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

FORM 10-Q

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

For the quarterly period ended September 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 001-12019

QUAKER CHEMICAL CORPORATION
(Exact name of registrant as specified in its charter)

Pennsylvania **(State or other jurisdiction of incorporation or organization)**	**23-0993790** **(I.R.S. Employer Identification No.)**
901 E. Hector Street, **Conshohocken, Pennsylvania** **(Address of principal executive offices)**	**19428 – 2380** **(Zip Code)**

Registrant's telephone number, including area code: 610-832-4000

Not Applicable
Former name, former address and former fiscal year, if changed since last report.

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $1 par value	KWR	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 ☒ No ☐

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

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

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

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

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

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Number of Shares of Common Stock Outstanding on October 31, 2022	**17,931,664**

QUAKER CHEMICAL CORPORATION AND CONSOLIDATED SUBSIDIARIES

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PART I
FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited).

Quaker Chemical Corporation

Condensed Consolidated Statements of Income
(Dollars in thousands, except per share data)

	Unaudited			
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Net sales	$ 492,218	$ 449,072	$ 1,458,777	$ 1,314,117
Cost of goods sold (excluding amortization expense - See Note 13)	331,469	303,941	1,002,393	858,341
Gross profit	160,749	145,131	456,384	455,776
Selling, general and administrative expenses	115,456	104,215	343,081	317,204
Restructuring and related (credits) charges, net	(1,423)	(880)	(604)	593
Combination, integration and other acquisition-related expenses	2,107	5,786	7,992	18,259
Operating income	44,609	36,010	105,915	119,720
Other income (expense), net	85	647	(10,520)	19,344
Interest expense, net	(8,389)	(5,637)	(20,228)	(16,725)
Income before taxes and equity in net income of associated companies	36,305	31,020	75,167	122,339
Taxes on income before equity in net income of associated Companies	10,185	795	14,425	26,702
Income before equity in net income of associated Companies	26,120	30,225	60,742	95,637
Equity in net (loss) income of associated companies	(212)	848	(642)	7,668
Net income	25,908	31,073	60,100	103,305
Less: Net income attributable to noncontrolling interest	41	15	74	62
Net income attributable to Quaker Chemical Corporation	$ 25,867	$ 31,058	$ 60,026	$ 103,243
Per share data:				
Net income attributable to Quaker Chemical Corporation common shareholders – basic	$ 1.44	$ 1.74	$ 3.35	$ 5.78
Net income attributable to Quaker Chemical Corporation common shareholders – diluted	$ 1.44	$ 1.73	$ 3.35	$ 5.76
Dividends declared	$ 0.435	$ 0.415	$ 1.265	$ 1.205

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Quaker Chemical Corporation

Condensed Consolidated Statements of Comprehensive Income
(Dollars in thousands)

	Unaudited			
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Net income	$ 25,908	$ 31,073	$ 60,100	$ 103,305
Other comprehensive (loss) income, net of tax				
Currency translation adjustments	(71,986)	(19,905)	(155,284)	(29,201)
Defined benefit retirement plans	497	904	2,400	2,593
Current period change in fair value of derivatives	(140)	436	1,535	1,450
Unrealized loss on available-for-sale securities	(818)	(215)	(2,385)	(2,961)
Other comprehensive loss	(72,447)	(18,780)	(153,734)	(28,119)
Comprehensive (loss) income	(46,539)	12,293	(93,634)	75,186
Less: Comprehensive loss attributable to noncontrolling interest	(3)	(15)	(5)	(68)
Comprehensive (loss) income attributable to Quaker Chemical Corporation	$ (46,542)	$ 12,278	$ (93,639)	$ 75,118

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Quaker Chemical Corporation

Condensed Consolidated Balance Sheets
(Dollars in thousands, except par value)

	Unaudited	
	September 30, 2022	**December 31, 2021**
ASSETS		
Current assets		
Cash and cash equivalents	$ 138,891	$ 165,176
Accounts receivable, net	461,912	430,676
Inventories		
Raw materials and supplies	165,280	129,382
Work-in-process and finished goods	151,860	135,149
Prepaid expenses and other current assets	66,760	59,871
Total current assets	984,703	920,254
Property, plant and equipment, at cost	425,650	434,344
Less: Accumulated depreciation	(237,276)	(236,824)
Property, plant and equipment, net	188,374	197,520
Right of use lease assets	37,005	36,635
Goodwill	591,032	631,194
Other intangible assets, net	915,956	1,027,782
Investments in associated companies	76,748	95,278
Deferred tax assets	10,519	16,138
Other non-current assets	27,163	30,959
Total assets	$ 2,831,500	$ 2,955,760
LIABILITIES AND EQUITY		
Current liabilities		
Short-term borrowings and current portion of long-term debt	$ 20,471	$ 56,935
Accounts payable	209,343	226,656
Dividends payable	7,800	7,427
Accrued compensation	32,993	38,197
Accrued restructuring	1,798	4,087
Accrued pension and postretirement benefits	1,536	1,548
Other accrued liabilities	91,790	95,617
Total current liabilities	365,731	430,467
Long-term debt	931,491	836,412
Long-term lease liabilities	25,697	26,335
Deferred tax liabilities	151,208	179,025
Non-current accrued pension and postretirement benefits	38,222	45,984
Other non-current liabilities	39,521	49,615
Total liabilities	1,551,870	1,567,838
Commitments and contingencies (Note 18)		
Equity		
Common stock $1 par value; authorized 30,000,000 shares; issued and outstanding 2022 – 17,931,205 shares; 2021 – 17,897,033 shares	17,931	17,897
Capital in excess of par value	925,037	917,053
Retained earnings	553,685	516,334
Accumulated other comprehensive loss	(217,655)	(63,990)
Total Quaker shareholders' equity	1,278,998	1,387,294
Noncontrolling interest	632	628
Total equity	1,279,630	1,387,922
Total liabilities and equity	$ 2,831,500	$ 2,955,760

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Quaker Chemical Corporation

Condensed Consolidated Statements of Cash Flows
(Dollars in thousands)

	Unaudited Nine Months Ended September 30,	
	2022	**2021**
Cash flows from operating activities		
Net income	$ 60,100	$ 103,305
Adjustments to reconcile net income to net cash used in operating activities:		
Amortization of debt issuance costs	2,589	3,562
Depreciation and amortization	60,692	65,440
Equity in undistributed earnings of associated companies, net of dividends	3,612	(7,563)
Acquisition-related fair value adjustments related to inventory	—	801
Deferred compensation, deferred taxes and other, net	(8,811)	(21,865)
Share-based compensation	8,635	8,441
Loss on extinguishment of debt	5,246	—
Gain on disposal of property, plant, equipment and other assets	(33)	(4,819)
Combination and other acquisition-related expenses, net of payments	(4,265)	(1,705)
Restructuring and related (credits) charges	(604)	593
Pension and other postretirement benefits	(6,556)	(5,638)
(Decrease) increase in cash from changes in current assets and current liabilities, net of acquisitions:		
Accounts receivable	(65,256)	(68,664)
Inventories	(72,386)	(72,962)
Prepaid expenses and other current assets	(11,081)	(24,512)
Change in restructuring liabilities	(1,234)	(4,557)
Accounts payable and accrued liabilities	3,059	32,652
Net cash (used in) provided by operating activities	(26,293)	2,509
Cash flows from investing activities		
Investments in property, plant and equipment	(20,230)	(12,823)
Payments related to acquisitions, net of cash acquired	(9,421)	(31,975)
Proceeds from disposition of assets	65	14,744
Net cash used in investing activities	(29,586)	(30,054)
Cash flows from financing activities		
Payments of long-term debt	(668,500)	(28,558)
Proceeds from long-term debt	750,000	—
(Payments) borrowings on revolving credit facilities, net	(10,418)	39,143
Borrowings (payments) on other debt, net	2,131	(585)
Financing-related debt issuance costs	(3,734)	—
Dividends paid	(22,302)	(21,175)
Stock options exercised, other	(616)	704
Net cash provided by (used in) financing activities	46,561	(10,471)
Effect of foreign exchange rate changes on cash	(16,967)	(2,486)
Net decrease in cash and cash equivalents	(26,285)	(40,502)
Cash and cash equivalents at the beginning of the period	165,176	181,895
Cash and cash equivalents at the end of the period	$ 138,891	$ 141,393

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Quaker Chemical Corporation
Condensed Consolidated Statements of Changes in Equity
(Unaudited; Dollars in thousands, except per share amounts)

	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Loss	Noncontrolling Interest	Total
Balance at December 31, 2020	$ 17,851	$ 905,171	$ 423,940	$ (26,598)	$ 550	$ 1,320,914
Net income	—	—	38,615	—	17	38,632
Amounts reported in other comprehensive loss	—	—	—	(26,630)	(2)	(26,632)
Dividends ($0.395 per share)	—	—	(7,062)	—	—	(7,062)
Share issuance and equity-based compensation plans	24	3,577	—	—	—	3,601
Balance at March 31, 2021	$ 17,875	$ 908,748	$ 455,493	$ (53,228)	$ 565	$ 1,329,453
Net income	—	—	33,570	—	30	33,600
Amounts reported in other comprehensive gain	—	—	—	17,285	8	17,293
Dividends ($0.395 per share)	—	—	(7,062)	—	—	(7,062)
Share issuance and equity-based compensation plans	3	2,114	—	—	—	2,117
Balance at June 30, 2021	$ 17,878	$ 910,862	$ 482,001	$ (35,943)	$ 603	$ 1,375,401
Net income	—	—	31,058	—	15	31,073
Amounts reported in other comprehensive loss	—	—	—	(18,780)	—	(18,780)
Dividends ($0.415 per share)	—	—	(7,424)	—	—	(7,424)
Share issuance and equity-based compensation plans	11	3,415	—	—	—	3,426
Balance at September 30, 2021	$ 17,889	$ 914,277	$ 505,635	$ (54,723)	$ 618	$ 1,383,696
Balance at December 31, 2021	$ 17,897	$ 917,053	$ 516,334	$ (63,990)	$ 628	$ 1,387,922
Net income	—	—	19,816	—	5	19,821
Amounts reported in other comprehensive (loss) income	—	—	—	(6,271)	1	(6,270)
Dividends ($0.415 per share)	—	—	(7,434)	—	—	(7,434)
Share issuance and equity-based compensation plans	15	1,646	—	—	—	1,661
Balance at March 31, 2022	$ 17,912	$ 918,699	$ 528,716	$ (70,261)	$ 634	$ 1,395,700
Net income	—	—	14,343	—	28	14,371
Amounts reported in other comprehensive loss	—	—	—	(74,985)	(33)	(75,018)
Dividends ($0.415 per share)	—	—	(7,438)	—	—	(7,438)
Share issuance and equity-based compensation plans	8	2,943	—	—	—	2,951
Balance at June 30, 2022	$ 17,920	$ 921,642	$ 535,621	$ (145,246)	$ 629	$ 1,330,566
Net income	—	—	25,867	—	41	25,908
Amounts reported in other comprehensive loss	—	—	—	(72,409)	(38)	(72,447)
Dividends ($0.435 per share)	—	—	(7,803)	—	—	(7,803)
Share issuance and equity-based compensation plans	11	3,395	—	—	—	3,406
Balance at September 30, 2022	$ 17,931	$ 925,037	$ 553,685	$ (217,655)	$ 632	$ 1,279,630

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Note 1 – Basis of Presentation and Description of Business

Basis of Presentation

As used in these Notes to Condensed Consolidated Financial Statements of this Quarterly Report on Form 10-Q for the period ended September 30, 2022 (the "Report"), the terms "Quaker Houghton," the "Company," "we," and "our" refer to Quaker Chemical Corporation (doing business as Quaker Houghton), its subsidiaries, and associated companies, unless the context otherwise requires. As used in these Notes to Condensed Consolidated Financial Statements, the "Combination" refers to the legacy Quaker combination with Houghton International, Inc. ("Houghton"). The condensed consolidated financial statements included herein are unaudited and have been prepared in accordance with generally accepted accounting principles in the United States ("U.S. GAAP") for interim financial reporting and the United States Securities and Exchange Commission ("SEC") regulations. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to such rules and regulations. In the opinion of management, the financial statements reflect all adjustments consisting only of normal recurring adjustments which are necessary for a fair statement of the financial position, results of operations and cash flows for the interim periods. The results for the nine months ended September 30, 2022 are not necessarily indicative of the results to be expected for the full year. These financial statements should be read in conjunction with the Company's Annual Report filed on Form 10-K for the year ended December 31, 2021 (the "2021 Form 10-K").

Description of Business

The Company was organized in 1918, incorporated as a Pennsylvania business corporation in 1930, and in August 2019 completed the Combination with Houghton to form Quaker Houghton. Quaker Houghton is the global leader in industrial process fluids. With a presence around the world, including operations in over 25 countries, the Company's customers include thousands of the world's most advanced and specialized steel, aluminum, automotive, aerospace, offshore, can, mining, and metalworking companies. Quaker Houghton develops, produces, and markets a broad range of formulated chemical specialty products and offers chemical management services (which the Company refers to as "Fluidcare™") for various heavy industrial and manufacturing applications throughout its four segments: Americas; Europe, Middle East and Africa ("EMEA"); Asia/Pacific; and Global Specialty Businesses.

Hyper-inflationary economies

Based on various indices or index compilations being used to monitor inflation as well as economic instability, Argentina's and T✔rkiye's economies were considered hyper-inflationary under U.S. GAAP effective July 1, 2018 and April 1, 2022, respectively. As of, and for the three and nine months ended September 30, 2022, the Company's Argentine and Turkish subsidiaries represented a combined 1% and 2% of the Company's consolidated total assets and net sales, respectively. During the three and nine months ended September 30, 2022, the Company recorded $1.0 million and $1.2 million, respectively, of remeasurement losses associated with the applicable currency conversions related to Argentina and T✔rkiye. Comparatively, during the three and nine months ended September 30, 2021, the Company recorded less than $0.1 million and $0.3 million, respectively, of remeasurement losses associated with the applicable currency conversions related to Argentina. These losses were recorded within foreign exchange losses, net, which is a component of other (expense) income, net, in the Company's Condensed Consolidated Statements of Income.

Note 2 – Business Acquisitions

2022 Acquisitions

Subsequent to the date of these financial statements, in October 2022, the Company acquired a business that provides pickling and rinsing products and services, which is part of the EMEA reportable segment, for approximately 3.5 million EUR or approximately $3.5 million. This acquisition, along with the Company's January 2022 acquisition in the Americas (described below), which had similar specializations and product offerings in pickling inhibitor technologies, strengthens Quaker Houghton's position in pickling inhibitors and additives, enabling the Company to better support and optimize production processes for customers across the Metals industry.

In January 2022, the Company acquired a business that provides pickling inhibitor technologies, drawing lubricants and stamping oil, and various other lubrication, rust preventative, and cleaner applications, which is part of the Americas reportable segment for approximately $8.0 million. This business broadens the Company's product offerings within its existing metals and metalworking business in the Americas region. The Company allocated $5.6 million of the purchase price to intangible assets, comprised of $5.1 million of customer relationships to be amortized over 14 years; and $0.5 million of existing product technologies to be amortized over 14 years. In addition, the Company recorded $1.8 million of goodwill related to expected value not allocated to other acquired assets, all of which is expected to be tax deductible in various jurisdictions in which the Company operates. During the third quarter of 2022 the Company finalized post-closing adjustments that resulted in the Company paying less than $0.1 million of additional purchase consideration. Factors contributing to the purchase price that resulted in goodwill included the acquisition of business processes and personnel that will allow Quaker Houghton to better serve its customers.

In January 2022, the Company acquired a business related to the sealing and impregnation of metal castings for the automotive sector, as well as impregnation resin and impregnation systems for metal parts, which is part of the Global Specialty Businesses reportable segment for approximately 1.2 million EUR or approximately $1.4 million. This business expands the Company's geographic presence in Germany as well as broadens its product offerings and service capabilities within its existing impregnation business.

The results of operations of the January 2022 acquisitions subsequent to the respective acquisition dates are included in the unaudited Condensed Consolidated Statements of Income for the nine month period ended September 30, 2022. Applicable transaction expenses associated with these acquisitions are included in Combination, integration and other acquisition-related expenses in the Company's unaudited Condensed Consolidated Statements of Income. Certain pro forma and other information is not presented, as the operations of the acquisitions are not considered material to the overall operations of the Company for the periods presented. The results of operations of the October acquisition is not included in the Consolidated Statements of Operations because the date of closing was subsequent to September 30, 2022. Preliminary purchase price allocation of assets acquired and liabilities assumed for this business acquired has not been presented as that information is not available as of the date of these Condensed Consolidated Financial Statements.

Previous Acquisitions

In November 2021, the Company acquired Baron Industries ("Baron"), a privately held company that provides vacuum impregnation services of castings, powder metals and electrical components for its Global Specialty Businesses reportable segment for $11.0 million, including an initial cash payment of $7.1 million, subject to post-closing adjustments as well as certain earn-out provisions that are payable at various times from 2022 through 2025. The earn-out provisions could total a maximum of $4.5 million. In September 2022, the Company paid $2.5 million related to certain of these earnout provisions. The Company recorded an incremental earn-out expense of $0.1 million during the three and nine months ended September 30, 2022 related to these earnout provisions, recorded within the financial statement caption "Combination, integration and other acquisition-related expenses" on the Company's Condensed Consolidated Statements of Income. As of September 30, 2022, the Company has remaining earnout liabilities recorded on its Condensed Consolidated Balance Sheet of $1.6 million. The Company allocated $8.0 million of the purchase price to intangible assets, $1.1 million of property, plant and equipment and $1.5 million of other assets acquired net of liabilities assumed, which includes $0.3 million of cash acquired. In addition, the Company recorded $0.4 million of goodwill, all of which is expected to be tax deductible. Intangible assets comprised $7.2 million of customer relationships to be amortized over 15 years; and $0.8 million of existing product technology to be amortized over 13 years. Factors contributing to the purchase price that resulted in goodwill included the acquisition of business processes and personnel that will allow Quaker Houghton to better serve its customers. During the third quarter of 2022 the Company finalized post-closing adjustments that resulted in the Company receiving less than $0.1 million.

In November 2021, the Company acquired a business that provides hydraulic fluids, coolants, cleaners, and rust preventative oils in T✔rkiye for its EMEA reportable segment for3.2 million EUR or approximately $3.7 million.

In September 2021, the Company acquired the remaining interest in Grindaix GmbH ("Grindaix"), a Germany-based, high-tech provider of coolant control and delivery systems for its Global Specialty Businesses reportable segment for 2.4 million EUR or approximately $2.9 million, which is gross of approximately $0.3 million of cash acquired. Previously, in February 2021, the Company acquired a 38% ownership interest in Grindaix for 1.4 million EUR or approximately $1.7 million. The Company recorded its initial investment as an equity method investment within the Condensed Consolidated Financial Statements and accounted for the purchase of the remaining interest as a step acquisition whereby the Company remeasured the previously held equity method investment to its fair value.

In June 2021, the Company acquired certain assets for its chemical milling maskants product line in the Global Specialty Businesses reportable segment for 2.3 million EUR or approximately $2.8 million.

In February 2021, the Company acquired a tin-plating solutions business for the steel end market for $25.0 million. This acquisition is part of each of the Company's geographic reportable segments. The Company allocated $19.6 million of the purchase price to intangible assets, comprised of $18.3 million of customer relationships, to be amortized over 19 years; $0.9 million of existing product technology to be amortized over 14 years; and $0.4 million of a licensed trademark to be amortized over 3 years. In addition, the Company recorded $5.0 million of goodwill, all of which is expected to be tax deductible in various jurisdictions in which we operate. Factors contributing to the purchase price that resulted in goodwill included the acquisition of business processes and personnel that will allow Quaker Houghton to better serve its customers.

As of September 30, 2022, the allocation of the purchase price of all of the Company's 2022 acquisitions, the acquisition in T✔rkiye and Baron have not been finalized and the one-year measurement period has not ended. Further adjustments may be necessary as a result of the Company's on-going assessment of additional information related to the fair value of assets acquired and liabilities assumed.

In December 2020, the Company acquired Coral Chemical Company, LLC ("Coral"), a privately held U.S.-based provider of metal finishing fluid solutions. Subsequent to the acquisition, the Company and the sellers of Coral (the "Sellers") have worked to finalize certain post-closing adjustments. During the second quarter of 2022, after failing to reach resolution, the Sellers filed suit asserting certain amounts owed related to tax attributes of the acquisition. During the third quarter of 2022, there have been no material changes to the facts and circumstances of the claim asserted by the Sellers, and the Company continues to believe the potential range of exposure for this claim is $0 to $1.5 million.

Note 3 – Recently Issued Accounting Standards

Recently Issued Accounting Standards Adopted

The FASB issued ASU 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting* in March 2020. The FASB subsequently issued ASU 2021-01, *Reference Rate Reform (Topic 848): Scope* in January 2021 which clarified the guidance but did not materially change the guidance or its applicability to the Company. The amendments provide temporary optional expedients and exceptions for applying U.S. GAAP to contract modifications, hedging relationships and other transactions to ease the potential accounting and financial reporting burden associated with transitioning away from reference rates that are expected to be discontinued, including the London Interbank Offered Rate ("LIBOR"). ASU 2020-04 is effective for the Company as of March 12, 2020 and generally can be applied through December 31, 2022. On June 17, 2022, the Company entered into an amendment to its primary credit facility which, among other things, provided for the use of a USD currency LIBOR successor rate (the Secured Overnight Financing Rate ("SOFR")). See Note 14 of Notes to Condensed Consolidated Financial Statements.

Note 4 – Business Segments

The Company's operating segments, which are consistent with its reportable segments, reflect the structure of the Company's internal organization, the method by which the Company's resources are allocated and the manner by which the chief operating decision maker assesses the Company's performance. The Company has four reportable segments: (i) Americas; (ii) EMEA; (iii) Asia/Pacific; and (iv) Global Specialty Businesses. The three geographic segments are composed of the net sales and operations in each respective region, excluding net sales and operations managed globally by the Global Specialty Businesses segment. The Global Specialty Businesses segment includes the Company's container, metal finishing, mining, offshore, specialty coatings, specialty grease and Norman Hay businesses.

Segment operating earnings for each of the Company's reportable segments are comprised of the segment's net sales less directly related cost of goods sold ("COGS") and selling, general and administrative expenses ("SG&A"). Operating expenses not directly attributable to the net sales of each respective segment, such as certain corporate and administrative costs, Combination, integration and other acquisition-related expenses, and Restructuring and related charges, are not included in segment operating earnings. Other items not specifically identified with the Company's reportable segments include Interest expense, net and Other (expense) income, net.

(Dollars in thousands, except per share amounts, unless otherwise stated)

The following table presents information about the performance of the Company's reportable segments for the three and nine months ended September 30, 2022 and 2021.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Net sales				
Americas	$ 186,546	$ 150,799	$ 513,438	$ 425,343
EMEA	113,367	122,241	362,107	365,491
Asia/Pacific	91,211	98,659	295,273	286,924
Global Specialty Businesses	101,094	77,373	287,959	236,359
Total net sales	$ 492,218	$ 449,072	$ 1,458,777	$ 1,314,117
Segment operating earnings				
Americas	$ 44,986	$ 31,273	$ 107,991	$ 97,155
EMEA	9,883	20,153	39,932	68,802
Asia/Pacific	23,336	23,285	67,469	73,990
Global Specialty Businesses	30,746	20,663	83,622	69,041
Total segment operating earnings	108,951	95,374	299,014	308,988
Combination, integration and other acquisition-related expenses	(2,107)	(5,786)	(7,992)	(18,259)
Restructuring and related credits (charges), net	1,423	880	604	(593)
Fair value step up of acquired inventory sold	-	-	-	(801)
Non-operating and administrative expenses	(47,852)	(38,691)	(139,894)	(122,760)
Depreciation of corporate assets and amortization	(15,806)	(15,767)	(45,817)	(46,855)
Operating income	44,609	36,010	105,915	119,720
Other income (expense), net	85	647	(10,520)	19,344
Interest expense, net	(8,389)	(5,637)	(20,228)	(16,725)
Income before taxes and equity in net income of associated companies	$ 36,305	$ 31,020	$ 75,167	$ 122,339

Inter-segment revenues for the three and nine months ended September 30, 2022, were $2.6 million and $8.8 million for Americas, $6.4 million and $27.7 million for EMEA, $0.3 million and $0.7 million for Asia/Pacific, and $2.3 million and $6.0 million for Global Specialty Businesses, respectively. Inter-segment revenues for the three and nine months ended September 30, 2021, were $3.6 million and $9.3 million for Americas, $6.8 million and $21.9 million for EMEA, $0.8 million and $1.3 million for Asia/Pacific, and $1.8 million and $5.9 million for Global Specialty Businesses, respectively. However, all inter-segment transactions have been eliminated from each reportable operating segment's net sales and earnings for all periods presented in the above tables.

Note 5 – Net Sales and Revenue Recognition

Arrangements Resulting in Net Reporting

As part of the Company's Fluidcare ™ business, certain third-party product sales to customers are managed by the Company. The Company transferred third-party products under arrangements recognized on a net reporting basis of $21.4 million and $61.7 million for the three and nine months ended September 30, 2022, respectively, and $18.9 million and $53.4 million for the three and nine months ended September 30, 2021, respectively.

Customer Concentration

A significant portion of the Company's revenues are realized from the sale of process fluids and services to manufacturers of steel, aluminum, automobiles, aerospace, industrial and agricultural equipment, and durable goods. As previously disclosed in the Company's 2021 Form 10-K, for the year ended December 31, 2021, the Company's five largest customers (each composed of multiple subsidiaries or divisions with semiautonomous purchasing authority) accounted for approximately 10% of consolidated net sales, with its largest customer accounting for approximately 3% of consolidated net sales.

(Dollars in thousands, except per share amounts, unless otherwise stated)

Contract Assets and Liabilities

The Company had no material contract assets recorded on its Condensed Consolidated Balance Sheets as of September 30, 2022 or December 31, 2021.

The Company had approximately $6.0 million and $7.0 million of deferred revenue as of September 30, 2022 and December 31, 2021, respectively. For the nine months ended September 30, 2022, the Company satisfied all of the associated performance obligations and recognized into revenue the advance payments received and recorded as of December 31, 2021.

Disaggregated Revenue

The Company sells its various industrial process fluids, its specialty chemicals and its technical expertise as a global product portfolio. The Company generally manages and evaluates its performance by segment first, and then by customer industry, rather than by individual product lines. Also, net sales of each of the Company's major product lines are generally spread throughout all three of the Company's geographic regions, and in most cases, are approximately proportionate to the level of total sales in each region.

The following tables disaggregate the Company's net sales by segment, geographic region, customer industry, and timing of revenue recognized for the three and nine months ended September 30, 2022 and 2021.

	Three Months Ended September 30, 2022			
	Americas	EMEA	Asia/Pacific	Consolidated Total
Customer Industries				
Metals	$ 69,249	$ 32,690	$ 52,856	$ 154,795
Metalworking and other	117,297	80,677	38,355	236,329
	186,546	113,367	91,211	391,124
Global Specialty Businesses	67,469	20,185	13,440	101,094
	$ 254,015	$ 133,552	$ 104,651	$ 492,218
Timing of Revenue Recognized				
Product sales at a point in time	$ 244,162	$ 127,045	$ 101,945	$ 473,152
Services transferred over time	9,853	6,507	2,706	19,066
	$ 254,015	$ 133,552	$ 104,651	$ 492,218

	Three Months Ended September 30, 2021			
	Americas	EMEA	Asia/Pacific	Consolidated Total
Customer Industries				
Metals	$ 56,954	$ 38,483	$ 53,994	$ 149,431
Metalworking and other	93,845	83,758	44,665	222,268
	150,799	122,241	98,659	371,699
Global Specialty Businesses	46,008	19,253	12,112	77,373
	$ 196,807	$ 141,494	$ 110,771	$ 449,072
Timing of Revenue Recognized				
Product sales at a point in time	$ 188,340	$ 131,982	$ 108,559	$ 428,881
Services transferred over time	8,467	9,512	2,212	20,191
	$ 196,807	$ 141,494	$ 110,771	$ 449,072

(Dollars in thousands, except per share amounts, unless otherwise stated)

	Nine Months Ended September 30, 2022			
	Americas	**EMEA**	**Asia/Pacific**	**Consolidated Total**
Customer Industries				
Metals	$ 188,782	$ 107,115	$ 163,739	$ 459,636
Metalworking and other	324,656	254,992	131,534	711,182
	513,438	362,107	295,273	1,170,818
Global Specialty Businesses	187,099	61,530	39,330	287,959
	$ 700,537	$ 423,637	$ 334,603	$ 1,458,777
Timing of Revenue Recognized				
Product sales at a point in time	$ 670,581	$ 400,870	$ 326,760	$ 1,398,211
Services transferred over time	29,956	22,767	7,843	60,566
	$ 700,537	$ 423,637	$ 334,603	$ 1,458,777

	Nine Months Ended September 30, 2021			
	Americas	**EMEA**	**Asia/Pacific**	**Consolidated Total**
Customer Industries				
Metals	$ 155,546	$ 108,391	$ 151,944	$ 415,881
Metalworking and other	269,797	257,100	134,980	661,877
	425,343	365,491	286,924	1,077,758
Global Specialty Businesses	137,447	61,203	37,709	236,359
	$ 562,790	$ 426,694	$ 324,633	$ 1,314,117
Timing of Revenue Recognized				
Product sales at a point in time	$ 537,161	$ 400,982	$ 316,222	$ 1,254,365
Services transferred over time	25,629	25,712	8,411	59,752
	$ 562,790	$ 426,694	$ 324,633	$ 1,314,117

Note 6 - Leases

The Company has operating leases for certain facilities, vehicles and machinery and equipment with remaining lease terms up to 9 years. Operating lease expense is recognized on a straight-line basis over the lease term. In addition, the Company has certain land use leases with remaining lease terms up to 93 years.

The Company has no material variable lease costs, sublease income or finance leases for three and nine months ended September 30, 2022 and 2021. The following table sets forth the components of the Company's lease cost for three and nine months ended September 30, 2022 and 2021:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	**2021**	**2022**	**2021**
Operating lease expense	$ 3,664	$ 3,408	$ 10,592	$ 10,568
Short-term lease expense	201	221	625	755

(Dollars in thousands, except per share amounts, unless otherwise stated)

Supplemental cash flow information related to the Company's leases is as follows:

	Three Months Ended September 30, 2022	Three Months Ended September 30, 2021	Nine Months Ended September 30, 2022	Nine Months Ended September 30, 2021
Cash paid for amounts included in the measurement of lease liabilities:				
Operating cash flows from operating leases	$ 3,768	$ 3,365	$ 10,575	$ 10,433
Non-cash lease liabilities activity:				
Leased assets obtained in exchange for new operating lease liabilities	2,599	1,711	10,672	5,587

Supplemental balance sheet information related to the Company's leases is as follows:

	September 30, 2022	December 31, 2021
Right of use lease assets	$ 37,005	$ 36,635
Other current liabilities	11,143	9,976
Long-term lease liabilities	25,697	26,335
Total operating lease liabilities	$ 36,840	$ 36,311
Weighted average remaining lease term (years)	5.4	5.6
Weighted average discount rate	4.43%	4.22%

Maturities of operating lease liabilities were as follows:

	September 30, 2022
For the remainder of 2022	$ 3,262
For the year ended December 31, 2023	10,668
For the year ended December 31, 2024	8,429
For the year ended December 31, 2025	6,087
For the year ended December 31, 2026	4,512
For the year ended December 31, 2027 and beyond	6,785
Total lease payments	39,743
Less: imputed interest	(2,903)
Present value of lease liabilities	$ 36,840

Note 7 – Restructuring and Related Activities

The Company's management approved a global restructuring plan (the "QH Program") as part of its plan to realize certain cost synergies associated with the Combination in the third quarter of 2019. The QH Program included restructuring and associated severance costs to reduce total headcount by approximately 400 people globally, as well as the closure of certain manufacturing and non-manufacturing facilities. The exact timing to complete all actions and final costs associated with the QH Program depend on a number of factors and are subject to change; however, the Company had reduction in headcount and site closures under the QH Program in 2022 and expects final headcount reductions to continue into 2023. Employee separation benefits varied depending on local regulations within certain foreign countries and included severance and other benefits.

(Dollars in thousands, except per share amounts, unless otherwise stated)

All costs incurred related to severance costs to reduce headcount, including customary and routine adjustments to initial estimates for employee separation costs, as well as costs to close certain facilities are recorded in Restructuring and related (credits) charges in the Company's Condensed Consolidated Statements of Income. The credits recognized in the nine months ended September 30, 2022 reflect customary and routine adjustments to initial estimates for employee separation costs. At this time, the Company does not expect to incur material additional costs under the QH Program. As described in Note 4 of the Notes to Condensed Consolidated Financial Statements, restructuring and related charges are not included in the Company's calculation of reportable segments' measure of operating earnings and therefore these costs are not reviewed by or recorded to reportable segments.

Activity in the Company's accrual for restructuring under the QH Program for the nine months ended September 30, 2022 is as follows:

	QH Program
Accrued restructuring as of December 31, 2021	$ 4,087
Restructuring and related (credits)	(604)
Cash payments	(1,234)
Currency translation adjustments	(451)
Accrued restructuring as of September 30, 2022	$ 1,798

Note 8 – Share-Based Compensation

The Company recognized the following share-based compensation expense in its Condensed Consolidated Statements of Income for the three and nine months ended September 30, 2022 and 2021:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Stock options	$ 533	$ 298	$ 1,269	$ 938
Non-vested stock awards and restricted stock units	1,783	1,277	4,998	3,963
Non-elective and elective 401(k) matching contribution in stock	—	—	—	1,553
Director stock ownership plan	9	241	53	660
Performance stock units	875	491	2,314	1,327
Total share-based compensation expense	$ 3,200	$ 2,307	$ 8,634	$ 8,441

Share-based compensation expense is recorded in SG&A, except for less than $0.1 million and $0.2 million for the three and nine months ended September 30, 2022, respectively, and $0.2 million and $0.7 million for the three and nine months ended September 30, 2021, respectively, recorded within Combination, integration and other acquisition-related expenses.

Stock Options

During the first nine months of 2022, the Company granted stock options under its long-term incentive plan ("LTIP") that are subject only to time vesting over a three year period. For the purposes of determining the fair value of stock option awards, the Company used a Black-Scholes option pricing model and the assumptions set forth in the table below:

	March 2022 Grant	July 2022 Grant
Number of options granted	27,077	4,837
Dividend yield	0.80 %	0.79 %
Expected volatility	38.60 %	40.47 %
Risk-free interest rate	2.07 %	2.87 %
Expected term (years)	4.0	4.0

The fair value of these options is amortized on a straight-line basis over the vesting period. As of September 30, 2022, unrecognized compensation expense related to all stock options granted was $2.0 million, to be recognized over a weighted average remaining period of 1.5 years.

(Dollars in thousands, except per share amounts, unless otherwise stated)

Restricted Stock Awards and Restricted Stock Units

During the nine months ended September 30, 2022, the Company granted 35,846 non-vested restricted shares and 4,490 non-vested restricted stock units under its LTIP, which are subject to time-based vesting, generally over a three year period. The fair value of these grants is based on the trading price of the Company's common stock on the date of grant. The Company adjusts the grant date fair value of these awards for expected forfeitures based on historical experience. As of September 30, 2022, unrecognized compensation expense related to the non-vested restricted shares was $5.9 million, to be recognized over a weighted average remaining period of 1.6 years, and unrecognized compensation expense related to non-vested restricted stock units was $1.0 million, to be recognized over a weighted average remaining period of 1.9 years.

Performance Stock Units

The Company grants performance-dependent stock awards ("PSUs") as a component of its LTIP, which will be settled in a certain number of shares subject to market-based and time-based vesting conditions. The number of fully vested shares that may ultimately be issued as settlement for each award may range from 0% up to 200% of the target award, subject to the achievement of the Company's total shareholder return ("TSR") relative to the performance of the Company's peer group, the S&P Midcap 400 Materials group. The service period required for the PSUs is three years and the TSR measurement period for the PSUs is generally from January 1 of the year of grant through December 31 of the year prior to issuance of the shares upon settlement.

Compensation expense for PSUs is measured based on their grant date fair value and is recognized on a straight-line basis over the three year vesting period. The grant-date fair value of the PSUs was estimated using a Monte Carlo simulation on the grant date and using the following assumptions set forth in the table below:

	2022 Grants	
Number of PSUs granted	18,462	
Risk-free interest rate	2.11	%
Dividend yield	0.93	%
Expected term (years)	3.0	

As of September 30, 2022, based on the conditions of the PSUs and performance to date for each award, the Company estimates that it will not issue any fully vested shares as of the applicable settlement date of all outstanding PSUs awards. As of September 30, 2022, there was approximately $4.8 million of total unrecognized compensation cost related to PSUs which the Company expects to recognize over a weighted-average period of 2.0 years.

Defined Contribution Plan

The Company has a 401(k) plan with an employer match covering a majority of its U.S. employees. The Company matches 50% of the first 6% of compensation that is contributed to the plan, with a maximum matching contribution of 3% of compensation. Additionally, the plan provides for non-elective nondiscretionary contributions on behalf of participants who have completed one year of service equal to 3% of the eligible participants' compensation. Beginning in April 2020 and continuing through March 2021, the Company matched both non-elective and elective 401(k) contributions in fully vested shares of the Company's common stock rather than cash. There were no matching contributions in stock for the three and nine months ended September 30, 2022. For the nine months ended September 30, 2021, total contributions were $ 1.5 million.

(Dollars in thousands, except per share amounts, unless otherwise stated)

Note 9 – Pension and Other Postretirement Benefits

The components of net periodic benefit (income) cost for the three and nine months ended September 30, 2022 and 2021 are as follows:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	Pension Benefits		Other Postretirement Benefits		Pension Benefits		Other Postretirement Benefits	
	2022	2021	2022	2021	2022	2021	2022	2021
Service cost (income)	$ 166	$ 289	$ 1	$ (2)	$ 520	$ 921	$ 1	$ 1
Interest cost (income)	1,272	1,078	8	(1)	3,949	3,262	19	20
Expected return on plan assets	(1,942)	(2,075)	—	—	(6,038)	(6,250)	—	—
Actuarial loss (gain) amortization	238	737	(23)	(85)	743	2,449	(70)	(85)
Prior service cost (income) amortization	3	3	(8)	—	8	8	(17)	—
Net periodic benefit (income) cost	$ (263)	$ 32	$ (22)	$ (88)	$ (818)	$ 390	$ (67)	$ (64)

Employer Contributions

As of September 30, 2022, $5.5 million and $0.1 million of contributions have been made to the Company's U.S. and foreign pension plans and its other postretirement benefit plans, respectively. Taking into consideration current minimum cash contribution requirements, the Company currently expects to make full year cash contributions of approximately $6.6 million to its U.S. and foreign pension plans and approximately $0.2 million to its other postretirement benefit plans in 2022 .

Note 10 – Other Income (Expense), Net

The components of other income (expense), net, for the three and nine months ended September 30, 2022 and 2021 are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Income from third party license fees	$ 253	$ 314	$ 906	$ 1,026
Foreign exchange (losses) gain, net	(1,928)	368	(5,859)	(1,948)
Gain (loss) on disposals of property, plant, equipment and other assets, net	48	(537)	33	4,819
Non-income tax refunds and other related credits (expense)	122	3	(1,617)	14,395
Pension and postretirement benefit income, non-service components	452	343	1,406	596
Loss on extinguishment of debt	—	—	(6,763)	—
Gain on insurance recoveries	1,104	—	1,104	—
Other non-operating income, net	34	156	270	456
Total other income (expense), net	$ 85	$ 647	$ (10,520)	$ 19,344

Gain (loss) on disposals of property, plant, equipment and other assets, net, during the three months ended September 30, 2021, includes losses related to certain fixed asset disposals resulting from property damage. See Note 18 of Notes to Condensed Consolidated Financial Statements. During the nine months ended September 30, 2021, this caption also includes the gain on the sale of certain held-for-sale real property assets related to the Combination.

Non-income tax refunds and other related credits (expense) during the nine months ended September 30, 2022, includes adjustments to Combination-related indemnification assets associated with the settlement of certain income tax audits at certain of the Company's Italian and German affiliates for tax periods prior to August 1, 2019. See Note 11 of Notes to Condensed Consolidated Financial Statements. During the nine months ended September 30, 2021 this caption includes certain non-income tax credits for the Company's Brazilian subsidiaries. See Note 18 of Notes to Condensed Consolidated Financial Statements.

Loss on extinguishment of debt during the nine months ended September 30, 2022 includes the write-off of certain previously unamortized deferred financing costs as well as a portion of the third party and creditor debt issuance costs incurred to execute an amendment to the Company's primary credit facility. See Note 14 of Notes to the Condensed Consolidated Financial Statements.

Gain on insurance recoveries during the three and nine months ended September 30, 2022, reflects payments received from insurers related to the property damage incurred during the three months ended September 2021, noted above. See Note 18 of Notes to the Condensed Consolidated Financial Statements.

Note 11 – Income Taxes and Uncertain Income Tax Positions

The Company's effective tax rates for the three and nine months ended September 30, 2022 were 28.1% and 19.2%, respectively, compared to 2.6% and 21.8% for the three and nine months ended September 30, 2021, respectively. The Company's effective tax rate for the nine months ended September 30, 2022 was impacted by various items including a decline in forecasted profits and earnings mix, foreign tax inclusions, changes in the valuation allowance for foreign tax credits, the impact of audit settlements reached with Italian tax authorities, a reduction in reserves for uncertain tax positions and withholding taxes. In addition, the Company incurred higher tax expense during the three and nine months ended September 30, 2022 at one of its subsidiaries as it accrued taxes at a statutory tax rate of 25% while it awaits recertification of a concessionary 15% tax rate, which was available to the Company during all of 2021. Comparatively, the prior year effective tax rates were largely impacted by changes in permanent reinvestment assertions, changes in foreign tax credit valuation allowances, tax law changes in a foreign jurisdiction, deferred tax benefits related to an intercompany intangible asset transfer and the income tax impacts of certain non-income tax credits recorded by the Company's Brazilian subsidiaries.

As of December 31, 2021, the Company had a deferred tax liability of $8.4 million on certain undistributed foreign earnings, which primarily represents the Company's estimate of non-U.S. income taxes the Company will incur to ultimately remit certain earnings to the U.S. As of September 30, 2022 this deferred tax liability balance was $6.9 million. As of September 30, 2022, the Company's cumulative liability for gross unrecognized tax benefits was $16.2 million, a decrease of approximately $6.3 million from the cumulative liability accrued as of December 31, 2021.

The Company continues to recognize interest and penalties associated with uncertain tax positions as a component of taxes on income before equity in net income of associated companies in its Condensed Consolidated Statements of Income. The Company recognized an expense for interest of $0.1 million and a benefit for interest of $0.2 million and a benefit of less than $0.1 million and $1.6 million for penalties in its Condensed Consolidated Statement of Income for the three and nine months ended September 30, 2022, respectively, and recognized an expense for interest of approximately $0.2 million and $0.4 million and a benefit of less than $0.1 million and $0.2 million for penalties in its Condensed Consolidated Statement of Income for the three and nine months ended September 30, 2021, respectively. As of September 30, 2022, the Company had accrued $2.6 million for cumulative interest and $1.4 million for cumulative penalties in its Condensed Consolidated Balance Sheets, compared to $3.1 million for cumulative interest and $3.1 million for cumulative penalties accrued at December 31, 2021.

During the nine months ended September 30, 2022 and 2021, the Company recognized decreases of $3.8 million and $1.2 million, respectively, in its cumulative liability for gross unrecognized tax benefits due to the settlement of income tax audits with both the Italian and German tax authorities, as well as the expiration of the applicable statutes of limitations for certain tax years.

The Company estimates that during the year ending December 31, 2022 it will reduce its cumulative liability for gross unrecognized tax benefits by approximately $4.1 million due to the settlement of income tax audits and the expiration of the statute of limitations with regard to certain tax positions. This estimated reduction in the cumulative liability for unrecognized tax benefits does not consider any increase in liability for unrecognized tax benefits with regard to existing tax positions or any increase in cumulative liability for unrecognized tax benefits with regard to new tax positions for the year ending December 31, 2022.

The Company and its subsidiaries are subject to U.S. Federal income tax, as well as the income tax of various state and foreign tax jurisdictions. Tax years that remain subject to examination by major tax jurisdictions include Italy from 2007, Brazil from 2011, the Netherlands from 2016, Canada, China, Mexico and the U.S. from 2017, Germany, Spain and the United Kingdom from 2018, India from fiscal year beginning April 1, 2017 and ending March 31, 2018, and various U.S. state tax jurisdictions from 2011.

(Dollars in thousands, except per share amounts, unless otherwise stated)

As previously reported, the Italian tax authorities have assessed additional tax due from the Company's subsidiary, Quaker Italia S.r.l., relating to the tax years 2007 through 2015. The Company has filed for competent authority relief from these assessments under the Mutual Agreement Procedures ("MAP") of the Organization for Economic Co-Operation and Development for all years except 2007. In 2020, the respective tax authorities in Italy, Spain and the Netherlands reached agreement with respect to the MAP proceedings which the Company had accepted. As of September 30, 2022, the Company received $1.6 million in refunds from the Netherlands and Spain. In February 2022, the Company received a settlement notice from the Italian taxing authorities confirming the amount due of $2.6 million, having granted the Company's request to utilize its remaining net operating losses to partially offset the liability. As of September 30, 2022, the Company has paid the full settlement amount, of which approximately $0.2 million was confirmed to be refundable.

Houghton Italia, S.r.l was involved in a corporate income tax audit with the Italian tax authorities covering tax years 2014 through 2018. During the fourth quarter of 2021, the Company settled a portion of the Houghton Italia, S.r.l. corporate income tax audit with the Italian tax authorities for the tax years 2014 and 2015. During the nine months ended September 30, 2022, the Company settled tax years 2016 through 2018 for a total of $2.1 million. In total, the Company has now settled all years 2014 through 2018 for $3.7 million. Accordingly, the Company has released all reserves relating to this audit for the settled tax years. As a result of the settlement and reserve release the Company recognized a net benefit to the tax provision of $1.9 million during the first nine months of 2022. The Company has an indemnification receivable of approximately $3.6 million in connection with its claim against the former owners of Houghton for any pre-Combination tax liabilities arising from this matter, as well as other audit settlements.

Note 12 – Earnings Per Share

The following table summarizes earnings per share calculations for the three and nine months ended September 30, 2022 and 2021:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Basic earnings per common share				
Net income attributable to Quaker Chemical Corporation	$ 25,867	$ 31,058	$ 60,026	$ 103,243
Less: income allocated to participating securities	(115)	(119)	(250)	(413)
Net income available to common shareholders	$ 25,752	$ 30,939	$ 59,776	$ 102,830
Basic weighted average common shares outstanding	17,847,305	17,812,216	17,835,976	17,800,082
Basic earnings per common share	$ 1.44	$ 1.74	$ 3.35	$ 5.78
Diluted earnings per common share				
Net income attributable to Quaker Chemical Corporation	$ 25,867	$ 31,058	$ 60,026	$ 103,243
Less: income allocated to participating securities	(115)	(119)	(250)	(412)
Net income available to common shareholders	$ 25,752	$ 30,939	$ 59,776	$ 102,831
Basic weighted average common shares outstanding	17,847,305	17,812,216	17,835,976	17,800,082
Effect of dilutive securities	12,566	58,176	15,465	59,986
Diluted weighted average common shares outstanding	17,859,871	17,870,392	17,851,441	17,860,068
Diluted earnings per common share	$ 1.44	$ 1.73	$ 3.35	$ 5.76

Certain stock options, restricted stock units and PSUs are not included in the diluted earnings per share calculation when the effect would have been anti-dilutive. The calculated amount of anti-diluted shares not included were 25,896 and 24,618 for the three and nine months ended September 30, 2022, respectively, and 5,531 and 3,722 for the three and nine months ended September 30, 2021, respectively.

(Dollars in thousands, except per share amounts, unless otherwise stated)

Note 13 – Goodwill and Other Intangible Assets

Changes in the carrying amount of goodwill for the nine months ended September 30, 2022 were as follows:

	Americas	EMEA	Asia/Pacific	Global Specialty Businesses	Total
Balance as of December 31, 2021	$ 214,023	$ 135,520	$ 162,458	$ 119,193	$ 631,194
Goodwill additions (reductions)	1,853	—	—	(59)	1,794
Currency translation adjustments	(810)	(16,826)	(16,462)	(7,858)	(41,956)
Balance as of September 30, 2022	$ 215,066	$ 118,694	$ 145,996	$ 111,276	$ 591,032

Gross carrying amounts and accumulated amortization for definite-lived intangible assets as of September 30, 2022 and December 31, 2021 were as follows:

	Gross Carrying Amount		Accumulated Amortization	
	2022	2021	2022	2021
Customer lists and rights to sell	$ 803,346	$ 853,122	$ 173,893	$ 147,858
Trademarks, formulations and product technology	150,164	163,974	42,484	38,747
Other	6,611	6,309	5,973	5,900
Total definite-lived intangible assets	$ 960,121	$ 1,023,405	$ 222,350	$ 192,505

The Company amortizes definite-lived intangible assets on a straight-line basis over their useful lives. The Company recorded $14.1 million and $43.3 million of amortization expense for the three and nine months ended September 30, 2022, respectively. Comparatively, the Company recorded $14.9 million and $44.7 million of amortization expense for the three and nine months ended September 30, 2021, respectively.

Estimated annual aggregate amortization expense for the current year and subsequent five years and beyond is as follows:

For the year ended December 31, 2022	$ 55,628
For the year ended December 31, 2023	55,454
For the year ended December 31, 2024	54,848
For the year ended December 31, 2025	54,027
For the year ended December 31, 2026	53,835
For the year ended December 31, 2027 and beyond	513,988

The Company had four indefinite-lived intangible assets totaling $178.2 million as of September 30, 2022, including $177.1 million of indefinite-lived intangible assets for trademarks and tradenames associated with the Combination. Comparatively, the Company had four indefinite-lived intangible assets for trademarks and tradenames totaling $196.9 million as of December 31, 2021.

The Company completes its annual goodwill and indefinite-lived intangible asset impairment test during the fourth quarter of each year, or more frequently if triggering events indicate a possible impairment. The Company continually evaluates financial performance, economic conditions and other recent developments in assessing if a triggering event indicates that the carrying values of goodwill, indefinite-lived, or long-lived assets are impaired. The Company continues to monitor various financial, economic and geopolitical conditions impacting the Company, including the ongoing Russia-Ukraine war and the Company's decision to cease operations in Russia, continued raw material cost escalation, supply chain constraints and disruptions, as well as rising interest rates and the cost of capital among other factors. The Company concluded that these and other factors, which have and continue to impact the Company, did not represent a triggering event during the third quarter of 2022, except for the Company's EMEA reporting unit and the associated goodwill, as well as the related asset group. The Company concluded that during the third quarter of 2022 the escalation of these events adversely impacted EMEA's financial performance and represented a triggering event.

As a result of this conclusion, the Company completed an interim impairment assessment for its EMEA reporting unit, as well as the related asset group, during the third quarter of 2022. The Company concluded that the undiscounted cash flows exceeded the carrying value of the long-lived assets, and it is not more likely than not that an impairment exists. In completing a quantitative goodwill impairment test, the Company compares the reporting unit's fair value, primarily based on future discounted cash flows, to its carrying value in order to determine if an impairment charge is warranted. The estimates of future discounted cash flows involve considerable management judgment and are based upon certain significant assumptions including the weighted average cost of capital as well as projected EBITDA, which includes assumptions related to revenue growth rates, gross margin levels and operating expenses. As a result of this interim impairment assessment, the estimated fair value of the EMEA reporting unit exceeded its carrying value by approximately 22% and the Company concluded no impairment was warranted.

(Dollars in thousands, except per share amounts, unless otherwise stated)

Notwithstanding the results of the Company's interim impairment assessment, if the Company is unable to successfully implement selling price increases aimed at more than offsetting raw material costs and ongoing inflationary pressures and the financial performance of the EMEA reporting unit declines further, or interest rates continue to rise and this leads to an increase in the cost of capital, then it is possible these financial, economic and geopolitical conditions could result in another triggering event for the EMEA reporting unit in the future and could lead to a potential impairment. In addition, if any of these financial, economic or geopolitical conditions has a more significant adverse effect on the Company, these could lead to a potential impairment of the Company's goodwill or other indefinite-lived or long-lived assets.

Note 14 – Debt

Debt as of September 30, 2022 and December 31, 2021 includes the following:

	As of September 30, 2022		As of December 31, 2021	
	Interest Rate	Outstanding Balance	Interest Rate	Outstanding Balance
Credit Facilities:				
Original Revolver	—	$ —	1.62%	$ 211,955
Original U.S. Term Loan	—	—	1.65%	540,000
Original Euro Term Loan	—	—	1.50%	137,616
Amended Revolver	4.12%	201,536	—	—
Amended U.S. Term Loan	4.26%	600,000	—	—
Amended Euro Term Loan	1.50%	139,627	—	—
Industrial development bonds	5.26%	10,000	5.26%	10,000
Bank lines of credit and other debt obligations	Various	2,903	Various	1,777
Total debt		$ 954,066		$ 901,348
Less: debt issuance costs		(2,104)		(8,001)
Less: short-term and current portion of long-term debts		(20,471)		(56,935)
Total long-term debt		$ 931,491		$ 836,412

Credit facilities

The Company, its wholly owned subsidiary, Quaker Chemical B.V., as borrowers, Bank of America, N.A., as administrative agent, U.S. Dollar swing line lender and letter of credit issuer, and the other lenders party thereto, entered into a credit agreement on August 1, 2019, as amended (the "Original Credit Facility"). The Original Credit Facility was comprised of a $400.0 million multicurrency revolver (the "Original Revolver"), a $600.0 million term loan (the "Original U.S. Term Loan"), each with the Company as borrower, and a $150.0 million (as of August 1, 2019) Euro equivalent term loan (the "Original Euro Term Loan") with Quaker Chemical B.V., a Dutch subsidiary of the Company as borrower, each with a five year term, maturing in August 2024.

During June 2022, the Company, and its wholly owned subsidiary, Quaker Houghton B.V., as borrowers, Bank of America, N.A., as administrative agent, U.S. Dollar swing line lender and letter of credit issuer, Bank of America Europe Designated Active Company, as Euro Swing Line Lender, certain guarantors and other lenders entered into an amendment to the Original Credit Facility (the "Amended Credit Facility"). The Amended Credit Facility established (A) a new $150.0 million Euro equivalent senior secured term loan (the "Amended Euro Term Loan"), (B) a new $600.0 million senior secured term loan (the "Amended U.S. Term Loan"), and (C) a new $500.0 million senior secured revolving credit facility (the "Amended Revolver"). The Company has the right to increase the amount of the Amended Credit Facility by an aggregate amount not to exceed the greater of $300.0 million or 100% of Consolidated EBITDA, subject to certain conditions including the agreement to provide financing by any lender providing such increase). In addition, the Amended Credit Facility also:

(i) eliminated the requirement that material foreign subsidiaries must guaranty the Original Euro Term Loan;

(ii) replaced the U.S. Dollar borrowings reference rate from LIBOR to SOFR;

(iii) extended the maturity date of the Original Credit Facility from August 2024 to June 2027; and

(iv) effected certain other changes to the Original Credit Facility as set forth in the Amended Credit Facility.

The Company used the proceeds of the Amended Credit Facility to repay all outstanding loans under the Original Credit Facility, unpaid accrued interest and fees on the closing date under the Original Credit Facility and certain expenses and fees. U.S. Dollar-denominated borrowings under the Amended Credit Facility bear interest, at the Company's election, at the base rate or term SOFR plus an applicable rate ranging from 1.00% to 1.75% for term SOFR loans and from 0.00% to 0.75% for base rate loans, depending upon the Company's consolidated net leverage ratio. Loans based on term SOFR also include a spread adjustment equal to 0.10% per annum. Borrowings under the Amended Credit Facility denominated in currencies other than U.S. Dollars bear interest at the alternative currency term rate plus the applicable rate ranging from 1.00% to 1.75%.

The Amended Credit Facility contains affirmative and negative covenants, financial covenants and events of default, including without limitation restrictions on (a) the incurrence of additional indebtedness; (b) investments in and acquisitions of other businesses, lines of business and divisions; (c) the making of dividends or capital stock purchases; and (d) dispositions of assets. Dividends and share repurchases are permitted in annual amounts not exceeding the greater of $75 million annually and 25% of consolidated EBITDA if there is no default. If the consolidated net leverage ratio is less than 2.50 to 1.00, then the Company is no longer subject to restricted payments.

Financial covenants contained in the Amended Credit Facility include a consolidated interest coverage ratio test and a consolidated net leverage ratio test. The consolidated net leverage ratio at the end of a quarter may not be greater than 4.00 to 1.00, subject to a permitted increase during a four-quarter period after certain acquisitions. The Company has the option of replacing the consolidated net leverage ratio test with a consolidated senior net leverage ratio test if the Company issues certain types of unsecured notes, subject to certain limitations. Events of default in the Amended Credit Facility include without limitation defaults for non-payment, breach of representations and warranties, non-performance of covenants, cross-defaults, insolvency, and a change of control in certain circumstances. The occurrence of an event of default under the Amended Credit Facility could result in all loans and other obligations becoming immediately due and payable and the Amended Credit Facility being terminated. As of September 30, 2022, the Company was in compliance with all of the Amended Credit Facility covenants.

The weighted average variable interest rate incurred on the outstanding borrowings under the Original Credit Facility and the Amended Credit Facility during the nine months ended September 30, 2022 was approximately 2.4%. As of September 30, 2022, the interest rate on the outstanding borrowings under the Amended Credit Facility was approximately 3.8%. In addition to paying interest on outstanding principal under the Original Credit Facility, the Company was required to pay a commitment fee ranging from 0.2% to 0.3% depending on the Company's consolidated net leverage ratio under the Original Revolver in respect of the unutilized commitments thereunder. As part of the Amended Credit Facility, the Company is required to pay a commitment fee ranging from 0.150% to 0.275% related to unutilized commitments under the Amended Revolver, depending on the Company's consolidated net leverage ratio. The Company had unused capacity under the Amended Revolver of approximately $295 million, which is net of bank letters of credit of approximately $3 million, as of September 30, 2022.

The Company previously capitalized $23.7 million of certain third-party debt issuance costs in connection with executing the Original Credit Facility. Approximately $15.5 million of the capitalized costs were attributed to the Original Term Loans and recorded as a direct reduction of Long-term debt on the Condensed Consolidated Balance Sheet. Approximately $8.3 million of the capitalized costs were attributed to the Original Revolver and recorded within Other assets on the Condensed Consolidated Balance Sheet. These capitalized costs were being amortized into Interest expense over the five year term of the Original Credit Facility. As of December 31, 2021, the Company had $8.0 million of debt issuance costs recorded as a reduction of Long-term debt attributable to the Original Credit Facility. As of December 31, 2021, the Company had $4.3 million of debt issuance costs recorded within Other assets attributable to the Original Credit Facility. Prior to executing the Amended Credit Facility, the Company had $ 6.6 million of debt issuance costs recorded as a reduction of Long-term debt attributable to the Original Credit Facility and $3.5 million of debt issuance costs recorded within Other assets attributable to the Original Credit Facility.

In connection with executing the Amended Credit Facility, the Company recorded a loss on extinguishment of debt of approximately $6.8 million which includes the write-off of certain previously unamortized deferred financing costs as well as a portion of the third-party and creditor debt issuance costs incurred to execute the Amended Credit Facility. Also in connection with executing the Amended Credit Facility, during the second quarter of 2022, the Company capitalized $2.2 million of certain third-party and creditor debt issuance costs. Approximately $0.7 million of the capitalized costs were attributed to the Amended Euro Term Loan and Amended U.S. Term Loan. These costs were recorded as a direct reduction of Long-term debt on the Condensed Consolidated Balance Sheet. Approximately $1.5 million of the capitalized costs were attributed to the Amended Revolver and recorded within Other assets on the Condensed Consolidated Balance Sheet. These capitalized costs, as well as the previously capitalized costs that were not written off will collectively be amortized into Interest expense over the five year term of the Amended Credit Facility. As of September 30, 2022, the Company had $2.1 million of debt issuance costs recorded as a reduction of Long-term debt on the Condensed Consolidated Balance Sheet and $4.6 million of debt issuance costs recorded within Other assets on the Condensed Consolidated Balance Sheet.

(Dollars in thousands, except per share amounts, unless otherwise stated)

The Original Credit Facility required the Company to fix its variable interest rates on at least 20% of its total Original Term Loans. In order to satisfy this requirement as well as to manage the Company's exposure to variable interest rate risk associated with the Original Credit Facility, in November 2019, the Company entered into $170.0 million notional amounts of three-year interest rate swaps at a base rate of 1.64% plus an applicable margin as provided in the Original Credit Facility, based on the Company's consolidated net leverage ratio. At the time the Company entered into the swaps, and as of September 30, 2022, the aggregate interest rate on the swaps, including the fixed base rate plus an applicable margin, was 3.1%. The Amended Credit Facility does not require the Company to fix variable interest rates on any portion of its borrowings. As of September 30, 2022, the Company had not amended its current interest rate swaps. In October 2022, the Company's interest rate swap contracts expired. Upon expiration, the Company is entitled to a cash payment from the counterparties, which is materially consistent with the fair value as of September 30, 2022. See Note 17 of Notes to Condensed Consolidated Financial Statements.

Industrial development bonds

As of September 30, 2022 and December 31, 2021, the Company had fixed rate, industrial development authority bonds totaling $10.0 million in principal amount due in 2028. These bonds have similar covenants to the Amended Credit Facility noted above.

Bank lines of credit and other debt obligations

The Company has certain unsecured bank lines of credit and discounting facilities in certain foreign subsidiaries, which are not collateralized. The Company's other debt obligations primarily consist of certain domestic and foreign low interest rate or interest-free municipality-related loans, local credit facilities of certain foreign subsidiaries and capital lease obligations. Total unused capacity under these arrangements as of September 30, 2022 was approximately $12 million.

In addition to the bank letters of credit described in the "Credit facilities" subsection above, the Company's other off-balance sheet arrangements include certain financial and other guarantees. The Company's total bank letters of credit and guarantees outstanding as of September 30, 2022 were approximately $5 million.

The Company incurred the following debt related expenses included within Interest expense, net, in the Condensed Consolidated Statements of Income:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Interest expense	$ 9,465	$ 4,779	$ 20,339	$ 14,242
Amortization of debt issuance costs	353	1,187	2,589	3,562
Total	$ 9,818	$ 5,966	$ 22,928	$ 17,804

Based on the variable interest rates associated with the Amended Credit Facility, as of September 30, 2022 and the Original Credit Facility as of December 31, 2021, the amounts at which the Company's total debt were recorded are not materially different from their fair market value.

On September 30, 2022, annual maturities on the Amended Credit Facility in the next five fiscal years (excluding the reduction to long-term debt attributed to capitalized and unamortized debt issuance costs) are as follows:

	September 30, 2022
For the remainder of 2022	$ 4,623
For the year ended December 31, 2023	18,491
For the year ended December 31, 2024	23,113
For the year ended December 31, 2025	36,981
For the year ended December 31, 2026	36,981
For the year ended December 31, 2027	820,974
Total payments	$ 941,163

(Dollars in thousands, except per share amounts, unless otherwise stated)

Note 15 – Accumulated Other Comprehensive Income

The following tables show the reclassifications from and resulting balances of accumulated other comprehensive income (“AOCI”) for the three and nine months ended September 30, 2022 and 2021:

	Currency Translation Adjustments	Defined Benefit Pension Plans	Unrealized (Loss) Gain in Available-for-Sale Securities	Derivative Instruments	Total
Balance at June 30, 2022	$ (133,110)	$ (11,269)	$ (1,170)	$ 303	$ (145,246)
Other comprehensive (loss) income before Reclassifications	(71,948)	453	(1,006)	(182)	(72,683)
Amounts reclassified from AOCI	—	210	(30)	—	180
Related tax amounts	—	(166)	218	42	94
Balance at September 30, 2022	$ (205,058)	$ (10,772)	$ (1,988)	$ 163	$ (217,655)
Balance at June 30, 2021	$ (12,177)	$ (21,778)	$ 596	$ (2,584)	$ (35,943)
Other comprehensive (loss) income before Reclassifications	(19,905)	488	(85)	567	(18,935)
Amounts reclassified from AOCI	—	709	(176)	—	533
Related tax amounts	—	(293)	46	(131)	(378)
Balance at September 30, 2021	$ (32,082)	$ (20,874)	$ 381	$ (2,148)	$ (54,723)

	Currency Translation Adjustments	Defined Benefit Pension Plans	Unrealized Gain (Loss) in Available-for-Sale Securities	Derivative Instruments	Total
Balance at December 31, 2021	$ (49,843)	$ (13,172)	$ 397	$ (1,372)	$ (63,990)
Other comprehensive (loss) income before reclassifications	(155,215)	2,535	(3,326)	1,993	(154,013)
Amounts reclassified from AOCI	—	657	306	—	963
Related tax amounts	—	(792)	635	(458)	(615)
Balance at September 30, 2022	$ (205,058)	$ (10,772)	$ (1,988)	$ 163	$ (217,655)
Balance at December 31, 2020	$ (2,875)	$ (23,467)	$ 3,342	$ (3,598)	$ (26,598)
Other comprehensive (loss) income before reclassifications	(29,207)	1,009	(489)	1,883	(26,804)
Amounts reclassified from AOCI	—	2,423	(3,259)	—	(836)
Related tax amounts	—	(839)	787	(433)	(485)
Balance at September 30, 2021	$ (32,082)	$ (20,874)	$ 381	$ (2,148)	$ (54,723)

All reclassifications related to unrealized gain (loss) in available-for-sale securities relate to the Company’s equity interest in a captive insurance company and are recorded in equity in net income of associated companies. The amounts reported in other comprehensive income for noncontrolling interest are related to currency translation adjustments.

(Dollars in thousands, except per share amounts, unless otherwise stated)

Note 16 – Fair Value Measurements

The Company has valued its company-owned life insurance policies at fair value. These assets are subject to fair value measurement as follows:

	Total	Fair Value Measurements at September 30, 2022 Using Fair Value Hierarchy		
Assets	Fair Value	Level 1	Level 2	Level 3
Company-owned life insurance	$ 2,018	$ —	$ 2,018	$ —
Total	$ 2,018	$ —	$ 2,018	$ —

	Total	Fair Value Measurements at December 31, 2021 Using Fair Value Hierarchy		
Assets	Fair Value	Level 1	Level 2	Level 3
Company-owned life insurance	$ 2,533	$ —	$ 2,533	$ —
Total	$ 2,533	$ —	$ 2,533	$ —

The fair values of Company-owned life insurance assets are based on quotes for like instruments with similar credit ratings and terms. The Company did not hold any Level 3 investments as of September 30, 2022 or December 31, 2021, respectively, so related disclosures have not been included.

Note 17 – Hedging Activities

In order to satisfy certain requirements of the Original Credit Facility as well as to manage the Company's exposure to variable interest rate risk associated with the Original Credit Facility, in November 2019, the Company entered into $ 170.0 million notional amounts of three year interest rate swaps. See Note 14 of Notes to Condensed Consolidated Financial Statements. These interest rate swaps are designated as cash flow hedges and, as such, the contracts are marked-to-market at each reporting date and any unrealized gains or losses are included in AOCI to the extent effective and reclassified to interest expense in the period during which the transaction affects earnings or it becomes probable that the forecasted transaction will not occur.

In June 2022, the Company amended the Original Credit Facility. See Note 14 of Notes to the Condensed Consolidated Financial Statements. The Amended Credit Facility does not require the Company to fix variable interest rates on any portion of its borrowings. In October 2022, the Company's interest rate swap contracts expired. Upon expiration, the Company is entitled to a cash payment from the counterparties, which is materially consistent with the fair value as of September 30, 2022.

The balance sheet classification and fair values of the Company's derivative instruments, which are Level 2 measurements, are as follows:

	Condensed Consolidated Balance Sheet Location	Fair Value September 30, 2022	Fair Value December 31, 2021
Derivatives designated as cash flow hedges:			
Interest rate swaps	Prepaid expenses and other current assets	$ 212	$ —
	Other accrued liabilities	—	1,782
		$ 212	$ 1,782

The following table presents the net unrealized (gain) loss deferred to AOCI:

		September 30, 2022	December 31, 2021
Derivatives designated as cash flow hedges:			
Interest rate swaps	AOCI	$ 163	$ 1,372
		$ 163	$ 1,372

(Dollars in thousands, except per share amounts, unless otherwise stated)

The following table presents the net gain (loss) reclassified from AOCI to earnings:

		Three Months Ended September 30,		Nine Months Ended September 30,	
		2022	2021	2022	2021
Amount and location of expense reclassified from AOCI into expense (effective portion)	Interest income (expense), net	$ 134	$ (672)	$ (882)	$ (1,974)

Interest rate swaps are entered into with a limited number of counterparties, each of which allows for net settlement of all contracts through a single payment in a single currency in the event of a default on or termination of any one contract. As such, in accordance with the Company's accounting policy, these derivative instruments are recorded on a net basis within the Condensed Consolidated Balance Sheets.

Note 18 – Commitments and Contingencies

The Company previously disclosed in its 2021 Form 10-K that AC Products, Inc. ("ACP"), a wholly owned subsidiary, in 2007, agreed to operate two groundwater treatment systems, so as to hydraulically contain groundwater contamination emanating from ACP's site until such time as the concentrations of contaminants are below the current Federal maximum contaminant level for four consecutive quarterly sampling events. In 2014, ACP ceased operation at one of its two groundwater treatment systems, as it had met the above condition for closure. As of September 30, 2022, ACP continues to operate the second groundwater treatment system, while the Company discusses with the relevant authorities whether the second groundwater treatment system meets the conditions for closure. In addition, the Santa Ana Regional Water Quality Control Board requested that ACP conduct additional indoor and outdoor soil vapor testing on and near the ACP site to confirm that ACP continues to meet the applicable local soil vapor standards. As of September 30, 2022, ACP performed such testing and is awaiting the review of the results from the Santa Ana Regional Water Quality Control Board.

As of September 30, 2022, the Company believes that the range of potential-known liabilities associated with the balance of the ACP water remediation program is approximately $0.1 million to $1.0 million. The low and high ends of the range are based on the length of operation of the treatment system as determined by groundwater modeling. Costs of operation include the operation and maintenance of the extraction well, groundwater monitoring and program management.

The Company previously disclosed in its 2021 Form 10-K that an inactive subsidiary of the Company that was acquired in 1978 sold certain products containing asbestos, primarily on an installed basis, and is among the defendants in numerous lawsuits alleging injury due to exposure to asbestos. During the three and nine months ended September 30, 2022, there have been no significant changes to the facts or circumstances of this previously disclosed matter, aside from on-going claims and routine payments associated with this litigation. Based on a continued analysis of the existing and anticipated future claims against this subsidiary, it is currently projected that the subsidiary's total liability over the next 50 years for these claims is approximately $0.3 million (excluding costs of defense).

The Company previously disclosed in its 2021 Form 10-K that it is party to certain environmental matters related to certain domestic and foreign properties. These environmental matters primarily require the Company to perform long-term monitoring and maintenance at each of the applicable sites. During the three and nine months ended September 30, 2022, there have been no significant changes to the facts or circumstances of these previously disclosed matters, aside from on-going monitoring and maintenance activities and routine payments associated with each of the sites. The Company continually evaluates its obligations related to such matters, and based on historical costs incurred and projected costs to be incurred over the next approximately 30 years, has estimated the range of costs for all of these environmental matters, on a discounted basis, to be between approximately $5.0 million and $6.0 million as of September 30, 2022, for which $5.2 million was accrued within other accrued liabilities and other non-current liabilities on the Company's Condensed Consolidated Balance Sheet as of September 30, 2022. Comparatively, as of December 31, 2021, the Company had $5.6 million accrued for with respect to these matters.

Although there can be no assurance regarding the outcome of other unrelated environmental matters, the Company believes that it has made adequate accruals for costs associated with other environmental matters for which it is aware, and has accrued $0.4 million as of both September 30, 2022 and December 31, 2021, respectively, to provide for such anticipated future environmental assessments and remediation costs.

The Company previously disclosed in its 2021 Form 10-K that during the first nine months of 2021, one of the Company's Brazilian subsidiaries received a notice that it had prevailed on an existing legal claim in regard to certain non-income (indirect) taxes that had been previously charged and paid. The matter specifically related to companies' rights to exclude the state tax on goods circulation (a valued-added-tax or VAT equivalent, known in Brazil as "ICMS") from the calculation of certain additional indirect taxes (specifically the program of social integration ("PIS") and contribution for the financing of social security ("COFINS")) levied by the Brazilian States on the sale of goods. In May 2021, the Brazilian Supreme Court concluded that ICMS should not be included in the tax base of PIS and COFINS, and confirmed the methodology for calculating the PIS and COFINS tax credit claims to which taxpayers are entitled. The Company's Brazilian entities had previously filed legal or administrative disputes on this matter and are entitled to receive tax credits and interest dating back five years preceding the date of their legal claims. As a result of these court rulings in the first nine months of 2021, the Company recognized non-income tax credits of 67.0 million BRL or approximately $13.3 million, which includes approximately $8.4 million for the PIS and COFINS tax credits as well as interest on these tax credits of $ 4.9 million. The tax credits to which the Company's Brazilian subsidiaries are entitled are claimable once registered with the Brazilian tax authorities which the Company subsequently completed. These tax credits can be used to offset future Brazilian federal taxes and the Company currently anticipates using the full amount of credits during the five year period of time permitted.

In connection with obtaining regulatory approvals for the Combination, certain steel and aluminum related product lines of Houghton were divested in August 2019. The Company previously disclosed in its 2021 Form 10-K that in July 2021, the entity that acquired these divested product lines submitted an indemnification claim for certain alleged breaches of representation made by Houghton in the agreement pursuant to which such assets had been divested. The Company responded to the subject matters of the indemnification claim and during the first quarter of 2022, the matter was resolved consistent with the Company's expectations and position that there were no amounts owed by the Company.

The Company previously disclosed in its 2021 Form 10-K that two of the Company's locations suffered property damages as a result of flooding and electrical fire, respectively. The Company maintains property and flood insurance for all of its facilities globally. During the nine months ended September 30, 2022, there have been no significant changes to the facts or circumstances of these previously disclosed matters, aside from the on-going restoration of both sites. The Company, its insurance adjuster and insurance carrier are actively managing the remediation and restoration activities associated with these events and at this time the Company has concluded, based on all available information and discussions with its insurance adjuster and insurance carrier, that the losses were covered under the Company's property and flood insurance coverage, net of an aggregate deductible of $ 2.0 million. Through September 30, 2022, the Company has received payments from its insurers of $3.9 million associated with these events. During the three months ended September 30, 2022, the Company recognized a gain on insurance recoveries of $ 1.1 million. The Company has recorded an insurance receivable of $0.2 million as of September 30, 2022. See Note 10 of Notes to the Condensed Consolidated Financial Statements.

The Company is party to other litigation which management currently believes will not have a material adverse effect on the Company's results of operations, cash flows or financial condition. In addition, the Company has an immaterial amount of contractual purchase obligations.

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

As used in this Report, the terms "Quaker Houghton," the "Company," "we" and "our" refer to Quaker Chemical Corporation (doing business as Quaker Houghton), its subsidiaries, and associated companies, unless the context otherwise requires. The term the "Combination" refers to the legacy Quaker combination with Houghton International, Inc. ("Houghton") on August 1, 2019.

Executive Summary

Quaker Houghton is the global leader in industrial process fluids. With a presence around the world, including operations in over 25 countries, our customers include thousands of the world's most advanced and specialized steel, aluminum, automotive, aerospace, offshore, container, mining, and metalworking companies. Our high-performing, innovative and sustainable solutions are backed by best-in-class technology, deep process knowledge, and customized services. Quaker Houghton is headquartered in Conshohocken, Pennsylvania, located near Philadelphia in the U.S.

Overall, the Company delivered solid results in the third quarter of 2022 despite continued and persistent financial, economic and geopolitical headwinds, including ongoing raw material cost escalation and overall inflationary pressures, supply chain and logistics challenges, the direct and indirect impacts of the ongoing war in Ukraine, Zero-COVID policies in China, and foreign currency volatility. Notwithstanding these challenges, net sales in the third quarter of 2022 were $492.2 million, an increase of 10% compared to $449.1 million in the third quarter of 2021. This was primarily driven by an increase in selling price and product mix of approximately 25% and additional net sales from acquisitions of 1%, partially offset by a decline in organic sales volumes of 9% and an unfavorable impact from foreign currency translation of 7%. The increase in selling price and product mix was primarily the result of strategic price increases implemented to offset the ongoing inflationary pressures that began at the onset of 2021 and have escalated throughout 2021 and into the first nine months of 2022. The decline in organic sales volumes was primarily attributable to softer end market conditions, particularly in Europe and Asia/Pacific, the wind-down of the tolling agreement for products previously divested related to the Combination and the direct and indirect impacts of the ongoing war in Ukraine.

The Company generated net income in the third quarter of 2022 of $25.9 million, or $1.44 per diluted share, compared to net income of $31.1 million, or $1.73 per diluted share in the third quarter of 2021. Excluding non-recurring items in each period, the Company's third quarter of 2022 non-GAAP earnings per diluted share were $1.74 compared to $1.63 in the prior year quarter and the Company's current quarter adjusted EBITDA was $70.3 million compared to $66.2 million in the third quarter of 2021. These results were primarily driven by higher net sales in the current quarter coupled with an improvement in gross margins compared to the prior year quarter, partially offset by the unfavorable impact of foreign currency translation and higher selling, general and administrative expenses ("SG&A") as a result of significant year-over-year inflationary pressures. See the Non-GAAP Measures section of this Item below, as well as other items discussed in the Company's Consolidated Operations Review in the Operations section of this Item, below.

The Company's third quarter of 2022 operating performance in each of its four reportable segments: (i) Americas; (ii) Europe, Middle East and Africa ("EMEA"); (iii) Asia/Pacific; and (iv) Global Specialty Businesses, reflect similar drivers to that of its consolidated performance as each of the Company's reportable segments net sales benefitted from double-digit year-over-year increases in selling price and product mix, while those increases in net sales were partially offset by the significant and unfavorable impact of foreign currency translation. All geographic segments had lower organic sales volumes, however organic sales volumes for the Global Speciality Businesses increased in the third quarter of 2022 compared to the prior year quarter due to continued end market demand. Operating earnings for the Global Specialty Businesses and Americas increased compared to the prior year quarter, driven by higher net sales and an improvement in margins. Operating earnings for Asia/Pacific were relatively flat year-over-year as lower net sales were offset by an improvement in the segment's margins. EMEA operating earnings declined compared to the prior year due to the persistent and significant inflationary pressures on raw materials and other costs and the negative impact of foreign currency translation, partially offset by continued price realization. Additional details of each segment's operating performance are further discussed in the Company's Reportable Segments Review, in the Operations section of this Item, below.

The Company had a net operating cash outflow of $26.3 million in the first nine months of 2022 compared to net operating cash flow of $2.5 million in the first nine months of 2021. The net operating cash outflow year-over-year reflects lower year-to-date operating performance in 2022 compared to 2021 as well as the continued significant current year working capital investment primarily related to higher accounts receivable due to the increase in net sales, higher inventory due to higher raw material costs and lower levels of accounts payable. The key drivers of the Company's operating cash flow and working capital are further discussed in the Company's Liquidity and Capital Resources section of this Item, below.

Overall, the Company delivered another quarter of strong net sales growth, driven by strong price realization, both sequentially and year-over-year. Coupled with an improvement in gross margin, these factors contributed to the Company's current quarter earnings growth despite the ongoing inflationary pressures, unfavorable foreign currency translation, macroeconomic and geopolitical challenges and other disruptions that impacted the Company's customers and end markets. Looking at the remainder of 2022, the Company remains focused on executing on items within its control as it manages through a continued uneven end market environment and softer market conditions, primarily in Europe and Asia/Pacific. The Company is encouraged by the resilience of its diversified portfolio despite significant uncertainty caused by several macroeconomic factors. We continue to expect to deliver further sequential gross margin improvement in the fourth quarter of 2022, as well as higher earnings in the second half of 2022 as compared to the first half of 2022 and second half of 2021.

On-going impact of COVID-19

The global outbreak of COVID-19 in March of 2020 has negatively impacted all locations where the Company does business. Although the Company has now operated in this COVID-19 environment for more than two years, the full extent of the outbreak and related business impacts continue to remain uncertain and volatile, and therefore the full extent to which COVID-19 may impact the Company's future results of operations or financial condition is uncertain. This outbreak has significantly disrupted the operations of the Company and those of its suppliers and customers and, at times during the pandemic, the Company has experienced volume declines as compared to pre-COVID-19 levels. Management continues to monitor the impact that the COVID-19 pandemic is having on the Company, the overall specialty chemical industry and the economies and markets in which the Company operates. The prolonged pandemic and resurgences of the outbreak including as new variants continue to emerge, and continued restrictions on day-to-day life and business operations such as continuing restrictions in China, as well as border controls or closures and transportation disruptions, may result in volume declines and lower net sales in future periods. To the extent that the Company's customers and suppliers are adversely impacted by COVID-19, this could reduce the availability, or result in delays, of materials or supplies to or from the Company, which in turn could significantly interrupt the Company's business operations. Given this ongoing uncertainty, the Company cautions that its future results of operations could be significantly and adversely impacted by COVID-19. While the circumstances have presented and are expected to continue to present challenges and have necessitated additional time and resources to be deployed to sufficiently address the challenges brought on by the pandemic at this time, Management does not believe that COVID-19 has had a material impact on its financial reporting processes, internal controls over financial reporting, or disclosure controls and procedures.

The Company's top priority is to protect the health and safety of its employees and customers, while working to ensure business continuity to meet customers' needs. During the pandemic, the Company has taken incremental steps to protect the health and wellbeing of its people in affected areas through various actions, including enabling work at home where needed and practicable, and employing social distancing standards, implementing travel restrictions where applicable, enhancing onsite hygiene practices, and instituting visitation restrictions at the Company's facilities. The Company has not and does not expect that it will incur material expenses implementing these health and safety policies. All of the Company's more than 30 production facilities worldwide are open and operating and are deemed as essential businesses in the jurisdictions where they are operating. The Company continues to expect that the impacts from COVID-19 will gradually decline subject to the effective containment of the virus and its variants and successful distribution and acceptance of the available vaccines and treatments; however, the incidence of reported cases of COVID-19 or a variant in several geographies where the Company has significant operations remains relatively high. Differing government responses to these reported cases continues to evolve and it therefore remains highly uncertain as to how long the global pandemic and related economic challenges will last in each of the jurisdictions where the Company conducts business and when our customers' businesses will recover to pre-COVID-19 levels. While the actions the Company has taken to date to protect our workforce, to continue to serve our customers with excellence and to conserve cash and reduce costs as applicable, have been effective thus far, further actions to respond to the pandemic and its effects may be necessary as conditions continue to evolve.

Impact of Political Conflicts

A significant portion of the Company's revenues and earnings are generated by non-U.S. operations. This subjects the Company to political and economic risks that could adversely affect the Company's business, liquidity, financial position and results of operations. The existence of military conflicts, for example the Russian invasion of Ukraine, bring inherent risks such as the potential for supply chain disruptions, increased costs of resources including oil, decreased trade activity and other consequences related to economic or other sanctions. The U.S. government and other nations have imposed significant restrictions on most companies' ability to do business in Russia as a result of the military conflict between Russia and Ukraine. It is not possible to predict the broader or longer-term consequences of this conflict, which could include further sanctions, embargoes, regional instability, geopolitical shifts and adverse effects on macroeconomic conditions, security conditions, currency exchange rates and financial markets. The military conflict between Russia and Ukraine has had a negative impact on the Company's ability to sell to, ship products to, collect payments from, and support customers in certain regions based on trade restrictions, embargoes and export control law restrictions, and logistics restrictions including closures of air space. If this conflict continues or expands, it could increase the costs, risks and adverse impacts from these new challenges. The Company and its customers and suppliers may also be the subject of increased cyber-attacks.

During the second quarter of 2022, the Company decided to cease its operations in Russia. The Company's operations in the conflict areas including Russia, Ukraine and Belarus historically represented less than 2% of the Company's consolidated net sales and less than 1% of the Company's consolidated total assets. The Company's primary exposure in the conflict areas related to outstanding customer accounts receivable. The Company is actively monitoring its outstanding Russian receivables for collections and has recorded incremental allowances for doubtful accounts where warranted.

Liquidity and Capital Resources

At September 30, 2022, the Company had cash and cash equivalents of $138.9 million. Total cash and cash equivalents was $165.2 million at December 31, 2021. The $26.3 million decrease in cash and cash equivalents was the net result of $46.6 million of cash provided by financing activities offset by $26.3 million of cash used in operating activities, $29.6 million of cash used in investing activities and a $17.0 million negative impact due to the effect of foreign currency translation.

Net cash flows used in operating activities were $26.3 million in the first nine months of 2022 compared to net cash flows provided by operating activities of $2.5 million in the first nine months of 2021. The decrease in net operating cash flow year-over-year reflects lower first nine months of the year operating performance in 2022 compared to 2021 as well as the continued significant current year working capital investment primarily related to higher accounts receivable due to the increase in net sales, higher inventory due to an increase in costs and, to a lesser extent, a build in certain inventory in response to global supply chain and logistics challenges, as well as lower levels of accounts payable due to timing.

Net cash flows used in investing activities were $29.6 million in the first nine months of 2022 compared to $30.1 million in the first nine months of 2021. The relatively consistent level of cash used in investing activities year-over-year is the net result of lower cash proceeds from the disposition of assets which included the sale of certain held-for-sale real property assets related to the Combination in the prior year period, and higher capital expenditures in the current year largely related to certain infrastructure and sustainability-related spending, partially offset by lower cash payments related to acquisitions as a result of the level of acquisition activity in each year. See Note 2 of Notes to Condensed Consolidated Financial Statements in Item 1 of this Report.

Net cash flows provided by financing activities were $46.6 million in the first nine months of 2022 compared to net cash flows used in financing activities of $10.5 million in the first nine months of 2021. The increase in net cash flows was primarily related to a larger increase in borrowings in the current year under the Company's credit facility, which was amended and extended, as further described below, in the second quarter of 2022. In addition, the Company paid $22.3 million of cash dividends during the first nine months of 2022, a $1.1 million or 5% increase in cash dividends compared to the prior year.

The Company, its wholly owned subsidiary, Quaker Chemical B.V., as borrowers, Bank of America, N.A., as administrative agent, U.S. Dollar swing line lender and letter of credit issuer, and the other lenders party thereto, entered into a credit agreement on August 1, 2019, as amended (the "Original Credit Facility"). During June 2022, the Company, and its wholly owned subsidiary, Quaker Houghton B.V., as borrowers, Bank of America, N.A., as administrative agent, U.S. Dollar swing line lender and letter of credit issuer, Bank of America Europe Designated Active Company, as Euro Swing Line Lender, certain guarantors and other lenders entered into an amendment to the Original Credit Facility (the "Amended Credit Facility"). The Company used the proceeds of the Amended Credit Facility to repay all outstanding loans under the Original Credit Facility, as well as accrued interest and fees, and to terminate the revolving credit commitments under the Original Credit Facility.

The Company's Amended Credit Facility is comprised of a $500.0 million multicurrency revolver, a $600.0 million term loan and a $150.0 million (as of June 17, 2022) Euro equivalent term loan (collectively, the "Amended Term Loans") with the Company and Quaker Houghton B.V., as borrowers, each with a five-year term maturing in June 2027. Subject to the consent of the Administrative Agent and certain other conditions, the Company may designate additional borrowers. The Company has the right to increase the amount of the Amended Credit Facility by an aggregate amount not to exceed the greater of (i) $300 million and (ii) 100% of Consolidated EBITDA, subject to certain conditions, including the agreement to provide financing by any Lender providing any such increase. U.S. Dollar-denominated borrowings under the Amended Credit Facility bear interest, at the Company's election, at the base rate or term Secured Overnight Financing Rate ("SOFR") plus an applicable rate ranging from 1.00% to 1.75% for term SOFR loans and from 0.00% to 0.75% for base rate loans, depending upon the Company's consolidated net leverage ratio. Loans based on term SOFR also include a spread adjustment equal to 0.10% per annum. Borrowings under the Amended Credit Facility denominated in currencies other than U.S. Dollars bear interest at the alternative currency term rate plus the applicable rate ranging from 1.00% to 1.75%. In addition to paying interest on outstanding principal under the Amended Credit Facility, the Company is required to pay a commitment fee ranging from 0.15% to 0.275% depending on the Company's consolidated net leverage ratio to the Lenders under the Amended Revolver in respect of the unutilized commitments thereunder.

The Amended Credit Facility contains affirmative and negative covenants, financial covenants and events of default that are customary for agreements of this nature. The Amended Credit Facility contains a number of customary business covenants, including without limitation restrictions on (a) the incurrence of additional indebtedness by the Company or certain of its subsidiaries, (b) investments in and acquisitions of other businesses, lines of business and divisions by the Company or certain of its subsidiaries, (c) the payment of dividends or capital stock purchases by the Company or certain of its subsidiaries and (d) dispositions of assets by the Company or certain of its subsidiaries. Dividends and share repurchases are permitted in annual amounts not exceeding the greater of $75 million annually and 25% of Consolidated EBITDA if there is no default. If the Company's consolidated net leverage ratio is less than 2.50 to 1.00 then the Company is no longer subject to restricted payments.

Financial covenants contained in the Amended Credit Facility include a consolidated interest coverage ratio test and a consolidated net leverage ratio test. The consolidated net leverage ratio at the end of a quarter may not be greater than 4.00 to 1.00, subject to a permitted increase during a four quarter period after certain acquisitions. The Company has the option of replacing the consolidated net leverage ratio test with a consolidated senior net leverage ratio test if the Company issues certain types of unsecured debt, subject to certain customary limitations. Customary events of default in the Amended Credit Facility include without limitation defaults for non-payment, breach of representations and warranties, non-performance of covenants, cross-defaults, insolvency, and a change of control of the Company in certain circumstances. The occurrence of an event of default under the Amended Credit Facility could result in all loans and other obligations becoming immediately due and payable and the Amended Credit Facility being terminated.

The Original Credit Facility required the Company to fix its variable interest rates on at least 20% of its total Original Term Loans. In order to satisfy this requirement as well as to manage the Company's exposure to variable interest rate risk associated with the Original Credit Facility, in November 2019, the Company entered into $170.0 million notional amounts of three year interest rate swaps at a base rate of 1.64% plus an applicable margin as provided in the Original Credit Facility, based on the Company's consolidated net leverage ratio. At the time the Company entered into the swaps, and as of September 30, 2022, the aggregate interest rate on the swaps, including the fixed base rate plus an applicable margin, was 3.1%. In October 2022, the Company's interest rate swap contracts expired. Upon expiration, the Company is entitled to a cash payment from the counterparties, which is materially consistent with the fair value as of September 30, 2022. The Amended Credit Facility does not require the Company to fix variable interest rates on any portion of its borrowings.

The Company previously capitalized $23.7 million of certain third-party debt issuance costs in connection with the Original Credit Facility. Approximately $15.5 million of the capitalized costs were attributed to the Original Term Loans and recorded as a direct reduction of Long-term debt on the Condensed Consolidated Balance Sheet. Approximately $8.3 million of the capitalized costs were attributed to the Original Revolver and recorded within Other assets on the Condensed Consolidated Balance Sheet. These capitalized costs were being amortized into Interest expense over the five-year term of the Original Credit Facility. As of December 31, 2021, the Company had $8.0 million of debt issuance costs recorded as a reduction of Long-term debt attributable to the Original Credit Facility. As of December 31, 2021, the Company had $4.3 million of debt issuance costs recorded within Other assets attributable to the Original Credit Facility. Prior to executing the Amended Credit Facility, the Company had $6.6 million of debt issuance costs recorded as a reduction of Long-term debt attributable to the Original Credit Facility and $3.5 million of debt issuance costs recorded within Other assets attributable to the Original Credit Facility. In connection with executing the Amended Credit Facility, the Company recorded a loss on extinguishment of debt of approximately $6.8 million which includes the write-off of certain previously unamortized deferred financing costs as well as a portion of the third party and creditor debt issuance costs incurred to execute the Amended Credit Facility. Also in connection with executing the Amended Credit Facility, during the third quarter of 2022, the Company capitalized $2.2 million of certain third-party debt issuance costs. Approximately $0.7 million of the capitalized costs were attributed to the Amended Euro Term Loan and Amended U.S. Term Loan. These costs were recorded as a direct reduction of Long-term debt on the Condensed Consolidated Balance Sheet. Approximately $1.5 million of the capitalized costs were attributed to the Amended Revolver and recorded within Other assets on the Condensed Consolidated Balance Sheet. These capitalized costs, as well as the previously capitalized costs that were not written off will collectively be amortized into Interest expense over the five-year term of the Amended Credit Facility. As of September 30, 2022, the Company had $2.1 million of debt issuance costs recorded as a reduction of Long-term debt on the Condensed Consolidated Balance Sheet and $4.6 million of debt issuance costs recorded within Other assets on the Condensed Consolidated Balance Sheet.

As of September 30, 2022, the Company had Amended Credit Facility borrowings outstanding of $941.2 million. As of December 31, 2021, the Company had Original Credit Facility borrowings outstanding of $889.6 million. The Company has unused capacity under the Amended Revolver of approximately $295 million, net of bank letters of credit of approximately $3 million, as September 30, 2022. The Company's other debt obligations are primarily industrial development bonds, bank lines of credit and municipality-related loans, which totaled $12.9 million and $11.8 million as of September 30, 2022 and December 31, 2021, respectively. Total unused capacity under these arrangements as of September 30, 2022 was approximately $12 million. The Company's total net debt as of September 30, 2022 was $815.2 million.

The Company incurred $10.4 million of total Combination, integration and other acquisition-related expenses in the first nine months of 2022, which includes $2.4 million of other expenses related to indemnification assets, described in the Non-GAAP Measures section of this Item below. Comparatively, in the first nine months of 2021, the Company incurred $13.6 million of total Combination, integration and other acquisition-related expenses, which was net of a $5.4 million gain on the sale of certain held-for-sale real property assets and also included $0.7 million of accelerated depreciation. The Company had aggregate net cash outflows of approximately $11.5 million related to the Combination, integration and other acquisition-related expenses during the first nine months of 2022 as compared to $20.0 million during the first nine months of 2021. During the first nine months of 2022, the Company incurred $10.7 million of strategic planning and transformation expenses. The Company expects that these additional operating costs and associated cash flows, as well as higher capital expenditures related to strategic planning, process optimization and the next phase of the Company's long-term integration to further optimize its footprint, processes and other functions will continue in 2022 and extend into the next several years.

Quaker Houghton's Management approved, and the Company initiated, a global restructuring plan (the "QH Program") in the third quarter of 2019 as part of its planned cost synergies associated with the Combination. The QH Program included restructuring and associated severance costs to reduce total headcount by approximately 400 people globally and plans for the closure of certain manufacturing and non-manufacturing facilities. The exact timing to complete all actions and final costs associated with the QH Program will depend on a number of factors and are subject to change; however, the Company has had reduction in headcount and site closures under the QH Program in 2022 and expects final headcount reductions to continue into 2023. At this time, the Company does not expect to incur material additional costs under the QH Program. The Company made cash payments related to the settlement of restructuring liabilities under the QH Program during the first nine months of 2022 of approximately $1.8 million compared to $4.6 million in the first nine months of 2021.

As of September 30, 2022, the Company's gross liability for uncertain tax positions, including interest and penalties, was $20.1 million. The Company cannot determine a reliable estimate of the timing of cash flows by period related to its uncertain tax position liability. However, should the entire liability be paid, the amount of the payment may be reduced by up to $6.4 million as a result of offsetting benefits in other tax jurisdictions.

In 2021, two of the Company's locations suffered significant property damage as a result of flooding and electrical fire. The Company maintains property and flood insurance for all of its facilities globally. The Company, its insurance adjuster and insurance carrier are actively managing the remediation and restoration activities associated with both of these events and at this time the Company has concluded, based on all available information and discussions with its insurance adjuster and insurance carrier, that the losses incurred during 2021 were covered under the Company's property and flood insurance coverage, net of an aggregate deductible of $2.0 million. Through September 30, 2022, the Company has received payments from its insurers of $3.9 million associated with these events. The Company has recorded an insurance receivable of $0.2 million as of September 30, 2022. See Note 18 of Notes to Condensed Consolidated Financial Statements in Item 1 of this Report.

The Company believes that its existing cash, anticipated cash flows from operations and available additional liquidity will be sufficient to support its operating requirements and fund its business objectives for at least the next twelve months, including but not limited to, payments of dividends to shareholders, costs related to ongoing acquisition integration and optimization, pension plan contributions, capital expenditures, other business opportunities (including potential acquisitions), implementing actions to achieve the Company's sustainability goals and other potential known or anticipated contingencies. The Company believes it has sufficient additional liquidity to support its operating requirements and to fund its business obligations for the period beyond the next twelve months as well, including the aforementioned items which are expected to recur annually, as well as future principal and interest payments on the Company's Amended Credit Facility, tax obligations and other long-term liabilities. The Company's liquidity is affected by many factors, some based on normal operations of our business and others related to the impact of the pandemic and other global events on our business and on global economic conditions as well as industry uncertainties, which we cannot predict. We also cannot predict economic conditions and industry downturns or the timing, strength or duration of recoveries. We may seek, as we believe appropriate, additional debt or equity financing which would provide capital for corporate purposes, working capital funding, additional liquidity needs or to fund future growth opportunities, including possible acquisitions and organic investments. The timing and amount of potential capital requirements cannot be determined at this time and will depend on a number of factors, including the actual and projected demand for our products, specialty chemical industry conditions, competitive factors, and the condition of financial markets, among others.

Critical Accounting Policies and Estimates

The Company's critical accounting policies and estimates, as set forth in its 2021 Form 10-K remain materially consistent. However, due to the ongoing financial, economic and geopolitical conditions impacting the Company, the Company re-evaluated certain of its estimates, most notably its estimates and assumptions with regards to the fair value of its EMEA reporting unit during the third quarter of 2022.

Goodwill: The Company accounts for business combinations under the acquisition method of accounting. This method requires the recording of acquired assets, including separately identifiable intangible assets, at their acquisition date fair values. Any excess of the purchase price over the estimated fair value of the identifiable net assets acquired is recorded as goodwill. The determination of the estimated fair value of assets acquired requires management's judgment and often involves the use of significant estimates and assumptions. When necessary, the Company consults with external advisors to help determine fair value.

Goodwill and intangible assets that have indefinite lives are not amortized and are required to be assessed at least annually for impairment. The Company completes its annual goodwill and indefinite-lived intangible asset impairment test during the fourth quarter of each year, or more frequently if triggering events indicate a possible impairment. The Company continually evaluates financial performance, economic conditions and other recent developments in assessing if a triggering event indicates that the carrying values of goodwill, indefinite-lived, or long-lived assets are impaired. The Company continues to monitor various financial, economic and geopolitical conditions impacting the Company, including the ongoing Russia-Ukraine war and the Company's decision to cease operations in Russia, continued raw material cost escalation, supply chain constraints and disruptions, as well as rising interest rates and the cost of capital among other factors. The Company concluded that these and other factors, which have and continue to impact the Company, did not represent a triggering event during the third quarter of 2022, except for the Company's EMEA reporting unit and the associated goodwill, as well as the related asset group. The Company concluded that during the third quarter of 2022 the escalation of these events adversely impacted EMEA's financial performance and represented a triggering event.

As a result of this conclusion, the Company completed an interim impairment assessment for its EMEA reporting unit, as well as the related asset group, during the third quarter of 2022. The Company concluded that the undiscounted cash flows exceeded the carrying value of the long-lived assets and it is not more likely than not that an impairment exists. In completing a quantitative goodwill impairment test, the Company compares the reporting unit's fair value, primarily based on future discounted cash flows, to its carrying value in order to determine if an impairment charge is warranted. The estimates of future discounted cash flows involve considerable management judgment and are based upon certain significant assumptions including the weighted average cost of capital as well as projected EBITDA, which includes assumptions related to revenue growth rates, gross margin levels and operating expenses. As a result of this interim impairment assessment, the estimated fair value of the EMEA reporting unit exceeded its carrying value by approximately 22% and the Company concluded no impairment was warranted. In completing the interim quantitative impairment assessment, the Company used a WACC assumption of approximately 10.0% and holding all other assumptions constant, the WACC would have to increase by approximately 1.8 percentage points before the Company's EMEA reporting unit would be considered impaired. In addition, holding EBITDA margins and all other assumptions constant, the Company's compound annual revenue growth rate during the entire projection period would need to decline by approximately 3.0 percentage points before the Company's EMEA reporting unit would be considered impaired. Similarly, holding revenue growth rates and all other assumptions constant, the Company's average EBITDA margins throughout the entire projection period would need to decline by approximately 1.7 percentage points before the Company's EMEA reporting unit would be considered impaired.

Notwithstanding the results of the Company's interim impairment assessment, if the Company is unable to successfully implement selling price increases aimed at more than offsetting raw material costs and ongoing inflationary pressures and the financial performance of the EMEA reporting unit declines further, or interest rates continue to rise and this leads to an increase in the cost of capital, then it is possible these financial, economic and geopolitical conditions could result in another triggering event for the EMEA reporting unit in the future and could lead to a potential impairment. In addition, if any of these financial, economic or geopolitical conditions has a more significant adverse effect on the Company, these could lead to a potential impairment of the Company's goodwill or other indefinite-lived or long-lived assets.

Non-GAAP Measures

The information in this Form 10-Q includes non-GAAP (unaudited) financial information that includes EBITDA, adjusted EBITDA, adjusted EBITDA margin, non-GAAP operating income, non-GAAP operating margin, non-GAAP net income and non-GAAP earnings per diluted share. The Company believes these non-GAAP financial measures provide meaningful supplemental information as they enhance a reader's understanding of the financial performance of the Company, are indicative of future operating performance of the Company, and facilitate a comparison among fiscal periods, as the non-GAAP financial measures exclude items that are not considered indicative of future operating performance or not considered core to the Company's operations. Non-GAAP results are presented for supplemental informational purposes only and should not be considered a substitute for the financial information presented in accordance with GAAP.

The Company presents EBITDA which is calculated as net income attributable to the Company before depreciation and amortization, interest expense, net, and taxes on income before equity in net (loss) income of associated companies. The Company also presents adjusted EBITDA which is calculated as EBITDA plus or minus certain items that are not considered indicative of future operating performance or not considered core to the Company's operations. In addition, the Company presents non-GAAP operating income which is calculated as operating income plus or minus certain items that are not considered indicative of future operating performance or not considered core to the Company's operations. Adjusted EBITDA margin and non-GAAP operating margin are calculated as the percentage of adjusted EBITDA and non-GAAP operating income to consolidated net sales, respectively. The Company believes these non-GAAP measures provide transparent and useful information and are widely used by investors, analysts, and peers in our industry as well as by management in assessing the operating performance of the Company on a consistent basis.

Additionally, the Company presents non-GAAP net income and non-GAAP earnings per diluted share as additional performance measures. Non-GAAP net income is calculated as adjusted EBITDA, defined above, less depreciation and amortization, interest expense, net, and taxes on income before equity in net (loss) income of associated companies, in each case adjusted, as applicable, for any depreciation, amortization, interest or tax impacts resulting from the non-core items identified in the reconciliation of net income attributable to the Company to adjusted EBITDA. Non-GAAP earnings per diluted share is calculated as non-GAAP net income per diluted share as accounted for under the "two-class share method." The Company believes that non-GAAP net income and non-GAAP earnings per diluted share provide transparent and useful information and are widely used by investors, analysts, and peers in our industry as well as by management in assessing the operating performance of the Company on a consistent basis.

Certain of the prior period non-GAAP financial measures presented in the following tables have been adjusted to conform with current period presentation. The following tables reconcile the Company's non-GAAP financial measures (unaudited) to their most directly comparable GAAP (unaudited) financial measures (dollars in thousands unless otherwise noted, except per share amounts):

Non-GAAP Operating Income and Margin Reconciliations	**Three Months Ended September 30,**		**Nine Months Ended September 30,**	
	2022	**2021**	**2022**	**2021**
Operating income	$ 44,609	$ 36,010	$ 105,915	$ 119,720
Combination, restructuring and other acquisition-related expenses (a)	717	5,083	7,421	20,371
Strategic planning and transformation expenses (b)	4,545	—	10,745	—
Executive transition costs (c)	913	285	2,097	1,097
Russia-Ukraine conflict related expenses (d)	88	—	2,183	—
Facility remediation costs, net (f)	—	1,490	—	1,490
Other charges (e)	70	320	546	613
Non-GAAP operating income	$ 50,942	$ 43,188	$ 128,907	$ 143,291
Non-GAAP operating margin (%) (m)	10.3%	9.6%	8.8%	10.9%

EBITDA, Adjusted EBITDA, Adjusted EBITDA Margin and Non-GAAP Net Income Reconciliations	**Three Months Ended September 30,**		**Nine Months Ended September 30,**	
	2022	**2021**	**2022**	**2021**
Net income attributable to Quaker Chemical Corporation	$ 25,867	$ 31,058	$ 60,026	$ 103,243
Depreciation and amortization (a)(k)	19,908	21,542	61,491	66,334
Interest expense, net	8,389	5,637	20,228	16,725
Taxes on income before equity in net (loss) income of associated companies (l)	10,185	795	14,425	26,702
EBITDA	64,349	59,032	156,170	213,004
Equity loss (income) in a captive insurance company (i)	174	(108)	2,199	(4,071)
Combination, restructuring and other acquisition-related expenses (a)	717	4,906	9,817	14,265
Strategic planning and transformation expenses (b)	4,545	—	10,745	—
Executive transition costs (c)	913	285	2,097	1,097
Russia-Ukraine conflict related expenses (d)	88	—	2,183	—
Facility remediation (recovery) costs, net (f)	(1,104)	2,019	(1,104)	2,019
Brazilian non-income tax credits (g)	—	—	—	(13,293)
Loss on extinguishment of debt (h)	—	—	6,763	—
Other charges (e)	609	35	356	353
Adjusted EBITDA	$ 70,291	$ 66,169	$ 189,226	$ 213,374
Adjusted EBITDA margin (%) (m)	14.3%	14.7%	13.0%	16.2%
Adjusted EBITDA	$ 70,291	$ 66,169	$ 189,226	$ 213,374
Less: Depreciation and amortization - adjusted (a)	19,908	21,365	61,491	65,616
Less: Interest expense, net	8,389	5,637	20,228	16,725
Less: Taxes on income before equity in net income of associated companies - adjusted (a)(l)	10,821	9,765	27,189	31,277
Non-GAAP net income	$ 31,173	$ 29,402	$ 80,318	$ 99,756

Non-GAAP Earnings per Diluted Share Reconciliations	**Three Months Ended September 30,**		**Nine Months Ended September 30,**	
	2022	**2021**	**2022**	**2021**
GAAP earnings per diluted share attributable to Quaker Chemical Corporation common shareholders	$ 1.44	$ 1.73	$ 3.35	$ 5.76
Equity loss (income) in a captive insurance company per diluted share (i)	0.01	(0.01)	0.12	(0.23)
Combination, restructuring and other acquisition-related expenses per diluted share (a)	0.04	0.22	0.45	0.64
Strategic planning and transformation expenses per diluted share (b)	0.19	—	0.46	—
Executive transition costs per diluted share (c)	0.04	0.01	0.09	0.05
Russia-Ukraine conflict related expenses per diluted share (d)	0.01	—	0.11	—
Facility remediation (recovery) costs, net per diluted share (f)	(0.05)	0.09	(0.05)	0.09
Brazilian non-income tax credits per diluted share (g)	—	(0.04)	—	(0.48)
Loss on extinguishment of debt per diluted share (h)	—	—	0.29	—
Other charges per diluted share (e)	0.04	—	0.03	0.02
Impact of certain discrete tax items per diluted share (j)	0.02	(0.37)	(0.37)	(0.29)
Non-GAAP earnings per diluted share (n)	$ 1.74	$ 1.63	$ 4.48	$ 5.56

(a) Combination, restructuring and other acquisition-related expenses include certain legal, financial, and other advisory and consultant costs incurred in connection with the Combination integration activities including internal control readiness and remediation as well as costs incurred by the Company associated with the QH restructuring program, which was initiated in the third quarter of 2019 as part of the Company's plan to realize cost synergies associated with the Combination. These amounts also include expense associated with other of the Company's acquisitions, including certain legal, financial, and other advisory and consultant costs incurred in connection with due diligence as well as costs associated with selling inventory from acquired businesses which was adjusted to fair value as part of purchase accounting. These costs are not indicative of the future operating performance of the Company. Approximately $0.3 million and $0.5 million for the three and nine months ended September 30, 2022, respectively, and approximately $0.2 million and $0.7 million in the three and nine months ended September 30, 2021, respectively, of these pre-tax costs were considered non-deductible for the purpose of determining the Company's effective tax rate, and, therefore, taxes on income before equity in net income of associated companies - adjusted reflects the impact of these items. During the nine months ended September 30, 2022, the Company recorded $2.4 million of other expense related to an indemnification asset, which is included in the caption "Combination, restructuring and other acquisition-related expenses" in the reconciliation of GAAP earnings per diluted share attributed to Quaker Chemical Corporation common shareholders to Non-GAAP earnings per diluted share as well as the reconciliation of net income attributable to Quaker Chemical Corporation to Adjusted EBITDA and Non-GAAP net income. During the three and nine months ended September 30, 2021, the Company recorded $0.2 million $0.7 million, respectively, of accelerated depreciation related to certain of the Company's facilities, which is included in the caption "Combination, restructuring and other acquisition-related expenses" in the reconciliation of operating income to non-GAAP operating income and included in the caption "Depreciation and amortization" in the reconciliation of net income attributable to the Company to EBITDA, but excluded from the caption "Depreciation and amortization - adjusted" in the reconciliation of adjusted EBITDA to non-GAAP net income attributable to the Company. During the nine months ended September 30, 2021, the Company recorded a $5.4 million gain on the sale of certain held-for-sale real property assets related to the Combination which is included in the caption "Combination, restructuring and other acquisition-related expenses" in the reconciliation of GAAP earnings per diluted share attributed to Quaker Chemical Corporation common shareholders to Non-GAAP earnings per diluted share as well as the reconciliation of net income attributable to Quaker Chemical Corporation to Adjusted EBITDA and Non-GAAP net income. During the three and nine months ended September 30, 2022, respectively, the Company recorded restructuring and related credits of $1.4 million and $0.6 million, respectively, and $0.9 million and net charges of $0.6 million during the three and nine months ended September 30, 2021, respectively. During the nine months ended September 30, 2021, the Company recorded $0.8 million related to the sale of inventory from acquired businesses which was adjusted to fair value. See Notes 2, 7, 10 and 11 of Notes to Condensed Consolidated Financial Statements, which appear in Item 1 of this Report.

(b) Strategic planning and transformation expenses include certain consultant and advisory expenses for the Company's long-term strategic planning, as well as process optimization and the next phase of the Company's long-term integration to further optimize its footprint, processes and other functions. These costs are not indicative of the future operating performance of the Company.

(c) Executive transition costs represent the costs related to the Company's search, hiring and transition to a new CEO in connection with the executive transition that took place in 2021 as well as the search, hiring and transition for other officers during the first nine months of 2022. These expenses are one-time in nature and not indicative of the future operating performance of the Company.

(d) Russia-Ukraine conflict related expenses represent the direct costs associated with the Company's exit of operations in Russia during 2022, primarily for employee separation benefits, as well as costs associated with establishing specific reserves or changes to existing reserves for trade accounts receivable within the Company's EMEA reportable segment due to the economic instability associated with certain customer accounts receivables which have been directly impacted by the current economic conflict between Russia and Ukraine or the Company's decision to end operations in Russia. These expenses are not indicative of the future operating performance of the Company.

(e) Other charges include charges incurred by an inactive subsidiary of the Company as a result of the termination of restrictions on insurance settlement reserves, non-service components of the Company's pension and postretirement net periodic benefit income and the foreign currency remeasurement impacts associated with the Company's affiliates whose local economies are designated as hyper-inflationary under U.S. GAAP. These expenses are not indicative of the future operating performance of the Company. See Notes 1 and 9 of Notes to Condensed Consolidated Financial Statements, which appear in Item 1 of this Report.

(f) Facility remediation (recovery) costs, net presents the costs associated with remediation, cleaning and subsequent restoration costs associated with property damages to certain of the Company's facilities, net of insurance recoveries received. These charges are non-recurring and are not indicative of the future operating performance of the Company. See Note 18 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(g) Brazilian non-income tax credits represent indirect tax credits related to certain of the Company's Brazilian subsidiaries prevailing in a legal claim as well as the Brazilian Supreme Court ruling on these non-income tax matters. The 2021 impact to Non-GAAP earnings per diluted share reflects the tax only adjustment related to the Brazilian Supreme Court ruling on the taxability of interest income. The non-income tax credit is non-recurring and not indicative of the future operating performance of the Company. See Note 18 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(h) In connection with executing the Amended Credit Facility, the Company recorded a loss on extinguishment of debt of approximately $6.8 million which includes the write-off of certain previously unamortized deferred financing costs as well as a portion of the third-party and creditor debt issuance costs incurred to execute the Amended Credit Facility. These expenses are not indicative of the future operating performance of the Company. See Note 14 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(i) Equity loss (income) in a captive insurance company represents the after-tax loss (income) attributable to the Company's interest in Primex, Ltd. ("Primex"), a captive insurance company. The Company holds a 32% investment in and has significant influence over Primex, and therefore accounts for this interest under the equity method of accounting. The loss (income) attributable to Primex is not indicative of the future operating performance of the Company and is not considered core to the Company's operations.

(j) The impacts of certain discrete tax items include changes in valuation allowances recorded on certain Brazilian branch foreign tax credits and the recording of deferred taxes on Brazilian branch income. Both of these discrete items related to tax law changes in the U.S. due to the issuance of final foreign tax credit regulations during the period. Additionally, the Company has discrete items related to the remeasurement of deferred taxes on the transfer of intellectual property and the release of the reserves for uncertain tax positions settled during the period and certain taxes, penalties, and interest due as a result of the settlements. See Note 11 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(k) Depreciation and amortization for the three and nine months ended September 30, 2022 includes approximately $0.3 million and $0.8 million, respectively, and for the three and nine months ended September 30, 2021 includes $0.3 million and $0.9 million, respectively, of amortization expense recorded within equity in net loss (income) of associated companies in the Company's Condensed Consolidated Statements of income, which is attributable to the amortization of the fair value step up for the Company's 50% interest in a joint venture in Korea as a result of required purchase accounting.

(l) Taxes on income before equity in net loss (income) of associated companies – adjusted presents the impact of any current and deferred income tax expense (benefit), as applicable, of the reconciling items presented in the reconciliation of net income attributable to Quaker Chemical Corporation to adjusted EBITDA, and was determined utilizing the applicable rates in the taxing jurisdictions in which these adjustments occurred, subject to deductibility. Combination, restructuring and other acquisition-related expenses described in (a) resulted in incremental taxes of approximately $0.2 million and $1.8 million for the three and nine months ended September 30, 2022, respectively, compared to $1.2 million and $3.4 million for the three and nine months ended September 30, 2021, respectively. Strategic planning and transformation expenses describes in (b) above resulted in incremental taxes of $1.0 million and $2.4 million for the three and nine months ended September 30, 2022, respectively. Executive transition costs described in (c) resulted in incremental taxes of $0.2 million and $0.5 million for the three and nine months ended September 30, 2022, respectively, compared to $0.1 million and $0.3 million for the three and nine months ended September 30, 2021, respectively. Russia-Ukraine conflict related expenses described in (d) resulted in incremental taxes of less than $0.1 million and $0.5 million for the three and nine months ended September 30, 2022, respectively. Other charges described in (e) resulted in a tax benefit of less than $0.1 million and $0.1 million for the three and nine months ended September 30, 2022, respectively, and incremental taxes of less than $0.1 million and $0.1 million in the three and nine months ended September 30, 2021. Facility remediation (recovery) costs, net described in (f) resulted in a tax benefit of $0.3 million in the three and nine months ended September 30, 2022, respectively and incremental taxes of $0.5 million in the three and nine months ended September 30, 2021. Brazilian non-income tax credits described in (g) resulted in incremental taxes of approximately $0.6 million and a tax benefit of $4.7 million during the three and nine months ended September 30, 2021, respectively. Loss on extinguishment of debt described in (h) resulted in incremental taxes of $1.6 million during the nine months ended September 30, 2022. The impact of certain discrete items described in (j) resulted in a tax benefit of $0.5 million and an incremental expense of $6.4 million for the three and nine months ended September 30, 2022, respectively, compared to a benefit of $6.5 million and $5.1 million for the three and nine months ended September 30, 2021, respectively.

(m) The Company calculates adjusted EBITDA margin and non-GAAP operating margin as the percentage of adjusted EBITDA and non-GAAP operating income to consolidated net sales.

(n) The Company calculates non-GAAP earnings per diluted share as non-GAAP net income attributable to the Company per weighted average diluted shares outstanding using the "two-class share method" to calculate such in each given period.

Off-Balance Sheet Arrangements

The Company had no material off-balance sheet commitments or obligations as of September 30, 2022. The Company's off-balance sheet items outstanding as of September 30, 2022 includes approximately $5 million of total bank letters of credit and guarantees. The bank letters of credit and guarantees are not significant to the Company's liquidity or capital resources. See Note 14 of Notes to Condensed Consolidated Financial Statements in Item 1 of this Report.

Operations

Consolidated Operations Review – Comparison of the Third Quarter of 2022 with the Third Quarter of 2021

Net sales were $492.2 million in the third quarter of 2022 compared to $449.1 million in the third quarter of 2021. The net sales increase of $43.1 million or 10% quarter-over-quarter reflects an increase in selling price and product mix of 25% and additional net sales from acquisitions of 1%, partially offset by a decline in organic sales volumes of approximately 9% and the unfavorable impact from foreign currency translation of 7%. The increase in selling price and product mix was primarily driven by price increases implemented to offset the significant increases in raw material and other input costs that began during 2021 and has continued in 2022. The decline in organic sales volumes was primarily attributable to softer end market conditions, particularly in Europe and Asia/Pacific, the wind-down of the tolling agreement for products previously divested related to the Combination and the impact of the ongoing war in Ukraine, partially offset by net new business wins, including the impact of the Company's ongoing value-based pricing initiatives.

COGS were $331.5 million in the third quarter of 2022 compared to $303.9 million in the third quarter of 2021. The increase in COGS of $27.5 million or 9% was driven by the continued increases in the Company's global raw material, manufacturing and supply chain and logistics costs compared to the prior year.

Gross profit in the third quarter of 2022 increased $15.6 million or 11% from the third quarter of 2021. The Company's reported gross margin in the third quarter of 2022 was 32.7%, an improvement compared to 32.3% in the third quarter of 2021 as increases in selling prices, due to the Company's value based pricing initiatives, helped offset the significant increase in raw material and other input costs experienced throughout the third quarter of 2022.

SG&A in the third quarter of 2022 increased $11.2 million or 11% compared to the third quarter of 2021 due primarily to the impact of sales increases on direct selling costs, inflation-driven higher operating costs, costs associated with strategic planning and transformation initiatives (see the Non-GAAP Measures section of this Item, above), and additional SG&A from recent acquisitions partially offset by lower SG&A due to foreign currency translation compared to the prior year.

During the third quarter of 2022, the Company incurred $2.1 million of Combination, integration and other acquisition-related operating expenses primarily for professional fees related to the Houghton integration and other acquisition-related activities. Comparatively, the Company incurred $5.8 million of expenses in the prior year third quarter, primarily due to various professional fees related to legal, financial and other advisory and consultant expenses for integration activities including internal control readiness and remediation. See the Non-GAAP Measures section of this Item, above.

The Company initiated a restructuring program during the third quarter of 2019 as part of its global plan to realize cost synergies associated with the Combination. The Company incurred restructuring and related (credits) charges for reductions in headcount and site closures under this program, net of adjustments to initial estimates for severance of a credit of $1.4 million and $0.9 million during the third quarters of 2022 and 2021, respectively. See the Non-GAAP Measures section of this Item, above.

Operating income in the third quarter of 2022 was $44.6 million compared to $36.0 million in the third quarter of 2021. Excluding non-recurring and non-core expenses that are not indicative of the future operating performance of the Company described in the Non-GAAP Measures section of this Item, above, the Company's current quarter non-GAAP operating income increased to $50.9 million compared to $43.2 million in the prior year third quarter primarily due to the lower gross profit and higher SG&A described above.

The Company had other income, net, of $0.1 million in the third quarter of 2022 compared to $0.6 million in the third quarter of 2021. The third quarter of 2022 included a gain on insurance recoveries, see the Non-GAAP Measures section of this Item, above. In addition, the Company incurred foreign exchange transaction losses in the third quarter of 2022 compared to the foreign exchange transaction gains in the prior year quarter.

Interest expense, net, increased $2.8 million compared to the third quarter of 2021 as a result of increases in the average borrowings outstanding in the third quarter of 2022 compared to the third quarter of 2021 coupled with an increase in interest rates quarter-over-quarter.

The Company's effective tax rates for the third quarters of 2022 and 2021 were 28.1% and 2.6%, respectively. The Company's effective tax rate for the third quarter of 2022 was largely driven by a decline in forecasted profits and earnings mix, foreign tax inclusions, changes in the valuation allowance for foreign tax credits, a reduction in reserves for uncertain tax positions and withholding taxes. In addition, the Company incurred higher tax expense during the third quarter of 2022 primarily related to the Company recording earnings in one of its subsidiaries at a statutory tax rate of 25% while it awaits recertification of a concessionary 15% tax rate, which was available to the Company during all of 2021. Comparatively, the prior year quarter effective tax rate was primarily driven by a one-time deferred tax benefit related to an intercompany intangible asset transfer. Excluding the impact of non-core items in each quarter, described in the Non-GAAP Measures section of this Item, above, the Company estimates that its effective tax rates for its third quarters of 2022 and 2021 would have been approximately 26% and 25%, respectively. The Company expects continued volatility in its effective tax rates due to several factors, including the timing and scope of tax audits and the expiration of applicable statutes of limitations as they relate to uncertain tax positions, the unpredictability of the timing and amount of certain incentives in various tax jurisdictions, including the high technology incentive at one of our subsidiaries based in China which is currently up for triennial renewal, the treatment of certain acquisition-related costs and the timing and amount of certain share-based compensation-related tax benefits, among other factors.

Equity in net income of associated companies decreased $1.1 million in the third quarter of 2022 compared to the third quarter of 2021, primarily due to lower current year income from the Company's interest in a captive insurance company due to lower market performance on equity investments and from the Company's 50% interest in a joint venture in Korea due to overall market challenges. See the Non-GAAP Measures section of this Item, above.

Net income attributable to noncontrolling interest was less than $0.1 million in both the third quarters of 2022 and 2021.

Foreign exchange unfavorably impacted the Company's third quarter of 2022 results by approximately 7% driven by the impact from foreign currency translation on earnings as well as higher foreign exchange transaction losses in the current quarter as compared to the prior year third quarter.

Consolidated Operations Review – Comparison of the First Nine Months of 2022 with the First Nine Months of 2021

Net sales were $1,458.8 million in the first nine months of 2022 compared to $1,314.1 million in the first nine months of 2021. The net sales increase of $144.7 million or 11% year-over-year reflects increases in selling price and product mix of approximately 21% and additional net sales from acquisitions of 1% partially offset by a decline in organic sales volumes of approximately 6% and the unfavorable impact from foreign currency translation of 5%. The increase in selling price and product mix was primarily driven by price increases implemented to help offset the significant increases in raw material and other input costs that began during 2021 and continued in 2022. The decline in sales volumes was primarily attributable to the comparison to a strong first half of 2021, and primarily in the first quarter of 2021, where customers replenished their supply chains. Lower volumes were also due to softer end market conditions, particularly in Europe and Asia/Pacific, the wind-down of the tolling agreement for products previously divested related to the Combination and the impact of the ongoing war in Ukraine, partially offset by net new business wins, including the impact of the Company's ongoing value-based pricing initiatives.

COGS were $1,002.4 million in the first nine months of 2022 compared to $858.3 million in the first nine months of 2021. The increase in COGS of $144.1 million or 17% was driven by the significant increase in the Company's global raw material, manufacturing and supply chain and logistics costs compared to the prior year.

Gross profit in the first nine months of 2022 increased $0.6 million or less than 1% from the first nine months of 2021. The Company's reported gross margin in the first nine months of 2022 was 31.3% compared to 34.7% in the first nine months of 2021. The Company's current year gross margin reflects a significant increase in raw material and other input costs and the impacts of constraints on the global supply chain, partially offset by the Company's ongoing value-based pricing initiatives.

SG&A in the first nine months of 2022 increased $25.9 million or 8% compared to the first nine months of 2021 due primarily to the impact of sales increases on direct selling costs, inflation driven higher operating costs, costs associated with strategic planning and transformation initiatives (see the Non-GAAP Measures section of this Item, above), and additional SG&A from recent acquisitions, partially offset by lower SG&A due to foreign currency translation compared to the prior year. In addition, SG&A was lower in the prior year period as a result of continued temporary cost saving measures the Company implemented in response to the onset of COVID-19.

During the first nine months of 2022, the Company incurred $8.0 million of Combination, integration and other acquisition-related operating expenses primarily for professional fees related to the Houghton integration and other acquisition-related activities. Comparatively, the Company incurred $18.3 million of expenses in the prior year's first nine months, primarily due to various professional fees related to legal, financial and other advisory and consultant expenses for integration activities including internal control readiness and remediation. See the Non-GAAP Measures section of this Item, above.

The Company initiated a restructuring program during the third quarter of 2019 as part of its global plan to realize cost synergies associated with the Combination. The Company incurred Restructuring and related credits for reductions in headcount and site closures under this program, net of adjustments to initial estimates for severance of $0.6 million during the first nine months of 2022 compared to Restructuring and related charges for reductions in headcount and site closures under this program, net of adjustments to initial estimates for severance of $0.6 million during the first nine months of 2021. See the Non-GAAP Measures section of this Item, above.

Operating income in the first nine months of 2022 was $105.9 million compared to $119.7 million in the first nine months of 2021. Excluding non-recurring and non-core expenses that are not indicative of the future operating performance of the Company described in the Non-GAAP Measures section of this Item, above, the Company's current year non-GAAP operating income decreased to $128.9 million for the first nine months of 2022 compared to $143.3 million in the prior year's first nine months primarily due to the lower gross profit and higher SG&A described above.

The Company had other expense, net, of $10.5 million in the first nine months of 2022 compared to other income, net of $19.3 million in the first nine months of 2021. The first nine months of 2022's results include $6.8 million of loss on extinguishment of debt related to the Company's refinancing the Original Credit Facility and also higher foreign currency transaction losses year-over-year, while the prior year's first nine months of 2022 other income includes $14.4 million of non-income tax credits recorded by the Company's Brazilian subsidiaries as well as a $4.8 million gain on the sale of certain held-for-sale real property assets.

Interest expense, net, increased $3.5 million compared to the first nine months of 2021, due to an increase in the average borrowings outstanding in the first nine months of 2022 coupled with an increase in interest rates in the current year as compared to the prior year.

The Company's effective tax rates for the first nine months of 2022 and 2021 were 19.2% and 21.8%, respectively. The Company's effective tax rate for the nine months ended September 30, 2022 was largely driven by a decline in forecasted profits and earnings mix, foreign tax inclusions, changes in the valuation allowance for foreign tax credits, the impact of audit settlements reached with Italian tax authorities, a reduction in reserves for uncertain tax positions and withholding taxes. In addition, the Company incurred higher tax expense during the nine months ended September 30, 2022 primarily related to the Company recording earnings in one of its subsidiaries at a statutory tax rate of 25% while it awaits recertification of a concessionary 15% tax rate, which was available to the Company during all of 2021. Comparatively, the prior year nine-month effective tax rate was impacted by certain U.S. tax law changes, the tax impact of certain non-income tax credits recorded by the Company's Brazilian subsidiaries, and a deferred tax benefit related to an intercompany intangible asset transfer. Excluding the impact of non-core items in each period, described in the Non-GAAP Measures section of this Item, above, the Company estimates that its effective tax rates for the first nine months of 2022 and 2021 would have been approximately 26% and 25%, respectively.

Equity in net income of associated companies decreased $8.3 million in the first nine months of 2022 compared to the first nine months of 2021, primarily due to lower current year income from the Company's interest in a captive insurance company due to lower market performance on equity investments (see the Non-GAAP Measures section of this Item, above), as well as lower current year income from the Company's 50% interest in a joint venture in Korea.

Net income attributable to noncontrolling interest was less than $0.1 million in both the first nine months of 2022 and 2021.

Foreign exchange unfavorably impacted the Company's first nine months of 2022 results by approximately 7% driven by the impact from foreign currency translation on earnings as well as higher foreign exchange transaction losses in the current year as compared to the prior year's first nine months.

Reportable Segments Review - Comparison of the Third Quarter of 2022 with the Third Quarter of 2021

The Company's reportable segments reflect the structure of the Company's internal organization, the method by which the Company's resources are allocated and the manner by which the chief operating decision maker of the Company assesses its performance. The Company has four reportable segments: (i) Americas; (ii) EMEA; (iii) Asia/Pacific; and (iv) Global Specialty Businesses. The three geographic segments are composed of the net sales and operations in each respective region, excluding net sales and operations managed globally by the Global Specialty Businesses segment, which includes the Company's container, metal finishing, mining, offshore, specialty coatings, specialty grease and Norman Hay businesses.

Segment operating earnings for the Company's reportable segments are comprised of net sales less COGS and SG&A directly related to the respective segment's product sales. Operating expenses not directly attributable to the net sales of each respective segment, such as certain corporate and administrative costs, Combination, integration and other acquisition-related expenses, Restructuring and related charges, and COGS related to acquired inventory sold, which is adjusted to fair value as part of purchase accounting, are not included in segment operating earnings. Other items not specifically identified with the Company's reportable segments include interest expense, net, and other (expense) income, net.

Americas

Americas represented approximately 38% of the Company's consolidated net sales in the third quarter of 2022. The segment's net sales were $186.5 million, an increase of $35.7 million or 24% compared to the third quarter of 2021. The increase in net sales was due to higher selling price and product mix of 30% and additional net sales from acquisition of 1%, partially offset by a decrease in organic sales volumes of 7%. The increase in selling price and product mix was primarily driven by price increases implemented to offset the significant increases in raw material and other input costs that began during 2021 and continued through the third quarter of 2022. The current quarter decline in organic sales volumes was primarily driven by the wind-down of the tolling agreement for products previously divested related to the Combination, the Company's ongoing value-based pricing initiatives and lower volumes sold into the automotive industry due to the semiconductor supply constraints, partially offset by net new business wins. This segment's operating earnings were $45.0 million, an increase of $13.7 million compared to the third quarter of 2021 primarily driven by higher net sales, which were partially offset by ongoing inflationary pressures on the business.

EMEA

EMEA represented approximately 23% of the Company's consolidated net sales in the third quarter of 2022. The segment's net sales were $113.4 million, a decrease of $8.9 million, or 7%, compared to the third quarter of 2021. This was driven by higher selling price and product mix of 21% which was more than offset by the unfavorable impact of foreign currency translation of 18% and a decrease in sales volumes of 10%. The increase in selling price and product mix was primarily driven by price increases implemented to offset the significant increases in raw material and other input costs that began during 2021 and continued through the third quarter of 2022. The decline in sales volumes was primarily driven by the current geopolitical and macroeconomic pressures including the direct and indirect impacts of the ongoing war in Ukraine and the impact of the economic and other sanctions by other nations on Russia in response to the war, as well as lower volumes associated with the Company's ongoing value-based pricing initiatives, the wind-down of the tolling agreement for products previously divested related to the Combination and softer economic conditions in the region. The significant and unfavorable foreign currency translation impact was primarily due to the strengthening of the U.S. dollar against the euro as this exchange rate averaged 1.01 in the third quarter of 2022 compared to 1.18 in the third quarter of 2021. This segment's operating earnings were $9.9 million, a decrease of $10.3 million or 51% compared to the third quarter of 2021. The decrease in segment operating earnings was primarily a result of lower net sales and lower gross margins due to the significant inflationary pressures on the Company's costs exceeding the impact of its value-based pricing actions. Operating earnings in EMEA were also negatively impacted by foreign currency translation.

Asia/Pacific

Asia/Pacific represented approximately 19% of the Company's consolidated net sales in the third quarter of 2022. The segment's net sales were $91.2 million, a decrease of $7.4 million or 8% compared to the third quarter of 2021. The decrease in net sales was driven by lower organic sales volumes of 20% and an unfavorable impact from foreign currency translation of 6%, partially offset by higher selling price and product mix of 18%. The increase in selling price and product mix was primarily driven by price increases implemented to offset the significant increases in raw material and other input costs that began during 2021 and continued through the third quarter of 2022. The decline in organic sales volumes was primarily driven by softer market conditions, primarily in China, as a result of government imposed COVID-19 quarantines and related production disruptions implemented at the end of March 2022 and continued throughout the third quarter of 2022, partially offset by net new business. The unfavorable foreign exchange impact was primarily due to the strengthening of the U.S. dollar against the Chinese renminbi as this exchange rate averaged 6.85 in the third quarter of 2022 compared to 6.47 in the third quarter of 2021. This segment's operating earnings were $23.3 million, an increase of $0.1 million compared to the third quarter of 2021 as lower net sales were offset by improved margins.

Global Specialty Businesses

Global Specialty Businesses represented approximately 21% of the Company's consolidated net sales in the third quarter of 2022. The segment's net sales were $101.1 million, an increase of $23.7 million or 31% compared to the third quarter of 2021. The increase in net sales was driven by higher selling price and product mix of 20%, an increase in organic sales volumes of 12% and additional net sales from acquisitions of 2%, partially offset by an unfavorable impact from foreign currency translation of 6%. The increase in selling price and product mix was primarily driven by price increases implemented to help offset the significant increases in raw material and other input costs that began during 2021 and continued through the third quarter of 2022. The increase in organic sales volumes was primarily attributable to a continued favorable demand environment for this segment's products. The unfavorable foreign exchange impact was primarily due to the strengthening of the U.S. dollar against the euro as described in the EMEA section above. This segment's operating earnings were $30.7 million, an increase of $10.1 million or 49% compared to the third quarter of 2021. The increase in segment operating earnings reflects the higher net sales and gross margins in the current year despite slightly higher raw materials costs due to continued inflationary pressures.

Reportable Segments Review - Comparison of the First Nine months of 2022 with the First Nine months of 2021

Americas

Americas represented approximately 35% of the Company's consolidated net sales in the first nine months of 2022. The segment's net sales were $513.4 million, an increase of $88.1 million or 21% compared to the first nine months of 2021. The increase in net sales was due to higher selling price and product mix of 27% and additional net sales from acquisitions of 1%, partially offset by a decrease in organic sales volumes of 7%. The increase in selling price and product mix was primarily driven by price increases implemented to help offset the significant increases in raw material and other input costs that began during 2021 and have continued into 2022. The decline in organic sales volumes was primarily driven by lower sales volumes into the automotive end market, the wind-down of the tolling agreement for products previously divested related to the Combination, the prior year period comparison which included a strong rebound from COVID-19 impacts and the Company's ongoing value-based pricing initiatives, partially offset by net new business wins. This segment's operating earnings were $108.0 million, an increase of $10.8 million or 11% compared to the first nine months of 2021. The increase in segment operating earnings was primarily a result of higher net sales which more than offset lower gross margins driven by inflationary pressures.

EMEA

EMEA represented approximately 25% of the Company's consolidated net sales in the first nine months of 2022. The segment's net sales were $362.1 million, a decrease of $3.4 million or 1% compared to the first nine months of 2021. The decrease in net sales was a result of higher selling price and product mix of 20% and additional net sales from acquisitions of 1%, more than offset by the unfavorable impact of foreign currency translation of 15% and a decrease in organic sales volumes of 7%. The increase in selling price and product mix was primarily driven by price increases implemented to help offset the significant increases in raw material and other input costs that began during 2021 and have continued into 2022. The decline in organic sales volumes was primarily driven by the current geopolitical and macroeconomic pressures including the direct and indirect impacts of the ongoing war in Ukraine and the impact of the economic and other sanctions by other nations on Russia in response to the war, lower volumes associated with the Company's ongoing value-based pricing initiatives, the wind-down of the tolling agreement for products previously divested related to the Combination, the prior year period comparison which included a strong rebound from COVID-19 impacts, and softer economic conditions in the region in the current period, partially offset by net new business wins. The unfavorable foreign exchange impact was primarily due to the strengthening of the U.S. dollar against the euro as this exchange rate averaged 1.07 in the first nine months of 2022 compared to 1.20 in first nine months of 2021. This segment's operating earnings were $39.9 million, a decrease of $28.9 million or 42% compared to the first nine months of 2021. The decrease in segment operating earnings was primarily a result of lower gross margins driven by significant inflationary pressures and the negative impact of foreign currency translation year-over-year.

Asia/Pacific

Asia/Pacific represented approximately 20% of the Company's consolidated net sales in the first nine months of 2022. The segment's net sales were $295.3 million, an increase of $8.3 million or 3% compared to the first nine months of 2021. The increase in net sales was driven by higher selling price and product mix of 15%, partially offset by lower organic sales volumes of 9% and the unfavorable impact of foreign currency translation of 3%. The increase in selling price and product mix was primarily driven by price increases implemented to help offset the significant increases in raw material and other input costs that began during 2021 and continued into 2022. The decline in organic sales volumes was primarily driven by softer end market conditions in China as a result of the government imposed COVID-19 quarantine and related production disruptions and the prior year comparison which included a strong rebound from COVID-19 impacts as customers replenished their supply chains, partially offset by net new business wins. This segment's operating earnings were $67.5 million, a decrease of $6.5 million or 9% compared to the first nine months of 2021. The decrease in segment operating earnings was primarily a result of higher net sales, which was more than offset by lower gross margins due to significant inflationary pressures and the unfavorable impact of foreign currency translation.

Global Specialty Businesses

Global Specialty Businesses represented approximately 20% of the Company's consolidated net sales in the first nine months of 2022. The segment's net sales were $288.0 million, an increase of $51.6 million or 22% compared to the first nine months of 2021. The increase in net sales was driven by higher selling price and product mix of 15%, an increase in organic sales volumes of 8% and additional net sales from acquisitions of 3%, partially offset by the unfavorable impact from foreign currency translation of approximately 4%. The increase in selling price and product mix was primarily driven by price increases implemented to help offset the significant increases in raw material and other input costs that began during 2021 and continued into 2022. The increase in organic sales volumes was primarily attributable to a continued favorable demand environment for this segment's products. The unfavorable foreign exchange impact was primarily due to the strengthening of the U.S. dollar against the euro described in the EMEA section above. This segment's operating earnings were $83.6 million, an increase of $14.6 million or 21% compared to the first nine months of 2021. The increase in segment operating earnings reflects higher net sales and comparable gross margins, partially offset by the negative impact of foreign currency translation.

Factors That May Affect Our Future Results

(Cautionary Statements Under the Private Securities Litigation Reform Act of 1995)

Certain information included in this Report and other materials filed or to be filed by Quaker Chemical Corporation with the SEC, as well as information included in oral statements or other written statements made or to be made by us, contain or may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements can be identified by the fact that they do not relate strictly to historical or current facts. We have based these forward-looking statements, including statements regarding the potential effects of the COVID-19 pandemic and global supply chain constraints on the Company's business, results of operations, and financial condition, our expectation that we will maintain sufficient liquidity, and statements regarding the impact of increased raw material costs and pricing initiatives on our current expectations about future events.

These forward-looking statements include statements with respect to our beliefs, plans, objectives, goals, expectations, anticipations, intentions, financial condition, results of operations, future performance, and business, including:

- the potential benefits of the Combination and other acquisitions;
- the impacts on our business as a result of the COVID-19 pandemic;
- the timing and extent of the projected impacts on our business as a result of the Ukrainian and Russian conflict and actions taken by various governments and governmental organizations in response;
- cost increases and the impacts of constraints and disruptions in the global supply chain;
- the potential for a variety of macroeconomic events, including the possibility of global or regional recessions, inflation generally, cost increases in prices of raw materials such as oil and increasing interest rates, to impact the value of our assets or result in asset impairments;
- our current and future results and plans including our sustainability goals; and
- statements that include the words "may," "could," "should," "would," "believe," "expect," "anticipate," "estimate," "intend," "plan" or similar expressions.

Such statements include information relating to current and future business activities, operational matters, capital spending, and financing sources. From time to time, forward-looking statements are also included in the Company's other periodic reports on Forms 10-K, 10-Q and 8-K, press releases, and other materials released to, or statements made to, the public.

Any or all of the forward-looking statements in this Report, in the Company's Annual Report to Shareholders for 2021 and in any other public statements we make may turn out to be wrong. This can occur as a result of inaccurate assumptions or as a consequence of known or unknown risks and uncertainties. Many factors discussed in this Report will be important in determining our future performance. Consequently, actual results may differ materially from those that might be anticipated from our forward-looking statements.

We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. However, any further disclosures made on related subjects in the Company's subsequent reports on Forms 10-K, 10-Q, 8-K and other related filings should be consulted. A major risk is that demand for the Company's products and services is largely derived from the demand for our customers' products, which subjects the Company to uncertainties related to downturns in a customer's business and unanticipated customer production slowdowns and shutdowns, including as is currently being experienced by many automotive industry companies as a result of supply chain disruption. Other major risks and uncertainties include, but are not limited to, the primary and secondary impacts of the COVID-19 pandemic, including actions taken in response to the pandemic by various governments, which could exacerbate some or all of the other risks and uncertainties faced by the Company, as well as inflationary pressures, including the potential for continued significant increases in raw material costs, supply chain disruptions, customer financial instability, rising interest rates and the possibility of economic recession, worldwide economic and political disruptions including the impacts of the military conflict between Russia and Ukraine, the economic and other sanctions imposed by other nations on Russia, suspensions of activities in Russia by many multinational companies and the potential expansion of military activity, foreign currency fluctuations, significant changes in applicable tax rates and regulations, future terrorist attacks and other acts of violence. Furthermore, the Company is subject to the same business cycles as those experienced by our customers in the steel, automobile, aircraft, industrial equipment, and durable goods industries. The ultimate impact of COVID-19 on our business will depend on, among other things, the extent and duration of the pandemic, the severity of the disease and the number of people infected with the virus including new variants, the continued uncertainty regarding global availability, administration, acceptance and long-term efficacy of vaccines, or other treatments for COVID-19 or its variants, the longer-term effects on the economy of the pandemic, including the resulting market volatility, and by the measures taken by governmental authorities and other third parties restricting day-to-day life and business operations and the length of time that such measures remain in place, as well as laws and other governmental programs implemented to address the pandemic or assist impacted businesses, such as fiscal stimulus and other legislation designed to deliver monetary aid and other relief. Other factors could also adversely affect us, including those related to acquisitions and the integration of acquired businesses. Our forward-looking statements are subject to risks, uncertainties and assumptions about the

Company and its operations that are subject to change based on various important factors, some of which are beyond our control. These risks, uncertainties, and possible inaccurate assumptions relevant to our business could cause our actual results to differ materially from expected and historical results.

Therefore, we caution you not to place undue reliance on our forward-looking statements. For more information regarding these risks and uncertainties as well as certain additional risks that we face, refer to the Risk Factors section, which appears in Item 1A in our 2021 Form 10-K and in our quarterly and other reports filed from time to time with the SEC. This discussion is provided as permitted by the Private Securities Litigation Reform Act of 1995.

Quaker Houghton on the Internet

Financial results, news and other information about Quaker Houghton can be accessed from the Company's website at https://www.quakerhoughton.com. This site includes important information on the Company's locations, products and services, financial reports, news releases and career opportunities. The Company's periodic and current reports on Forms 10-K, 10-Q, 8-K, and other filings, including exhibits and supplemental schedules filed therewith, and amendments to those reports, filed with the SEC are available on the Company's website, free of charge, as soon as reasonably practicable after they are electronically filed with or furnished to the SEC. Information contained on, or that may be accessed through, the Company's website is not incorporated by reference in this Report and, accordingly, you should not consider that information part of this Report.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

We have evaluated the information required under this Item that was disclosed in Part II, Item 7A, of our Annual Report on Form 10-K for the year ended December 31, 2021, and we believe there has been no material change to that information, except the interest rate risk information noted below.

Interest Rate Risk

The Company's exposure to interest rate risk relates primarily to its outstanding borrowings under its credit facility. During June 2022, the Company entered into an amendment to its primary credit facility (the "Original Credit Facility", or as amended, the "Amended Credit Facility"). See Note 14 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report. As of September 30, 2022, borrowings under the Amended Credit Facility bear interest at either term SOFR or a base rate, in each case, plus an applicable margin based upon the Company's consolidated net leverage ratio, and, in the case of term SOFR, a spread adjustment equal to 0.10% per annum. As a result of the variable interest rates applicable under the Amended Credit Facility, if interest rates rise significantly, the cost of debt to the Company will increase. This can have an adverse effect on the Company, depending on the extent of the Company's borrowings outstanding throughout a given year. As of September 30, 2022, the Company had outstanding borrowings under the Amended Credit Facility of approximately $941.2 million. The interest rate applicable on outstanding borrowings under the Amended Credit Facility was approximately 3.8% as of September 30, 2022. As of December 31, 2021, the Company had outstanding borrowings under the Original Credit Facility of approximately $889.6 million. The variable interest rate incurred on the outstanding borrowings under the Original Credit Facility during the year ended December 31, 2021 was approximately 1.6%. If interest rates had changed by 10% during 2021, the Company's interest expense for the period ended December 31, 2021 on its credit facilities, including the Original Credit Facility borrowings outstanding post-closing of the Combination, would have correspondingly increased or decreased by approximately $1 million. Likewise, if interest rates had changed by 10% during the nine month period ended September 30, 2022, the Company's interest expense for the nine month period ended September 30, 2022 on its credit facilities, including the Amended Credit Facility borrowings outstanding, would have correspondingly increased or decreased by approximately $2.2 million. The Original Credit Facility required the Company to fix its variable interest rates on at least 20% of its total term loans. In order to satisfy this requirement as well as to manage the Company's exposure to variable interest rate risk associated with the Original Credit Facility, in November 2019, the Company entered into $170.0 million notional amounts of three year interest rate swaps at a base rate of 1.64% plus an applicable margin as provided in the Original Credit Facility, based on the Company's consolidated net leverage ratio. At the time the Company entered into the swaps, and as of September 30, 2022, the aggregate interest rate on the swaps, including the fixed base rate plus an applicable margin, was 3.1%. In October 2022, the Company's interest rate swap contracts expired. Upon expiration, the Company is entitled to a cash payment from the counterparties, which is materially consistent with the fair value as of September 30, 2022. The Amended Credit Facility does not require the Company to fix variable interest rates on any portion of its borrowings.

Item 4. Controls and Procedures.

Evaluation of disclosure controls and procedures. As required by Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), our management, including our principal executive officer and principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of the end of the period covered by this Report. Based on that evaluation, our principal executive officer and our principal financial officer have concluded that, as of September 30, 2022, the end of the period covered by this Report, our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) were effective.

Changes in internal control over financial reporting. As required by Rule 13a-15(d) under the Exchange Act, our management, including our principal executive officer and principal financial officer, has evaluated our internal control over financial reporting to determine whether any changes to our internal control over financial reporting occurred during the quarter ended September 30, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Based on that evaluation, there were no changes that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting during the quarter ended September 30, 2022.

PART II.
OTHER INFORMATION

Items 3, 4 and 5 of Part II are inapplicable and have been omitted.

Item 1. Legal Proceedings.

Incorporated by reference is the information in Note 18 of the Notes to the Condensed Consolidated Financial Statements in Part I, Item 1, of this Report.

Item 1A. Risk Factors.

The Company's business, financial condition, results of operations and cash flows are subject to various risks that could cause actual results to vary materially from recent results or from anticipated future results. In addition to the other information set forth in this Report, you should carefully consider the risk factors previously disclosed in Part I, Item 1A of our 2021 Form 10-K. There have been no material changes to the risk factors described therein.

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

The following table sets forth information concerning shares of the Company's common stock acquired by the Company during the period covered by this Report:

Period	(a) Total Number of Shares Purchased (1)	(b) Average Price Paid Per Share (2)	(c) Total Number of Shares Purchased as part of Publicly Announced Plans or Programs	(d) Approximate Dollar Value of Shares that May Yet be Purchased Under the Plans or Programs (3)
July 1 - July 31	**258**	**$ 135.19**	**—**	**$ 86,865,026**
August 1 - August 31	**2,853**	**$ 160.22**	**—**	**$ 86,865,026**
September 1 - September 30	**473**	**$ 165.52**	**—**	**$ 86,865,026**
Total	**3,584**	**$ 159.12**	**—**	**$ 86,865,026**

(1) All of these shares were acquired from employees related to the surrender of Quaker Chemical Corporation shares in payment of the exercise price of employee stock options exercised or for the payment of taxes upon exercise of employee stock options or the vesting of restricted stock awards or units.

(2) The price paid for shares acquired from employees pursuant to employee benefit and share-based compensation plans is based on the closing price of the Company's common stock on the date of exercise or vesting as specified by the plan pursuant to which the applicable option, restricted stock award, or restricted stock unit was granted.

(3) On May 6, 2015, the Board of Directors of the Company approved, and the Company announced, a share repurchase program, pursuant to which the Company is authorized to repurchase up to $100,000,000 of Quaker Chemical Corporation common stock (the "2015 Share Repurchase Program"), and it has no expiration date. There were no shares acquired by the Company pursuant to the 2015 Share Repurchase Program during the quarter ended September 30, 2022.

Limitation on the Payment of Dividends

The Amended Credit Facility has certain limitations on the payment of dividends and other so-called restricted payments. See Note 14 of Notes to Condensed Consolidated Financial Statements, in Part I, Item 1, of this Report.

Item 6. Exhibits.

(a) Exhibits

3.1	–	Amended and Restated Articles of Incorporation (as amended through July 24, 2019). Incorporated by reference to Exhibit 3.1 as filed by the Registrant with its quarterly report on Form 10-Q filed on August 1, 2019.
3.2	–	Restated By-laws (effective May 6, 2015, as amended through March 27, 2020). Incorporated by reference to Exhibit 3.2 as filed by the Registrant within its quarterly report on Form 10-Q filed on May 11, 2020.
31.1	–	Certification of Chief Executive Officer of the Company pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934.*
31.2	–	Certification of Chief Financial Officer of the Company pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934.*
32.1	–	Certification of Chief Executive Officer of the Company Pursuant to 18 U.S. C. Section 1350.**
32.2	–	Certification of Chief Financial Officer of the Company Pursuant to 18 U.S. C. Section 1350.**
101.INS	–	Inline XBRL Instance Document*
101.SCH	–	Inline XBRL Taxonomy Schema Document*
101.CAL	–	Inline XBRL Taxonomy Calculation Linkbase Document*
101.DEF	–	Inline XBRL Taxonomy Definition Linkbase Document*
101.LAB	–	Inline XBRL Taxonomy Label Linkbase Document*
101.PRE	–	Inline XBRL Taxonomy Presentation Linkbase Document*
104	–	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101.INS)*

*Filed herewith.
** Furnished herewith.
† Management contract or compensatory plan.

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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.

QUAKER CHEMICAL CORPORATION
(Registrant)

/s/ Shane W. Hostetter

Date: November 3, 2022

Shane W. Hostetter, Senior Vice President, Chief Financial Officer (officer duly authorized on behalf of, and principal financial officer of, the Registrant)

EXHIBIT 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER OF THE COMPANY PURSUANT TO RULE 13a-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934

I, Andrew E. Tometich, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Quaker Chemical 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: November 3, 2022

/s/ Andrew E. Tometich
Andrew E. Tometich
Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER OF THE COMPANY PURSUANT TO RULE 13a-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934

I, Shane W. Hostetter, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Quaker Chemical 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: November 3, 2022

/s/ Shane W. Hostetter
Shane W. Hostetter
Chief Financial Officer

EXHIBIT 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350

The undersigned hereby certifies that the Form 10-Q Quarterly Report of Quaker Chemical Corporation (the “Company”) for the quarterly period ended September 30, 2022 filed with the Securities and Exchange Commission (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 3, 2022	/s/ Andrew E. Tometich
	Andrew E. Tometich
	Chief Executive Officer of Quaker Chemical Corporation

EXHIBIT 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350

The undersigned hereby certifies that the Form 10-Q Quarterly Report of Quaker Chemical Corporation (the “Company”) for the quarterly period ended September 30, 2022 filed with the Securities and Exchange Commission (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 3, 2022

/s/ Shane W. Hostetter
Shane W. Hostetter
Chief Financial Officer of Quaker Chemical Corporation