change and sustainability.

All of our forward-looking statements should be considered in light of these factors. In addition, other risks and uncertainties not presently known to us or that we consider immaterial could affect the accuracy of our forward-looking statements.

Part II — Other Information

Item 1. Legal Proceedings.

Not Applicable.

Item 1A. Risk Factors.

Not Applicable.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

(a) Not Applicable.

(b) Not Applicable.

(c)

Issuer Purchases of Equity Securities

Period	*Total Number of Shares (or Units) Purchased(1)*	*Average Price Paid per Share (or Unit)*	*Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs*	*Maximum Dollar Value of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs*
April 1-30, 2022	908,138	$ 55.08	908,138	
May 1-31, 2022	2,867,615	$ 62.59	2,867,615	
June 1-30, 2022	3,581,434	$ 54.99	3,581,434	
Total				$ 362,536,792 (1)

(1) On July 28, 2022, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $2.0 billion. This program will terminate upon the purchase of $2.0 billion of common stock. On November 1, 2021, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $1.0 billion (the 2021 Repurchase Authorization). This program will terminate upon the purchase of $1.0 billion of our common stock. On April 26, 2018, our Board of Directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to $500.0 million (the 2018 Repurchase Authorization). This program was terminated upon the purchase of $500.0 million of our common stock. As of June 30, 2022, 11,622,393 shares of common stock had been repurchased and retired at a total value of $637,463,208, and $362,536,792 of common stock remained available for purchase under the 2021 Repurchase Authorization program. As of June 30, 2022, 15,722,843 shares of common stock had been repurchased and retired at a total value of $500,000,000 and no common stock remained available for purchase under the 2018 Repurchase Authorization, terminating the program.

Item 3. Defaults Upon Senior Securities.

Not Applicable.

Item 4. Mine Safety Disclosures.

Not Applicable.

Item 5. Other Information.

Not Applicable.

Item 6. Exhibits.

Exhibit	Exhibit Description
31.1	Section 302 Certification Statement of Chief Executive Officer
31.2	Section 302 Certification Statement of Chief Financial Officer
32	Section 906 Certification Statement of Chief Executive Officer and Chief Financial Officer
101.INS	XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the XBRL document)
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded in the Exhibit 101 Interactive Data Files)

*Previously filed as indicated and incorporated herein by reference. Exhibits incorporated by reference are located in SEC file No. 1-1070 unless otherwise indicated.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

OLIN CORPORATION
(Registrant)

By: /s/ Todd A. Slater
Senior Vice President and Chief Financial Officer
(Authorized Officer)

Date: July 29, 2022

Exhibit 31.1

CERTIFICATIONS

I, Scott Sutton, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Olin Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 29, 2022

/s/ Scott Sutton
Scott Sutton
Chairman, President and Chief Executive Officer

Exhibit 31.2

CERTIFICATIONS

I, Todd A. Slater, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Olin Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: July 29, 2022

/s/ Todd A. Slater
Todd A. Slater
Senior Vice President and Chief Financial Officer

Exhibit 32

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED

PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Olin Corporation (the "Company") on Form 10-Q for the period ended June 30, 2022 as filed with the Securities and Exchange Commission (the "Report"), I, Scott Sutton, Chairman, President and Chief Executive Officer and I, Todd A. Slater, Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to our knowledge: (1) the Report fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934; and (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its Staff upon request.

/s/ Scott Sutton
Scott Sutton
Chairman, President and Chief Executive Officer

Dated: July 29, 2022

/s/ Todd A. Slater
Todd A. Slater
Senior Vice President and Chief Financial Officer

Dated: July 29, 2022