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

FORM 10-Q

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

For the quarterly period ended June 30, 2019

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	**23-0993790**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
One Quaker ParkQuakerPark, 901 E. Hector Street901 E. Hector Street, Conshohocken, PennsylvaniaConshohocken	**19428 – 2380**
(Address of principal executive offices)	**(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 [X] No [ ]

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes [X] No [ ]

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

Large accelerated filer [X]	Accelerated filer [ ]
Non-accelerated filer [ ]	Smaller reporting company [ ]
Emerging growth company [ ]	

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

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

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 June 30, 2019	**13,337,896**

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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 June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net sales	$ 205,869	$ 221,962	$ 417,079	$ 434,017
Cost of goods sold	130,708	141,025	266,151	277,633
Gross profit	75,161	80,937	150,928	156,384
Selling, general and administrative expenses	50,026	54,083	101,481	104,090
Combination and other acquisition-related expenses	4,604	4,291	9,087	9,500
Operating income	20,531	22,563	40,360	42,794
Other income (expense), net	43	261	(592)	(108)
Interest expense	(1,283)	(1,602)	(2,497)	(3,294)
Interest income	550	571	988	1,060
Income before taxes and equity in net income of associated companies	19,841	21,793	38,259	40,452
Taxes on income before equity in net income of associated companies	4,800	3,668	9,729	9,224
Income before equity in net income of associated companies	15,041	18,125	28,530	31,228
Equity in net income of associated companies	608	1,245	1,019	929
Net income	15,649	19,370	29,549	32,157
Less: Net income attributable to noncontrolling interest	58	124	114	179
Net income attributable to Quaker Chemical Corporation	$ 15,591	$ 19,246	$ 29,435	$ 31,978
Per share data:				
Net income attributable to Quaker Chemical Corporation common shareholders – basic	$ 1.17	$ 1.44	$ 2.21	$ 2.40
Net income attributable to Quaker Chemical Corporation common shareholders – diluted	$ 1.17	$ 1.44	$ 2.20	$ 2.40
Dividends declared	$ 0.385	$ 0.370	$ 0.755	$ 0.725

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

Quaker Chemical Corporation

Condensed Consolidated Statements of Comprehensive Income

(Dollars in thousands)

	Unaudited			
	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net income	$ 15,649	$ 19,370	$ 29,549	$ 32,157
Other comprehensive (loss) income, net of tax				
Currency translation adjustments	(519)	(17,111)	(951)	(10,252)
Defined benefit retirement plans	522	1,496	1,228	1,580
Unrealized gain (loss) on available-for-sale securities	307	(169)	1,580	(655)
Other comprehensive income (loss)	310	(15,784)	1,857	(9,327)
Comprehensive income	15,959	3,586	31,406	22,830
Less: Comprehensive (income) loss attributable to noncontrolling interest	(82)	47	(137)	(103)
Comprehensive income attributable to Quaker Chemical Corporation	$ 15,877	$ 3,633	$ 31,269	$ 22,727

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

Quaker Chemical Corporation

Condensed Consolidated Balance Sheets

(Dollars in thousands, except par value and share amounts)

	Unaudited	
	June 30, 2019	**December 31, 2018**
ASSETS		
Current assets		
Cash and cash equivalents	$ 86,355	$ 104,147
Accounts receivable, net	210,347	202,139
Inventories		
Raw materials and supplies	48,170	48,134
Work-in-process and finished goods	46,315	45,956
Prepaid expenses and other current assets	20,992	18,134
Total current assets	412,179	418,510
Property, plant and equipment, at cost	258,054	254,237
Less accumulated depreciation	(175,431)	(170,314)
Property, plant and equipment, net	82,623	83,923
Right of use lease assets	24,828	—
Goodwill	83,296	83,333
Other intangible assets, net	59,855	63,582
Investments in associated companies	21,362	21,316
Non-current deferred tax assets	7,948	6,946
Other assets	32,439	32,055
Total assets	$ 724,530	$ 709,665
LIABILITIES AND EQUITY		
Current liabilities		
Short-term borrowings and current portion of long-term debt	$ 676	$ 670
Accounts and other payables	93,886	92,754
Accrued compensation	16,396	25,727
Other current liabilities	42,230	32,319
Total current liabilities	153,188	151,470
Long-term debt	11,788	35,934
Long-term lease liabilities	19,192	—
Non-current deferred tax liabilities	7,781	10,003
Other non-current liabilities	74,620	75,889
Total liabilities	266,569	273,296
Commitments and contingencies (Note 18)		
Equity		
Common stock, $ $1 par value; authorized 30,000,000 shares; issued and outstanding 2019 – 13,337,896 shares; 2018 – 13,338,026 shares	13,338	13,338
Capital in excess of par value	97,602	97,304
Retained earnings	424,448	405,125
Accumulated other comprehensive loss	(78,881)	(80,715)
Total Quaker shareholders’ equity	456,507	435,052
Noncontrolling interest	1,454	1,317
Total equity	457,961	436,369
Total liabilities and equity	$ 724,530	$ 709,665

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

Quaker Chemical Corporation

Condensed Consolidated Statements of Cash Flows

(Dollars in thousands)

	Unaudited	
	Six Months Ended June 30,	
	2019	2018
Cash flows from operating activities		
Net income	$ 29,549	$ 32,157
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation	6,087	6,330
Amortization	3,615	3,698
Equity in undistributed earnings of associated companies, net of dividends	1,658	3,352
Deferred compensation, deferred taxes and other, net	(7,141)	177
Share-based compensation	1,672	1,975
Gain on disposal of property, plant, equipment and other assets	(39)	(599)
Insurance settlement realized	(306)	(481)
Combination and other acquisition-related expenses, net of payments	399	(1,445)
Pension and other postretirement benefits	(21)	(2,341)
(Decrease) increase in cash from changes in current assets and current liabilities, net of acquisitions:		
Accounts receivable	(7,893)	(10,873)
Inventories	(257)	(11,301)
Prepaid expenses and other current assets	(1,969)	(2,323)
Accounts payable and accrued liabilities	(2,945)	1,407
Net cash provided by operating activities	22,409	19,733
Cash flows from investing activities		
Investments in property, plant and equipment	(5,544)	(5,622)
Payments related to acquisitions, net of cash acquired	(500)	(500)
Proceeds from disposition of assets	70	668
Insurance settlement interest earned	131	47
Net cash used in investing activities	(5,843)	(5,407)
Cash flows from financing activities		
Repayments of long-term debt	(24,040)	(287)
Dividends paid	(9,868)	(9,453)
Stock options exercised, other	(1,374)	(496)
Distributions to noncontrolling affiliate shareholders	—	(834)
Net cash used in financing activities	(35,282)	(11,070)
Effect of foreign exchange rate changes on cash	749	(3,346)
Net decrease in cash, cash equivalents and restricted cash	(17,967)	(90)
Cash, cash equivalents and restricted cash at the beginning of the period	124,425	111,050
Cash, cash equivalents and restricted cash at the end of the period	$ 106,458	$ 110,960

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

Note 1 – Condensed Financial Information

As used in these Notes to Condensed Consolidated Financial Statements the terms “Quaker”, the “Company”, “we” and “our” refer to Quaker Chemical Corporation, its subsidiaries, and associated companies, unless the context otherwise requires. 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 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 three and six months ended June 30, 2019, respectively, 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, as well as the Company’s Form 10-K/A, for the year ended December 31, 2018.

Hyper-inflationary economies

Economies that have a cumulative three-year rate of inflation exceeding 100% are considered hyper-inflationary under U.S. GAAP. A legal entity which operates within an economy deemed to be hyper-inflationary is required to remeasure its monetary assets and liabilities to the applicable published exchange rates and record the associated gains or losses resulting from the remeasurement directly to the Condensed Consolidated Statements of Income. The Company has a 50-50 joint venture in a Venezuelan affiliate, Kelko Quaker Chemical, S.A. Venezuela’s economy has been considered hyper-inflationary under U.S. GAAP since 2010. During the three and six months ended June 30, 2018, the Company recorded remeasurement losses of less than $0.1 million and $0.2 million respectively, associated with the applicable currency conversions related to Venezuela. These losses were recorded within equity in net income of associated companies in the Company’s Condensed Consolidated Statements of Income. Due to heightened foreign exchange controls and restrictions currently present within Venezuela, during the third quarter of 2018 the Company concluded that it no longer had significant influence over this affiliate. Prior to this determination, the Company historically accounted for this affiliate under the equity method. As of June 30, 2019 and December 31, 2018, the Company has no remaining carrying value for its investment in Kelko Venezuela.

Based on various indices or index compilations currently being used to monitor inflation in Argentina as well as recent economic instability, effective July 1, 2018, Argentina’s economy was considered hyper-inflationary under U.S. GAAP. As a result, the Company began applying hyper-inflationary accounting with respect to the Company's wholly owned Argentina subsidiary beginning July 1, 2018. As of, and for the six months ended June 30, 2019, the Company's Argentina subsidiary represented less than 1% of the Company’s consolidated total assets and less than 1% of the Company’s consolidated net sales. During the three and six months ended June 30, 2019, the Company recorded less than $0.1 million of remeasurement gains and $0.2 million of remeasurement losses associated with the applicable currency conversions related to Argentina. These gains (losses) were recorded within foreign exchange losses, net, which is a component of other income (expense), net, in the Company’s Condensed Consolidated Statements of Income.

Note 2 – Houghton Combination

On August 1, 2019, the Company completed its combination with Houghton International, Inc. (“Houghton”) (herein referred to as “the Combination”), whereby the Company acquired all of the issued and outstanding shares of Houghton from Gulf Houghton Lubricants, Ltd. in accordance with the share purchase agreement dated April 4, 2017. The final purchase consideration was comprised of: (i) approximately $170.8 million in cash; (ii) the issuance of approximately 4.3 million shares of common stock of the Company with par value of $1.00, comprising 24.5% of the common stock of the Company at closing; and (iii) the Company’s refinancing of approximately $660 million of Houghton’s net indebtedness at closing, not including cash proceeds from the divestiture, described below.

The Combination was subject to certain regulatory and shareholder approvals. At a shareholder meeting held during 2017, the Company’s shareholders approved the issuance of the new shares of the Company’s common stock at closing of the Combination. Also in 2017, the Company received regulatory approvals for the Combination from China and Australia. The Company received regulatory approvals from the European Commission (“EC”) during the second quarter of 2019 and the U.S. Federal Trade Commissions (“FTC”) in July 2019. The approvals from the FTC and the EC required the concurrent divestiture of certain steel and aluminum product lines of Houghton, which were sold on August 1, 2019 for approximately $37 million in cash. The final remedy agreed with the EC and the FTC was consistent with the Company’s previous expectation that the total divested product lines would be approximately 3% of the combined company’s revenue.

The results of operations of Houghton are not included in the Condensed Consolidated Statements of Income for the three and six months ended June 30, 2019, as the date of closing was after June 30, 2019. Transaction expenses associated with the Combination which were incurred during the three and six months ended June 30, 2019 and 2018, respectively, are included in Combination and other acquisition-related expenses in the Company’s Condensed Consolidated Statements of Income. A preliminary purchase price

allocation of assets acquired, and liabilities assumed, has not been presented as that information is not available as of the date of these Condensed Consolidated Financial Statements.

As previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018, in connection with the Combination, the Company initially secured $1.15 billion in commitments from Bank of America Merrill Lynch and Deutsche Bank to fund the purchase consideration and to provide additional liquidity, which was replaced with a syndicated bank agreement (“the New Credit Facility”) with a group of lenders. Prior to closing the Combination, during July 2019, the Company amended and extended the bank commitment to August 30, 2019. The New Credit Facility was contingent upon and was not effective until the closing of the Combination. Concurrent with the closing of the Combination on August 1, 2019, the New Credit Facility is in full effect and is the Company’s primary borrowing facility, replacing the Company’s previous revolving credit facility (see Note 14 of Notes to Condensed Consolidated Financial Statements). The New Credit Facility is comprised of: (i) a $400.0 million multicurrency revolver; (ii) a $600.0 million USD term loan; and (iii) a $150.0 million EUR equivalent term loan, each with a five-year maturity from the date the New Credit Facility became effective. At closing, the Company borrowed $750.0 million under the term loans available in the New Credit Facility and approximately $180 million under the multicurrency revolver, with a remaining capacity under the revolver of approximately $220 million for additional liquidity. The maximum amount available under the New Credit Facility can be increased by $300.0 million at the Company’s option if the lenders agree and the Company satisfies certain conditions. Borrowings under the New Credit Facility will bear interest at a base rate or LIBOR rate plus a margin. Based on the terms of the New Credit Facility and current market interest rates, the Company currently estimates its annual interest cost will be in the range of 3.4% to 3.6%. The New Credit Facility is subject to certain financial and other covenants, including covenants that the Company’s initial consolidated net debt to adjusted EBITDA ratio cannot exceed 4.25 to 1 and the Company’s consolidated adjusted EBITDA to interest expense ratio cannot be less than 3.0 to 1. At closing, the Company was in compliance with all of the New Credit Facility covenants. Both the USD and EUR equivalent term loans have quarterly principal amortization during their respective five-year maturities, with 5.0% amortization of the principal balance due in years 1 and 2, 7.5% in year 3, and 10.0% in years 4 and 5, with the remaining principal amounts due at maturity. Until closing, the Company incurred certain interest costs to maintain the bank commitment (“ticking fees”), which began to accrue on September 29, 2017 and bore an interest rate of 0.30% per annum. Concurrent with closing of the Combination and executing the New Credit Facility, the Company paid approximately $6.3 million of ticking fees.

The Company incurred total costs of $5.5 million and $10.8 million during the three and six months ended June 30, 2019, and $4.5 million and $10.6 million during the three and six months ended June 30, 2018, respectively, related to the Combination and other acquisition-related activities. These costs included certain legal, financial and other advisory and consultant costs related to due diligence, regulatory approvals and integration planning, as well as ticking fees, certain one-time labor-related costs and, specifically during the three and six months ended June 30, 2018, a gain on the sale of an available-for-sale asset. As of June 30, 2019 and December 31, 2018, the Company had current liabilities related to the Combination and other acquisition-related activities of $8.6 million and $8.2 million, respectively, primarily recorded within other current liabilities on its Condensed Consolidated Balance Sheets.

Note 3 – Recently Issued Accounting Standards

The Financial Accounting Standards Board (“FASB”) issued an accounting standard update in August 2018 that modifies certain disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. The amendments in this accounting standard update remove disclosures that are no longer considered cost beneficial, clarify the specific requirements of certain disclosures, and add new disclosure requirements as relevant. The guidance within this accounting standard update is effective for annual periods beginning after December 15, 2020, and should be applied retrospectively to all periods presented. Early adoption is permitted. The Company has not early adopted the guidance and is currently evaluating its implementation.

The FASB issued an accounting standard update in August 2018 that clarifies the accounting for implementation costs incurred in a cloud computing arrangement under a service contract. This guidance generally aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement under a service contract with the requirements for capitalizing implementation costs related to internal-use software. The guidance within this accounting standard update is effective for annual periods beginning after December 15, 2019 and should be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. Early adoption is permitted. The Company has not early adopted the guidance and is currently evaluating its implementation.

The FASB issued an accounting standard update in August 2018 that modifies certain disclosure requirements for fair value measurements. The guidance removes certain disclosure requirements regarding transfers between levels of the fair value hierarchy as well as certain disclosures related to the valuation processes for certain fair value measurements. Further, the guidance added certain disclosure requirements including unrealized gains and losses and significant unobservable inputs used to develop certain fair value measurements. The guidance within this accounting standard update is effective for annual and interim periods beginning after

December 15, 2019, and should be applied prospectively in the initial year of adoption or retrospectively to all periods presented, depending on the amended disclosure requirement. Early adoption is permitted. The Company has not early adopted the guidance and is currently evaluating its implementation.

The FASB issued an accounting standard update in February 2018 that allows a reclassification from accumulated other comprehensive (loss) income (“AOCI”) to retained earnings for stranded tax effects resulting from the U.S. Tax Cuts and Jobs Act (“U.S. Tax Reform”) enacted in December 2017. The guidance within this accounting standard update is effective for annual and interim periods beginning after December 15, 2018, and should be applied either in the period of adoption or retrospectively to each period in which the effect of the change in the U.S. federal corporate income tax rate in U.S. Tax Reform is recognized. Early adoption was permitted. The Company adopted this guidance in the first quarter of 2019, as required, but elected not to reclassify any stranded tax effects resulting from U.S. Tax Reform, therefore adoption of this guidance did not have any impact on its financial statements.

The FASB issued an accounting standard update in June 2016 related to the accounting for and disclosure of credit losses. In May 2019, the FASB issues an accounting standard update to provide targeted transition relief to increase comparability of financial statements. The guidance introduces a new model for recognizing credit losses on financial instruments, including customer accounts receivable, based on an estimate of current expected credit losses. The guidance within this accounting standard update is effective for annual and interim periods beginning after December 15, 2019, and aspects of the guidance which may be applicable to the Company should be applied on a modified retrospective basis. Early adoption is permitted. The Company has not early adopted the guidance and is currently evaluating its implementation.

The FASB issued an accounting standard update in February 2016 regarding the accounting and disclosure for leases. During 2018 and 2019, the FASB issued a series of accounting standard updates to clarify and expand on the original 2016 implementation guidance, including providing an accounting policy election for lessors, certain targeted improvements around comparative reporting requirements and accounting for lease and non-lease components by lessors as well as other technical corrections and improvements. The amendments in these 2018 and 2019 updates did not change the core principles of the guidance previously issued in February 2016. The guidance within all of the leasing accounting standard updates were effective for annual and interim periods beginning after December 15, 2018, and should have been applied on a modified retrospective basis, applying the transition requirements either (a) at the beginning of the earliest period presented in the financial statements in the year of adoption (January 1, 2017) or (b) in the period of adoption (January 1, 2019). Early adoption was permitted.

As part of the Company’s implementation planning and its impact assessment related to the new lease accounting guidance, the Company developed a detailed project plan, identified and established a cross-functional implementation team and developed pre-adoption internal controls. In addition, the Company gathered an inventory of the Company’s outstanding leases globally, performed certain review procedures to ensure completeness of its lease population and abstracted required information from its lease population for inclusion within the Company’s leasing software. Also, the Company is considering how the new lease accounting guidance may impact Houghton and the Combination.

The Company adopted the guidance in the first quarter of 2019, as required, electing to use a modified retrospective transition approach and applied transition requirements as of January 1, 2019, as permitted. Comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. In addition, the Company elected to apply certain of the permitted transition practical expedients within the new lease accounting related to lease identification, lease classification, and initial direct costs. The Company made certain accounting policy elections as a result of adopting the new lease accounting guidance which include not separating lease and non-lease components, applying a portfolio approach in the development of the Company’s discount rates, applying the short-term lease exemption and establishing a capitalization threshold policy.

Adoption of the lease accounting guidance did not have a material impact on the Company’s reported earnings or cash flows, however, adoption did result in a material impact to the Company’s balance sheet to establish the right of use lease assets and associated lease liabilities. Specifically, the Company recorded a cumulative effect of an accounting change that resulted in an increase to its right of use lease assets of $27.3 million, an increase of $5.3 million of short-term lease liabilities and $21.4 million of long-term lease liabilities, a decrease in property, plant and equipment, net of $1.1 million, a decrease in other current liabilities of $0.4 million and a decrease to retained earnings of less than $0.1 million. See Note 5 of Notes to Condensed Consolidated Financial Statements.

Note 4 – Net Sales and Revenue Recognition

Business Description

The Company develops, produces, and markets a broad range of formulated chemical specialty products and offers chemical management services (“CMS”) for various heavy industrial and manufacturing applications in a global portfolio throughout its four regions: North America, Europe, Middle East and Africa (“EMEA”), Asia/Pacific and South America. The major product lines in the Company’s global portfolio include: (i) rolling lubricants (used by manufacturers of steel in the hot and cold rolling of steel and by manufacturers of aluminum in the hot rolling of aluminum); (ii) machining and grinding compounds (used by metalworking customers in cutting, shaping, and grinding metal parts which require special treatment to enable them to tolerate the manufacturing process, achieve closer tolerance, and improve tool life); (iii) corrosion preventives (used by steel and metalworking customers to protect metal during manufacture, storage, and shipment); (iv) hydraulic fluids (used by steel, metalworking, and other customers to operate hydraulic equipment); (v) specialty greases (used in automotive and aerospace production processes and applications, the manufacturing of steel, and various other applications); and (vi) metal finishing compounds (used to prepare metal surfaces for special treatments such as galvanizing and tin plating and to prepare metal for further processing).

A substantial portion of the Company’s sales worldwide are made directly through its own employees and its CMS programs, with the balance being handled through distributors and agents. The Company’s employees visit the plants of customers regularly, work on site, and, through training and experience, identify production needs which can be resolved or alleviated either by adapting the Company’s existing products or by applying new formulations developed in its laboratories. The chemical specialty industry comprises many companies of similar size as well as companies larger and smaller than Quaker Chemical Corporation. The offerings of many of the Company’s competitors differ from those of Quaker Chemical Corporation; some offer a broad portfolio of fluids, including general lubricants, while others have a more specialized product range. All competitors provide different levels of technical services to individual customers. Competition in the industry is based primarily on the ability to provide products that meet the needs of the customer, render technical services and laboratory assistance to the customer and, to a lesser extent, on price.As part of the Company’s CMS, certain third-party product sales to customers are managed by the Company. Where the Company acts as a principal, revenues are recognized on a gross reporting basis at the selling price negotiated with its customers. Where the Company acts as an agent, revenue is recognized on a net reporting basis generally at the amount of the administrative fee earned by the Company for ordering the goods. In determining whether the Company is acting as a principal or an agent in each arrangement, the Company considers whether it is primarily responsible for fulfilling the promise to provide the specified good, has inventory risk before the specified good has been transferred to the customer and has discretion in establishing the prices for the specified goods. The Company transferred third-party products under arrangements recognized on a net reporting basis of $10.4 million and $20.8 million for the three and six months ended June 30, 2019, respectively, and $12.5 million and $24.1 million for the three and six months ended June 30, 2018, respectively.

A significant portion of the Company’s revenues are realized from the sale of process fluids and services to manufacturers of steel, automobiles, aircraft, appliances, and durable goods, and, therefore, the Company is subject to the same business cycles as those experienced by these manufacturers and their customers. The Company’s financial performance is generally correlated to the volume of global production within the industries it serves, rather than discretely related to the financial performance of such industries. Furthermore, steel customers typically have limited manufacturing locations compared to metalworking customers and generally use higher volumes of products at a single location. As previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018, during 2018 the Company’s five largest customers (each composed of multiple subsidiaries or divisions with semiautonomous purchasing authority) accounted for approximately 17% of consolidated net sales, with its largest customer accounting for approximately 8% of consolidated net sales.

Revenue Recognition Model

The Company applies the FASB’s guidance on revenue recognition which requires the Company to recognize revenue in an amount that reflects the consideration to which the Company expects to be entitled in exchange for goods or services transferred to its customers. To do this, the Company applies the five-step model in the FASB’s guidance, which requires the Company to: (i) identify the contract with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when, or as, the Company satisfies a performance obligation.

The Company identifies a contract with a customer when a sales agreement indicates approval and commitment of the parties; identifies the rights of the parties; identifies the payment terms; has commercial substance; and it is probable that the Company will collect the consideration to which it will be entitled in exchange for the goods or services that will be transferred to the customer. In most instances, the Company’s contract with a customer is the customer’s purchase order. For certain customers, the Company may also enter into a sales agreement which outlines a framework of terms and conditions which apply to all future and subsequent

purchase orders for that customer. In these situations, the Company's contract with the customer is both the sales agreement as well as the specific customer purchase order. Because the Company's contract with a customer is typically for a single transaction or customer purchase order, the duration of the contract is almost always one year or less. As a result, the Company has elected to apply certain practical expedients and omit certain disclosures of remaining performance obligations for contracts which have an initial term of one year or less as permitted by the FASB.

The Company identifies a performance obligation in a contract for each promised good or service that is separately identifiable from other promises in the contract and for which the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer. The Company determines the transaction price as the amount of consideration it expects to be entitled to in exchange for fulfilling the performance obligations, including the effects of any variable consideration, significant financing elements, amounts payable to the customer or noncash consideration. For any contracts that have more than one performance obligation, the Company allocates the transaction price to each performance obligation in an amount that depicts the amount of consideration to which the Company expects to be entitled in exchange for satisfying each performance obligation.

In accordance with the last step of the FASB's guidance, the Company recognizes revenue when, or as, it satisfies the performance obligation in a contract by transferring control of a promised good or service to the customer. The Company recognizes revenue over time whenever the customer simultaneously receives and consumes the benefits provided by the Company's performance; the Company's performance creates or enhances an asset that the customer controls as the asset is created or enhanced; or the Company's performance does not create an asset with an alternative use to the entity, and the entity has an enforceable right to payment, including a profit margin, for performance completed to date. For performance obligations not satisfied over time, the Company determines the point in time at which a customer obtains control of a promised asset and the Company satisfies a performance obligation by considering when the Company has a right to payment for the asset; the customer has legal title to the asset; the Company has transferred physical possession of the asset; the customer has the significant risks and rewards of ownership of the asset; or the customer has accepted the asset.

The Company typically satisfies its performance obligations and recognizes revenue at a point in time for product sales, generally when products are shipped or delivered to the customer, depending on the terms underlying each arrangement. In circumstances where the Company's products are on consignment, revenue is generally recognized upon usage or consumption by the customer. For any CMS or other services provided by the Company to the customer, the Company typically satisfies its performance obligations and recognizes revenue over time, as the promised services are performed. The Company uses input methods to recognize revenue over time related to these services, including labor costs and time incurred. The Company believes that these input methods represent the most indicative measure of the CMS or other service work performed by the Company.

Other Considerations

The Company does not have standard payment terms for all customers globally, however the Company's general payment terms require customers to pay for products or services provided after the performance obligation is satisfied. The Company does not have significant financing arrangements with its customers. The Company does not have significant amounts of variable consideration in its contracts with customers and where applicable, the Company's estimates of variable consideration are not constrained. The Company records certain third-party license fees in other income (expense), net, in its Condensed Consolidated Statements of Income, which generally include sales-based royalties in exchange for the license of intellectual property. These license fees are recognized in accordance with their agreed-upon terms and when performance obligations are satisfied, which is generally when the third party has a subsequent sale.

Practical Expedients and Accounting Policy Elections

The Company has made certain accounting policy elections and elected to use certain practical expedients as permitted by the FASB in applying the guidance on revenue recognition. It is the Company's policy to not adjust the promised amount of consideration for the effects of a significant financing component as the Company expects, at contract inception, that the period between when the Company transfers a promised good or service to the customer and when the customer pays for that good or service will be one year or less. In addition, it is the Company's policy to expense costs to obtain a contract as incurred when the expected period of benefit, and therefore the amortization period, is one year or less. It is also the Company's accounting policy to exclude from the measurement of the transaction price all taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction and collected by the entity from a customer, including sales, use, value added, excise and various other taxes. Lastly, the Company has elected to account for shipping and handling activities that occur after the customer has obtained control of a good as a fulfilment cost rather than an additional promised service.

Contract Assets and Liabilities

The Company recognizes a contract asset or receivable on its Condensed Consolidated Balance Sheet when the Company performs a service or transfers a good in advance of receiving consideration. A receivable is the Company's right to consideration that is unconditional and only the passage of time is required before payment of that consideration is due. A contract asset is the Company's right to consideration in exchange for goods or services that the Company has transferred to a customer. The Company had no material contract assets recorded on its Condensed Consolidated Balance Sheets as of June 30, 2019 or December 31, 2018.A contract liability is recognized when the Company receives consideration, or if it has the unconditional right to receive consideration, in advance of performance. A contract liability is the Company's obligation to transfer goods or services to a customer for which the Company has received consideration, or a specified amount of consideration is due, from the customer. The Company's contract liabilities primarily represent deferred revenue recorded for customer payments received by the Company prior to the Company satisfying the associated performance obligation. Deferred revenues are presented within other current liabilities in the Company's Condensed Consolidated Balance Sheets. The Company had approximately $1.3 million of deferred revenue as of June 30, 2019 and December 31, 2018. During the six months ended June 30, 2019, the Company satisfied the associated performance obligations and recognized revenue of $1.3 million related to advance customer payments recorded as of December 31, 2018.

Disaggregated Revenue

The Company sells its various industrial process fluids, its chemical specialties and its technical expertise as a global product portfolio. The Company generally manages and evaluates its performance by geography first, and then by customer industry, rather than by individual product lines. The Company has provided annual net sales information for its product lines greater than 10% in its previously filed Form 10-K and 10-K/A for the year ended December 31, 2018, and those annual percentages are generally consistent with the current year's net sales by product line. Also, net sales of each of the Company's major product lines are generally spread throughout all four of the Company's regions, and in most cases, approximately proportionate to the level of total sales in each region.

The following tables disaggregate the Company's net sales by region, customer industry, and timing of revenue recognized for the three and six months ended June 30, 2019 and 2018. The Company has made certain reclassifications of disaggregated customer industry disclosures for the three and six months ended June 30, 2018 to conform with the Company's current period customer industry segmentation.

	Three Months Ended June 30, 2019				
	North America	EMEA	Asia/Pacific	South America	Consolidated Total
Net sales	$ 94,383	$ 53,150	$ 49,827	$ 8,509	$ 205,869
Customer Industries					
Primary metals	$ 38,918	$ 24,723	$ 31,041	$ 4,479	$ 99,161
Metalworking	40,698	26,740	16,470	3,628	87,536
Coatings and other	14,767	1,687	2,316	402	19,172
	$ 94,383	$ 53,150	$ 49,827	$ 8,509	$ 205,869
Timing of Revenue Recognized					
Product sales at a point in time	$ 91,612	$ 53,098	$ 48,406	$ 8,441	$ 201,557
Services transferred over time	2,771	52	1,421	68	4,312
	$ 94,383	$ 53,150	$ 49,827	$ 8,509	$ 205,869

	Three Months Ended June 30, 2018				
	North America	EMEA	Asia/Pacific	South America	Consolidated Total
Net sales	$ 97,392	$ 60,166	$ 55,348	$ 9,056	$ 221,962
Customer Industries					
Primary metals	$ 39,144	$ 26,173	$ 35,017	$ 5,035	$ 105,369
Metalworking	42,929	29,813	19,324	3,865	95,931
Coatings and other	15,319	4,180	1,007	156	20,662
	$ 97,392	$ 60,166	$ 55,348	$ 9,056	$ 221,962
Timing of Revenue Recognized					
Product sales at a point in time	$ 94,562	$ 60,110	$ 53,017	$ 8,987	$ 216,676
Services transferred over time	2,830	56	2,331	69	5,286
	$ 97,392	$ 60,166	$ 55,348	$ 9,056	$ 221,962

	Six Months Ended June 30, 2019				
	North America	EMEA	Asia/Pacific	South America	Consolidated Total
Net sales	$ 189,636	$ 109,438	$ 100,354	$ 17,651	$ 417,079
Customer Industries					
Primary metals	$ 78,603	$ 49,606	$ 63,133	$ 9,769	$ 201,111
Metalworking	81,134	54,988	32,938	7,389	176,449
Coatings and other	29,899	4,844	4,283	493	39,519
	$ 189,636	$ 109,438	$ 100,354	$ 17,651	$ 417,079
Timing of Revenue Recognized					
Product sales at a point in time	$ 184,095	$ 109,332	$ 97,057	$ 17,505	$ 407,989
Services transferred over time	5,541	106	3,297	146	9,090
	$ 189,636	$ 109,438	$ 100,354	$ 17,651	$ 417,079

	Six Months Ended June 30, 2018				
	North America	EMEA	Asia/Pacific	South America	Consolidated Total
Net sales	$ 189,212	$ 122,221	$ 104,125	$ 18,459	$ 434,017
Customer Industries					
Primary metals	$ 76,702	$ 53,487	$ 65,924	$ 10,334	$ 206,447
Metalworking	83,518	60,983	36,850	7,648	188,999
Coatings and other	28,992	7,751	1,351	477	38,571
	$ 189,212	$ 122,221	$ 104,125	$ 18,459	$ 434,017
Timing of Revenue Recognized					
Product sales at a point in time	$ 183,548	$ 122,109	$ 99,865	$ 18,306	$ 423,828
Services transferred over time	5,664	112	4,260	153	10,189
	$ 189,212	$ 122,221	$ 104,125	$ 18,459	$ 434,017

Note 5 – Leases

The Company determines if an arrangement is a lease at its inception. This determination generally depends on whether the arrangement conveys the right to control the use of an identified fixed asset explicitly or implicitly for a period of time in exchange for consideration. Control of an underlying asset is conveyed if the Company obtains the rights to direct the use of, and to obtain substantially all of the economic benefits from the use of, the underlying asset. Lease expense for variable leases and short-term leases is recognized when the obligation is incurred.

The Company has operating leases for certain facilities, vehicles and machinery and equipment with remaining lease terms up to 8 years. In addition, the Company has certain land use leases with remaining lease terms up to 96 years. The lease term for all of the Company's leases includes the non-cancellable period of the lease plus any additional periods covered by an option to extend the lease that the Company is reasonably certain it will exercise. Operating leases are included in right of use lease assets, other current liabilities and long-term lease liabilities on the Condensed Consolidated Balance Sheet. Right of use lease assets and liabilities are recognized at each lease's commencement date based on the present value of its lease payments over its respective lease term. The Company uses the stated borrowing rate for a lease when readily determinable. When a stated borrowing rate is not available in a lease agreement, the Company uses its incremental borrowing rate based on information available at the lease's commencement date to determine the present value of its lease payments. In determining the incremental borrowing rate used to present value each of its leases, the Company considers certain information including fully secured borrowing rates readily available to the Company and its subsidiaries. The Company has one immaterial finance lease, which is included in property, plant and equipment, current portion of long-term debt and long-term debt on the Condensed Consolidated Balance Sheet.

Operating lease expense is recognized on a straight-line basis over the lease term. Operating lease expense for the three and six months ended June 30, 2019 was $1.7 million and $3.5 million, respectively. Short-term lease expense for the three and six months ended June 30, 2019 was $0.2 million and $0.3 million, respectively. The Company has no material variable lease costs or sublease income for the three or six months ended June 30, 2019. Cash paid for operating leases during the six months ended June 30, 2019 was $3.4 million. Subsequent to the Company's adoption of the new lease accounting guidance on January 1, 2019, the Company recorded new right of use lease assets and associated lease liabilities of $0.8 million during the six months ended June 30, 2019.

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

		June 30, 2019
Right of use lease assets	$	24,828
Other current liabilities		5,107
Long-term lease liabilities		19,192
Total operating lease liabilities	$	24,299
Weighted average remaining lease term (years)		6.0
Weighted average discount rate		4.65%

Maturities of operating lease liabilities as of June 30, 2019 were as follows:

		June 30, 2019
For the remainder of 2019	$	3,252
For the year ended December 31, 2020		5,675
For the year ended December 31, 2021		4,661
For the year ended December 31, 2022		3,639
For the year ended December 31, 2023		2,781
For the year ended December 31, 2024 and beyond		8,425
Total lease payments		28,433
Less: imputed interest		(4,134)
Present value of lease liabilities	$	24,299

Pursuant to the Company's adoption of the new lease accounting guidance using a modified retrospective transition approach, as permitted, comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods. As previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018, the following table presents the Company's future minimum rental commitments under operating leases as of December 31, 2018:

For the year ended 2019	$	7,068
For the year ended 2020		5,635
For the year ended 2021		4,509
For the year ended 2022		3,523
For the year ended 2023		2,659
For the year ended 2024 and beyond		7,779

Note 6 – Business Segments

The Company's reportable operating segments are organized by geography as follows: (i) North America; (ii) EMEA; (iii) Asia/Pacific; and (iv) South America. Operating earnings, excluding indirect operating expenses, for the Company's reportable operating segments is comprised of revenues less cost of goods sold ("COGS") and selling, general and administrative expenses ("SG&A") directly related to the respective region's product sales. The indirect operating expenses consist of SG&A not directly attributable to the product sales of each respective reportable operating segment. Other items not specifically identified with the Company's reportable operating segments include interest expense, interest income, license fees from non-consolidated affiliates, amortization expense and other income (expense), net.

The following table presents information about the performance of the Company's reportable operating segments for the three and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net sales				
North America	$ 94,383	$ 97,392	$ 189,636	$ 189,212
EMEA	53,150	60,166	109,438	122,221
Asia/Pacific	49,827	55,348	100,354	104,125
South America	8,509	9,056	17,651	18,459
Total net sales	$ 205,869	$ 221,962	$ 417,079	$ 434,017
Operating earnings, excluding indirect operating expenses				
North America	$ 20,547	$ 23,237	$ 41,419	$ 43,602
EMEA	9,043	9,096	17,825	19,389
Asia/Pacific	12,685	14,621	25,767	26,763
South America	1,220	1,114	2,417	1,749
Total operating earnings, excluding indirect operating expenses	43,495	48,068	87,428	91,503
Combination and other acquisition-related expenses	(4,604)	(4,291)	(9,087)	(9,500)
Non-operating charges	(16,533)	(19,344)	(34,266)	(35,383)
Depreciation of corporate assets and amortization	(1,827)	(1,870)	(3,715)	(3,826)
Operating income	20,531	22,563	40,360	42,794
Other income (expense), net	43	261	(592)	(108)
Interest expense	(1,283)	(1,602)	(2,497)	(3,294)
Interest income	550	571	988	1,060
Income before taxes and equity in net income of associated companies	$ 19,841	$ 21,793	$ 38,259	$ 40,452

Inter-segment revenues for the three and six months ended June 30, 2019 were $1.4 million and $3.2 million for North America, $4.8 million and $10.1 million for EMEA, less than $0.1 million and $0.1 million for Asia/Pacific, respectively, and less than $0.1 million for South America in both periods. Inter-segment revenues for the three and six months ended June 30, 2018 were $1.8 million and $4.8 million for North America, $5.4 million and $11.0 million for EMEA, $0.1 million and $0.4 million for Asia/Pacific, respectively, and less than $0.1 million for South America in both periods. However, all inter-segment transactions have been eliminated from each reportable operating segment's net sales and earnings for all periods presented above.

Note 7 – Share-Based Compensation

The Company recognized the following share-based compensation expense in SG&A in its Condensed Consolidated Statements of Income for the three and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Stock options	$ 173	$ 266	$ 433	$ 518
Nonvested stock awards and restricted stock units	440	576	1,138	1,351
Employee stock purchase plan	24	22	47	44
Director stock ownership plan	23	28	54	62
Total share-based compensation expense	$ 660	$ 892	$ 1,672	$ 1,975

During the first six months of 2019, the Company granted 3,565 nonvested restricted shares under its long-term incentive plan. The Company had no grants of stock options or restricted stock units during the first six months of 2019. Nonvested restricted shares granted are generally subject only to time vesting, generally over a one to three-year period. The fair value of the nonvested restricted shares granted in the first six months of 2019 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 June 30, 2019, unrecognized compensation expense related to stock options granted was $0.8 million, to be recognized over a weighted average remaining period of 1.4 years, unrecognized compensation expense related to the nonvested restricted shares was $1.9 million, to be recognized over a weighted average remaining period of 1.3 years, and unrecognized compensation expense related to nonvested restricted stock units was $0.1 million, to be recognized over a weighted average remaining period of 1.5 years.

Note 8 – Pension and Other Postretirement Benefits

The components of net periodic benefit cost for the three and six months ended June 30, 2019 and 2018 are as follows:

	Three Months Ended June 30,				Six Months Ended June 30,			
	Pension Benefits		Other Postretirement Benefits		Pension Benefits		Other Postretirement Benefits	
	2019	2018	2019	2018	2019	2018	2019	2018
Service cost	$ 978	$ 960	$ 2	$ 3	$ 1,963	$ 1,948	$ 4	$ 5
Interest cost	1,105	1,032	36	33	2,216	2,081	71	66
Expected return on plan assets	(978)	(1,274)	—	—	(1,962)	(2,564)	—	—
Actuarial loss amortization	773	793	—	14	1,549	1,593	—	29
Prior service cost amortization	(41)	(29)	—	—	(83)	(60)	—	—
Net periodic benefit cost	$ 1,837	$ 1,482	$ 38	$ 50	$ 3,683	$ 2,998	$ 75	$ 100

The Company previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018 that the Company began the process of terminating the Company's primary non-contributory U.S. pension plan (the "U.S. Pension Plan") during the fourth quarter of 2018. As part of this process, and considering the fully funded status of the U.S. Pension Plan, the asset allocation of the U.S. Pension Plan was adjusted modeling a glide path that is more heavily allocated to fixed income securities with lengthened durations to match the projected liabilities. As a result, the expected return on plan assets declined during the three and six months ended June 30, 2019 compared to the three and six months ended June 30, 2018. In order to terminate the U.S. Pension Plan in accordance with Internal Revenue Service and Pension Benefit Guaranty Corporation requirements, the Company will be required to fully fund the U.S. Pension Plan on a termination basis and will commit to contribute additional assets if necessary, to do so. The amount necessary to do so is not yet known but is currently estimated to be between $0 and $10 million. In addition, the Company expects to record a non-cash pension settlement charge at plan termination. This settlement charge will include the

immediate recognition into expense of the related unrecognized losses within AOCI on the balance sheet as of the plan termination date. The Company does not have a current estimate for this future settlement charge, however, the gross AOCI related to the U.S. Pension Plan was approximately $19 million as of June 30, 2019. The Company currently estimates that the U.S. Pension Plan termination will be completed during 2020.

Employer Contributions

The Company previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018 that it expected to make minimum cash contributions of $5.2 million to its pension plans and approximately $0.4 million to its other postretirement benefit plans in 2019. As of June 30, 2019, $3.3 million and $0.2 million of contributions have been made to the Company’s pension plans and its postretirement benefit plans, respectively.

Note 9 – Other Income (Expense), Net

The components of other income (expense), net, for the three and six months ended June 30, 2019 and 2018 are as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Income from third party license fees	$ 193	$ 189	$ 413	$ 439
Foreign exchange losses, net	(144)	(493)	(381)	(722)
Gain on fixed asset disposals, net	30	547	39	599
Non-income tax refunds and other related credits	813	505	965	541
Pension and postretirement benefit costs, non-service components	(895)	(569)	(1,791)	(1,145)
Other non-operating income	74	102	222	259
Other non-operating expense	(28)	(20)	(59)	(79)
Total other income (expense), net	$ 43	$ 261	$ (592)	$ (108)

Gain on fixed asset disposals, net, during the three and six months ended June 30, 2018 includes a $0.6 million gain on the sale of an available-for-sale asset related to the Combination.

Note 10 – Income Taxes and Uncertain Income Tax Positions

The Company’s effective tax rate for the three and six months ended June 30, 2019 were 24.2% and 25.4%, respectively, compared to 16.8% and 22.8%, respectively, for the three and six months ended June 30, 2018. These effective tax rates include the impacts of certain combination and other acquisition-related non-deductible costs in all periods presented. The Company’s lower effective tax rates for the three and six months ended June 30, 2018 reflected a favorable $1.2 million tax adjustment recorded in the second quarter of 2018 to decrease the Company’s fourth quarter of 2017 estimate of the one-time charge on deemed repatriation of undistributed earnings as part of the U.S. Tax Reform. In addition, the Company incurred higher tax expense during the three and six months ended June 30, 2019 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 2018. Partially offsetting these increases to the Company’s effective tax rates for the three and six months ended June 30, 2019 was a favorable shift in earnings to entities with lower effective tax rates compared to the three and six months ended June 30, 2018.

As previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018, the Company recognized a deferred tax liability of $7.9 million in the fourth quarter of 2018 related to the Company’s estimate of non-U.S. taxes it will incur to repatriate certain foreign earnings. The Company incurred withholding cash tax payments related to the repatriation of a portion of these foreign earnings during the first six months of 2019 and reduced this deferred tax liability by approximately $3.6 million.

As of June 30, 2019, the Company’s cumulative liability for gross unrecognized tax benefits was $7.7 million. As of December 31, 2018, the Company’s cumulative liability for gross unrecognized tax benefits was $7.1 million.

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 $0.2 million and an expense for penalties of less than $0.1 million for both the three and six months ended June 30, 2019. Comparatively, the Company recognized an expense of less than $0.1 million and $0.1 million for interest, and an expense of $0.1 million and $0.2 million for penalties in its Condensed Consolidated Statements of Income for the three and six months ended June 30, 2018, respectively. As of June 30, 2019, the Company had accrued $0.8 million for cumulative interest and $0.9 million for cumulative penalties in its Condensed Consolidated Balance Sheets, compared to $0.6 million for cumulative interest and $0.8 million for cumulative penalties accrued at December 31, 2018.

During the six months ended June 30, 2019 and 2018, the Company recognized a decrease of less than $0.1 million and $0.3 million, respectively, in its cumulative liability for gross unrecognized tax benefits due to the expiration of the applicable statutes of limitations for certain tax years.

The Company estimates that during the year ending December 31, 2019 it will reduce its cumulative liability for gross unrecognized tax benefits by approximately $1.0 million due to 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, 2019.

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 Brazil from 2000, Italy from 2007, the Netherlands and the United Kingdom from 2013, Mexico, Spain and China from 2014, India from fiscal year beginning April 1, 2016 and ending March 31, 2017, the U.S. from 2015, and various U.S. state tax jurisdictions from 2009.

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 2013. 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. During 2018, the Italian tax authorities assessed additional tax due from Quaker Italia, S.r.l., relating to the tax years 2014 and 2015. The Company met with the Italian tax authorities in the fourth quarter of 2018 and second quarter of 2019 to discuss these assessments and no resolution was agreed upon, so the Company filed for competent authority relief from these assessments under MAP in the second quarter of 2019, consistent with the Company's previous filings for 2008 through 2013. As of June 30, 2019, the Company believes it has adequate reserves for uncertain tax positions with respect to these and all other audits.

Note 11 – Earnings Per Share

The following table summarizes earnings per share calculations for the three and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	**2018**	**2019**	**2018**
Basic earnings per common share				
Net income attributable to Quaker Chemical Corporation	$ 15,591	$ 19,246	$ 29,435	$ 31,978
Less: income allocated to participating securities	(34)	(83)	(81)	(147)
Net income available to common shareholders	$ 15,557	$ 19,163	$ 29,354	$ 31,831
Basic weighted average common shares outstanding	13,304,248	13,267,504	13,297,953	13,256,327
Basic earnings per common share	$ 1.17	$ 1.44	$ 2.21	$ 2.40
Diluted earnings per common share				
Net income attributable to Quaker Chemical Corporation	$ 15,591	$ 19,246	$ 29,435	$ 31,978
Less: income allocated to participating securities	(34)	(83)	(81)	(147)
Net income available to common shareholders	$ 15,557	$ 19,163	$ 29,354	$ 31,831
Basic weighted average common shares outstanding	13,304,248	13,267,504	13,297,953	13,256,327
Effect of dilutive securities	48,007	29,884	47,362	31,619
Diluted weighted average common shares outstanding	13,352,255	13,297,388	13,345,315	13,287,946
Diluted earnings per common share	$ 1.17	$ 1.44	$ 2.20	$ 2.40

Certain stock options and restricted stock units are not included in the diluted earnings per share calculation since the effect would have been anti-dilutive. There were no anti-diluted shares for the three and six months ended June 30, 2019. Comparatively, the calculated amount of anti-dilutive shares not included in the diluted earnings per share calculation were 6,189 and 4,546 for the three and six months ended June 30, 2018, respectively.

Note 12 – Restricted Cash

The Company has restricted cash recorded in other assets related to proceeds from an inactive subsidiary of the Company which previously executed separate settlement and release agreements with two of its insurance carriers for an original total value of $35.0 million. The proceeds of both settlements are restricted and can only be used to pay claims and costs of defense associated with the subsidiary’s asbestos litigation. The proceeds of the settlement and release agreements have been deposited into interest bearing accounts which earned $0.1 million in the six months ended June 30, 2019 compared to less than $0.1 in the six months ended June 30, 2018. The interest was offset by $0.3 million of payments during the six months ended June 30, 2019 compared to $0.5 million in the six months ended June 30, 2018. Due to the restricted nature of the proceeds, a corresponding deferred credit was established in other non-current liabilities for an equal and offsetting amount, and will remain until the restrictions lapse or the funds are exhausted via payments of claims and costs of defense.

The following table provides a reconciliation of cash, cash equivalents and restricted cash as of June 30, 2019 and 2018 and December 31, 2018 and 2017:

	June 30,		December 31,	
	2019	2018	2018	2017
Cash and cash equivalents	$ 86,355	$ 90,220	$ 104,147	$ 89,879
Restricted cash included in other assets	20,103	20,740	20,278	21,171
Cash, cash equivalents and restricted cash	$ 106,458	$ 110,960	$ 124,425	$ 111,050

Note 13 – Goodwill and Other Intangible Assets

The Company completes its annual impairment test during the fourth quarter of each year, or more frequently if triggering events indicate a possible impairment in one or more of its reporting units. The Company continually evaluates financial performance, economic conditions and other relevant developments in assessing if an interim period impairment test for one or more of its reporting units is necessary. The Company has recorded no impairment charges in its past.

Changes in the carrying amount of goodwill for the six months ended June 30, 2019 were as follows:

	North America	EMEA	Asia/Pacific	South America	Total
Balance as of December 31, 2018	$ 47,303	$ 19,335	$ 14,587	$ 2,108	$ 83,333
Currency translation adjustments	160	(256)	47	12	(37)
Balance as of June 30, 2019	$ 47,463	$ 19,079	$ 14,634	$ 2,120	$ 83,296

Gross carrying amounts and accumulated amortization for definite-lived intangible assets as of June 30, 2019 and December 31, 2018 were as follows:

	Gross Carrying Amount		Accumulated Amortization	
	2019	2018	2019	2018
Customer lists and rights to sell	$ 73,554	$ 74,989	$ 30,541	$ 29,587
Trademarks, formulations and product technology	33,264	33,275	17,640	16,469
Other	5,842	5,840	5,724	5,566
Total definite-lived intangible assets	$ 112,660	$ 114,104	$ 53,905	$ 51,622

The Company recorded $1.8 million and $3.6 million of amortization expense for the three and six months ended June 30, 2019, respectively. Comparatively, the Company recorded $1.8 million and $3.7 million of amortization expense for the three and six months ended June 30, 2018, respectively. Estimated annual aggregate amortization expense for the current year and subsequent five years is as follows:

For the year ended December 31, 2019	$ 7,082
For the year ended December 31, 2020	6,863
For the year ended December 31, 2021	6,514
For the year ended December 31, 2022	6,359
For the year ended December 31, 2023	6,141
For the year ended December 31, 2024	5,715

The Company has two indefinite-lived intangible assets totaling $1.1 million for trademarks as of June 30, 2019 and December 31, 2018.

Note 14 – Debt

On August 1, 2019, the Company’s then existing credit facility (“the Old Credit Facility”) was replaced by the New Credit Facility. See Note 2 of Notes to Condensed Consolidated Financial Statements. The Old Credit Facility was a $300.0 million syndicated multicurrency revolving credit facility with a group of lenders. The maximum amount available under the Old Credit Facility could have been increased to $400.0 million at the Company’s option if the lenders agreed and the Company satisfied certain conditions. Borrowings under the Old Credit Facility generally bore interest at a base rate or LIBOR rate plus a margin. The Old Credit Facility had certain financial and other covenants, with the key financial covenant requiring that the Company’s consolidated total debt to adjusted EBITDA ratio could not exceed 3.50 to 1. As of June 30, 2019 and December 31, 2018, the Company’s total debt to adjusted EBITDA ratio was below 1.0 to 1, and the Company was also in compliance with all of its other covenants. During July 2019, the Old Credit Facility was amended and restated to extend the maturity date to August 31, 2020. As of June 30, 2019, the Company had no Old Credit Facility borrowings outstanding. As of December 31, 2018, the Company had Old Credit Facility borrowings of $24.0 million. The Company’s other debt obligations are primarily industrial development bonds and municipality-related loans, which totaled $12.5 million as of June 30, 2019 and $12.6 million as of December 31, 2018.

Note 15 – Equity

The following tables present the changes in equity, net of tax, for the three and six months ended June 30, 2019 and 2018:

	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Loss	Noncontrolling Interest	Total
Balance at March 31, 2019	$ 13,334	$ 96,832	$ 413,992	$ (79,167)	$ 1,372	$ 446,363
Net income	—	—	15,591	—	58	15,649
Amounts reported in other comprehensive income	—	—	—	286	24	310
Dividends ($0.385 per share)	—	—	(5,135)	—	—	(5,135)
Share issuance and equity-based compensation plans	4	770	—	—	—	774
Balance at June 30, 2019	$ 13,338	$ 97,602	$ 424,448	$ (78,881)	$ 1,454	$ 457,961
Balance at March 31, 2018	$ 13,323	$ 93,731	$ 373,185	$ (58,738)	$ 1,262	$ 422,763
Net income	—	—	19,246	—	124	19,370
Amounts reported in other comprehensive loss	—	—	—	(15,613)	(171)	(15,784)
Dividends ($0.37 per share)	—	—	(4,933)	—	—	(4,933)
Share issuance and equity-based compensation plans	8	1,253	—	—	—	1,261
Balance at June 30, 2018	$ 13,331	$ 94,984	$ 387,498	$ (74,351)	$ 1,215	$ 422,677

	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Loss	Noncontrolling Interest	Total
Balance at December 31, 2018	$ 13,338	$ 97,304	$ 405,125	$ (80,715)	$ 1,317	$ 436,369
Cumulative effect of an accounting change	—	—	(44)	—	—	(44)
Balance at January 1, 2019	13,338	97,304	405,081	(80,715)	1,317	436,325
Net income	—	—	29,435	—	114	29,549
Amounts reported in other comprehensive income	—	—	—	1,834	23	1,857
Dividends ($0.755 per share)	—	—	(10,068)	—	—	(10,068)
Share issuance and equity-based compensation plans	—	298	—	—	—	298
Balance at June 30, 2019	$ 13,338	$ 97,602	$ 424,448	$ (78,881)	$ 1,454	$ 457,961
Balance at December 31, 2017	$ 13,308	$ 93,528	$ 365,936	$ (65,100)	$ 1,946	$ 409,618
Cumulative effect of an accounting change	—	—	(754)	—	—	(754)
Balance at January 1, 2018	13,308	93,528	365,182	(65,100)	1,946	408,864
Net income	—	—	31,978	—	179	32,157
Amounts reported in other comprehensive loss	—	—	—	(9,251)	(76)	(9,327)
Dividends ($0.725 per share)	—	—	(9,662)	—	—	(9,662)
Distributions to noncontrolling affiliate	—	—	—	—	(834)	(834)
Share issuance and equity-based compensation plans	23	1,456	—	—	—	1,479
Balance at June 30, 2018	$ 13,331	$ 94,984	$ 387,498	$ (74,351)	$ 1,215	$ 422,677

The following tables show the reclassifications from and resulting balances of AOCI for the three and six months ended June 30, 2019 and 2018:

	Currency Translation Adjustments	Defined Benefit Pension Plans	Unrealized Gain (Loss) in Available-for-Sale Securities	Total
Balance at March 31, 2019	$ (49,753)	$ (29,845)	$ 431	$ (79,167)
Other comprehensive (loss) income before reclassifications	(543)	(79)	432	(190)
Amounts reclassified from AOCI	—	732	(43)	689
Current period other comprehensive (loss) income	(543)	653	389	499
Related tax amounts	—	(131)	(82)	(213)
Net current period other comprehensive (loss) income	(543)	522	307	286
Balance at June 30, 2019	$ (50,296)	$ (29,323)	$ 738	$ (78,881)
Balance at March 31, 2018	$ (25,129)	$ (34,009)	$ 400	$ (58,738)
Other comprehensive (loss) income before reclassifications	(16,940)	1,161	(895)	(16,674)
Amounts reclassified from AOCI	—	779	681	1,460
Current period other comprehensive (loss) income	(16,940)	1,940	(214)	(15,214)
Related tax amounts	—	(444)	45	(399)
Net current period other comprehensive (loss) income	(16,940)	1,496	(169)	(15,613)
Balance at June 30, 2018	$ (42,069)	$ (32,513)	$ 231	$ (74,351)

	Currency Translation Adjustments	Defined Benefit Pension Plans	Unrealized (Loss) Gain in Available-for-Sale Securities	Total
Balance at December 31, 2018	$ (49,322)	$ (30,551)	$ (842)	$ (80,715)
Other comprehensive (loss) income before reclassifications	(974)	81	2,139	1,246
Amounts reclassified from AOCI	—	1,465	(139)	1,326
Current period other comprehensive (loss) income	(974)	1,546	2,000	2,572
Related tax amounts	—	(318)	(420)	(738)
Net current period other comprehensive (loss) income	(974)	1,228	1,580	1,834
Balance at June 30, 2019	$ (50,296)	$ (29,323)	$ 738	$ (78,881)
Balance at December 31, 2017	$ (31,893)	$ (34,093)	$ 886	$ (65,100)
Other comprehensive (loss) income before reclassifications	(10,176)	464	(1,338)	(11,050)
Amounts reclassified from AOCI	—	1,562	509	2,071
Current period other comprehensive (loss) income	(10,176)	2,026	(829)	(8,979)
Related tax amounts	—	(446)	174	(272)
Net current period other comprehensive (loss) income	(10,176)	1,580	(655)	(9,251)
Balance at June 30, 2018	$ (42,069)	$ (32,513)	$ 231	$ (74,351)

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 non-controlling interest are related to currency translation adjustments.

Note 16 – Business Combinations and Asset Acquisitions

In March 2018, the Company purchased certain formulations and product technology for the mining industry for its North America reportable operating segment for $1.0 million. The Company allocated the entire purchase price to intangible assets representing formulations and product technology, to be amortized over 10 years. In accordance with the terms of the agreement, $0.5 million of the purchase price was paid at signing, with the remaining $0.5 million of the purchase price paid during the first quarter of 2019.

The results of operations of acquired businesses and assets are included in the Condensed Consolidated Statements of Income from their respective acquisition dates. Transaction expenses associated with acquisitions are included in SG&A in the Company's Condensed Consolidated Statements of Income. Certain pro forma and other information is not presented, as the operations of the acquired businesses and assets are not material to the overall operations of the Company for the periods presented.

Note 17 – 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:

		Fair Value Measurements at June 30, 2019 Using Fair Value Hierarchy		
Assets	Total Fair Value	Level 1	Level 2	Level 3
Company-owned life insurance	$ 1,681	$ —	$ 1,681	$ —
Total	$ 1,681	$ —	$ 1,681	$ —

		Fair Value Measurements at December 31, 2018 Using Fair Value Hierarchy		
Assets	Total Fair Value	Level 1	Level 2	Level 3
Company-owned life insurance	$ 1,491	$ —	$ 1,491	$ —
Total	$ 1,491	$ —	$ 1,491	$ —

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 June 30, 2019 or December 31, 2018, respectively, so related disclosures have not been included.

Note 18 – Commitments and Contingencies

The Company previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018 that AC Products, Inc. ("ACP"), a wholly owned subsidiary, has been operating a groundwater treatment system to hydraulically contain groundwater contamination emanating from ACP's site, the principal contaminant of which is perchloroethylene. As of June 30, 2019, ACP believes it is close to meeting the conditions for closure of the groundwater treatment system, but continues to operate this system while in discussions with the relevant authorities. As of June 30, 2019, 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 Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018 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 six months ended June 30, 2019, 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 $1.7 million (excluding costs of defense).

The Company believes, although there can be no assurance regarding the outcome of other unrelated environmental matters, that it has made adequate accruals for costs associated with other environmental problems of which it is aware. Approximately $0.2 million was accrued at June 30, 2019 and December 31, 2018, respectively, to provide for such anticipated future environmental assessments and remediation costs. 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.

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

As used in this Report, the terms "Quaker", the "Company", "we" and "our" refer to Quaker Chemical Corporation, its subsidiaries, and associated companies, unless the context otherwise requires.

On August 1, 2019, Quaker Chemical Corporation completed its combination with Houghton International, Inc. ("Houghton") (herein referred to as "the Combination"). The results of operations of Houghton are not included in the Company's results herein described below as the date of closing was after June 30, 2019. As of August 1, 2019, Quaker Houghton is the global leader in industrial process fluids. With a robust 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, can, 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 United States.

Executive Summary

The Company's second quarter of 2019 operating performance was negatively impacted by foreign currency translation and certain end-market challenges. Specifically, net sales of $205.9 million in the second quarter of 2019 decreased 7% compared to $222.0 million in the second quarter of 2018 driven by a negative impact from foreign currency translation of 3% as well as lower volumes resulting from challenging end-market conditions. Despite the quarter-over-quarter decrease in net sales, the Company's current quarter operating earnings benefited from both a consistent gross margin of 36.5% and an 8% decrease in selling, general and administrative expenses ("SG&A"). See the Consolidated Operations Review, in the Operations section of this Item, below.

The Company's second quarter of 2019 net income and earnings per diluted share were $15.6 million and $1.17, respectively, compared to $19.2 million and $1.44 per diluted share, respectively, in the second quarter of 2018. During the second quarter of 2019, the Company incurred $5.5 million, or $0.34 per diluted share, of total acquisition-related expenses including costs associated with the Combination, compared to $4.5 million, or $0.29 per diluted share, of similar total combination-related expenses during the second quarter of 2018. Excluding Houghton costs and all other non-core items in each period, the Company's current quarter adjusted EBITDA and non-GAAP earnings per diluted share were $31.4 million and $1.56, respectively, compared to $32.2 million and $1.59, respectively, in the second quarter of 2018. These quarter-over-quarter decreases were primarily due to the negative impact of foreign exchange on earnings of approximately 3% or $0.04 per diluted share. See the Non-GAAP Measures section of this Item, below.

From a segment perspective, the Company's second quarter of 2019 operating performance reflected both negative foreign exchange and challenging end-market conditions across all four of the Company's regions: North America, Europe, Middle East and Africa ("EMEA"), Asia/Pacific and South America. Overall volumes in each region declined quarter-over-quarter due to global production declines in certain end-markets, and also, unusually strong second quarter of 2018 results in the Company's Asia/Pacific and North America regions. The lower net sales quarter-over-quarter and resulting decreases in gross profit in all four of the Company's regions were partially offset by lower levels of SG&A across all regions and improved gross margins in EMEA and South America. The net of these regional financial impacts resulted in a 10% increase quarter-over-quarter in operating earnings in South America, relatively consistent operating earnings in EMEA and lower operating earnings in both North America and Asia/Pacific. See the Reportable Operating Segments Review, in the Operations section of this Item, below.

The Company generated net operating cash flow of $22.4 million in the second quarter of 2019, compared with $17.0 million in the second quarter of 2018, resulting in a 14% increase in its current year-to-date net operating cash flow to $22.4 million compared to $19.7 million in the first six months of 2018. The increase in net operating cash flow year-over-year was primarily due to working capital improvement in the current year partially offset by higher current year cash tax payments. The key drivers of the Company's operating cash flow and overall liquidity are further discussed in the Company's Liquidity and Capital Resources section of this Item, below.

Despite a decline in certain of the Company's underlying markets and continued foreign exchange headwinds, the Company is pleased with its quarterly operating performance. While the Company's sales volumes were lower quarter-over-quarter by 3%, the benefit of continued market share gains partially offset the impact of an estimated 7% decline in global automotive production as well as a number of the Company's global customers, especially in steel, reducing production in June due to inventory corrections. Despite lower sales volumes and the negative impact from foreign currency translation on net sales in the second quarter of 2019, the benefit of product mix and certain changes in raw material costs collectively contributed to the Company's sequential quarterly gross margin improvement to 36.5%, which was consistent with its gross margin in the prior year second quarter. In addition, the Company's SG&A decreased 8% quarter-over-quarter. These factors contributed to second quarter of 2019 adjusted EBITDA and non-GAAP earnings per diluted share declining 2% to $31.4 million and $1.56, respectively, which included the negative impact of foreign exchange on earnings of approximately 3% or $0.04 per diluted share.

Looking forward to the second half of 2019, the Company does not expect to experience the same magnitude of the current quarter's market challenges, as many of these headwinds the Company experienced in the first half of 2019 began near the end of the second quarter of 2018 and gradually worsened throughout the second half of the year. Also, the Company has closed the Combination and acquired the entire issued and outstanding share capital of Houghton today, August 1, 2019. As previously disclosed, the Combination is anticipated to approximately double the Company's annual sales and adjusted EBITDA, not including estimated synergies which are expected to approximate $60 million once fully achieved by the second year after close. Today, Quaker Houghton begins its journey and in two years the Company expects to have an enterprise that will be integrated and well positioned for above market growth.

Liquidity and Capital Resources

At June 30, 2019, the Company had cash, cash equivalents and restricted cash of $106.5 million, including $20.1 million of restricted cash. Total cash, cash equivalents and restricted cash was $124.4 million at December 31, 2018, which included $20.3 million of restricted cash. The approximately $18.0 million decrease in cash, cash equivalents and restricted cash was the net result of $5.8 million of cash used in investing activities and $35.3 million of cash used in financing activities, partially offset by $22.4 million of cash provided by operating activities and a $0.7 million positive impact due to the effect of foreign currency translation on cash.

Net cash provided by operating activities was $22.4 million in the first six months of 2019 compared to $19.7 million in the first six months of 2018. The $2.7 million increase in net cash flows provided by operating activities year-over-year was primarily the result of lower cash invested in working capital in the current year, primarily due to a reduction in inventory, as the Company restocked an unusually low level at the end of 2017 throughout 2018, partially offset by an associated decrease in accounts payable. In addition, the first six months of 2018 working capital was impacted by lower receipts on accounts receivable due to an uncommon significant collection from a certain customer during the fourth quarter of 2017. The Company's current year net cash flows provided by operating activities also benefited from lower combination and other acquisition-related cash payments, net of expenses incurred, in the first six months of 2019, described below, as well as lower pension cash outflows resulting from the Company's fourth quarter of 2018 decision to begin the process of terminating its primary non-contributory U.S. pension plan (the "U.S. Pension Plan"), also described below. Partially offsetting these lower operating cash outflows were higher cash tax payments in the first six months of 2019, including withholding taxes previously reserved for and related to the repatriation of certain foreign earnings in the first half of 2019. In addition, the Company had lower cash dividends received from the Company's captive insurance company in the first six months of 2019 compared to the prior year period.

Net cash used in investing activities increased from $5.4 million in the first six months of 2018 to $5.8 million in the first six months of 2019, due to higher cash proceeds from dispositions of assets during the first six months of 2018 as compared to the first six months of 2019, primarily as a result of $0.6 million of cash proceeds received during the second quarter of 2018 related to the sale of an available-for-sale asset. This increase in cash used in investing activities year-over-year was partially offset by slightly lower additions to property, plant and equipment in the first six months of 2019. In addition, during both the first six months of 2019 and 2018 the Company paid $0.5 million for certain formulations and product technology in the mining industry for its North America reportable operating segment in accordance with the terms of the asset purchase agreement.

Net cash used in financing activities was $35.3 million in the first six months of 2019 compared to $11.1 million in the first six months of 2018. The $24.2 million increase in net cash used in financing activities was driven primarily by the Company's repayment of long-term debt of $24.0 million in the first six months of 2019 compared to $0.3 million in the first six months of 2018. In addition, the Company paid cash dividends of $9.9 million during the first six months of 2019, a $0.4 million or 4% increase in cash dividends compared to the prior year. Finally, during the first six months of 2018, one of the Company's less than 100% owned consolidated affiliates made a distribution to the noncontrolling affiliate shareholder of approximately $0.8 million. There were no similar distributions during the first six months of 2019.

On August 1, 2019, the Company completed its combination with Houghton, whereby the Company acquired all of the issued and outstanding shares of Houghton from Gulf Houghton Lubricants, Ltd. in accordance with the share purchase agreement dated April 4, 2017. The final purchase consideration was comprised of: (i) approximately $170.8 million in cash; (ii) the issuance of approximately 4.3 million shares of common stock of the Company with par value of $1.00, comprising 24.5% of the common stock of the Company at closing; and (iii) the Company's refinancing of approximately $660.0 million of Houghton's net indebtedness at closing, not including cash proceeds from the divestiture, described below.

The Combination was subject to certain regulatory and shareholder approvals. At a shareholder meeting held during 2017, the Company's shareholders overwhelmingly approved the issuance of the new shares of the Company's common stock at closing of the Combination. Also in 2017, the Company received regulatory approvals for the Combination from China and Australia. The Company received regulatory approvals from the European Commission ("EC") during the second quarter of 2019 and the U.S. Federal Trade Commissions ("FTC") in July 2019. The approvals from the FTC and the EC required the concurrent divestiture of certain steel and aluminum product lines of Houghton, which were sold on August 1, 2019 for approximately $37 million in cash. The final remedy agreed with the EC and the FTC was consistent with the Company's previous guidance that the total divested product lines would be approximately 3% of the combined company's revenue.

As previously disclosed in its Annual Report filed on Form 10-K and 10-K/A for the year ended December 31, 2018, in connection with the Combination, the Company initially secured $1.15 billion in commitments from Bank of America Merrill Lynch and Deutsche Bank to fund the purchase consideration and to provide additional liquidity, which was replaced with a syndicated bank agreement ("the New Credit Facility") with a group of lenders. Prior to closing the Combination, during July 2019, the Company amended and extended the bank commitment to August 30, 2019. The New Credit Facility was contingent upon and was not effective until the closing of the Combination. Concurrent with closing the Combination on August 1, 2019, the New Credit Facility is in full effect and is the Company's primary borrowing facility, replacing the Company's previous revolving credit facility (see Note 14 of Notes to Condensed Consolidated Financial Statements). The New Credit Facility is comprised of: (i) a $400.0 million multicurrency revolver; (ii) a $600.0 million USD term loan; and (iii) a $150.0 million EUR equivalent term loan, each with a five-year maturity from the date the New Credit Facility became effective. At closing, the Company borrowed $750.0 million under the term loans available in the New Credit Facility and approximately $180 million under the multicurrency revolver, with a remaining capacity under the revolver of approximately $220 million for additional liquidity. The maximum amount available under the New Credit Facility can be increased by $300.0 million at the Company's option if the lenders agree and the Company satisfies certain conditions. Borrowings under the New Credit Facility will bear interest at a base rate or LIBOR rate plus a margin. Based on the terms of the New Credit Facility and current market interest rates, the Company currently estimates its annual interest cost will be in the range of 3.4% to 3.6%. The New Credit Facility is subject to certain financial and other covenants, including covenants that the Company's initial consolidated net debt to adjusted EBITDA ratio cannot exceed 4.25 to 1 and the Company's consolidated adjusted EBITDA to interest expense ratio cannot be less than 3.0 to 1. At closing, the Company was in compliance with all of the New Credit Facility covenants. Both the USD and EUR equivalent term loans have quarterly principal amortization during their respective five-year maturities, with 5.0% amortization of the principal balance due in years 1 and 2, 7.5% in year 3, and 10.0% in years 4 and 5, with the remaining principal amounts due at maturity. Until closing, the Company incurred certain interest costs to maintain the bank commitment ("ticking fees"), which began to accrue on September 29, 2017 and bore an interest rate of 0.30% per annum. Concurrent with closing of the Combination and executing the New Credit Facility, the Company paid approximately $6.3 million of ticking fees.

On August 1, 2019, the Company's then existing credit facility ("the Old Credit Facility") was replaced by the New Credit Facility. The Old Credit Facility was a $300.0 million syndicated multicurrency revolving credit facility with a group of lenders. The maximum amount available under the Old Credit Facility could have been increased to $400.0 million at the Company's option if the lenders agreed and the Company satisfied certain conditions. Borrowings under the Old Credit Facility generally bore interest at a base rate or LIBOR rate plus a margin. The Old Credit Facility had certain financial and other covenants, with the key financial covenant requiring that the Company's consolidated total debt to adjusted EBITDA ratio could not exceed 3.50 to 1. As of June 30, 2019 and December 31, 2018, the Company's total debt to adjusted EBITDA ratio was below 1.0 to 1, and the Company was also in compliance with all of its other covenants. During July 2019, the Old Credit Facility was amended and restated to extend the maturity date to August 31, 2020. As of June 30, 2019, the Company had no Old Credit Facility borrowings outstanding. As of December 31, 2018, the Company had Old Credit Facility borrowings of $24.0 million. The Company's other debt obligations are primarily industrial development bonds and municipality-related loans, which totaled $12.5 million as of June 30, 2019 and $12.6 million as of December 31, 2018.

The Company incurred $10.8 million of total combination and other acquisition-related expenses during the first six months of 2019, including $1.7 million of ticking fees, described in the Non-GAAP Measures section of this Item below, and had net cash outflows of $10.4 million related to these costs. Comparatively, during the first six months of 2018, combination and other acquisition-related expenses totaled $10.6 million, including $1.7 million of ticking fees as well as a $0.6 million gain on the sale of an available-for-sale asset, and net cash outflows related to these costs were $12.1 million. Prior to August 1, 2019, the Company incurred additional expenses and will have associated cash outflows of approximately $30 million through closing of the Combination for similar combination-related expenses. The majority of these costs were cash payments for bank fees associated with the New Credit Facility which we expect to capitalize. In addition, post-closing of the Combination, the Company will incur significant additional costs and make associated cash payments to integrate Quaker and Houghton and to begin realizing the Combination's total anticipated cost synergies, which we currently estimate to be $60 million once fully achieved by the second year after close. The Company currently projects these costs and cash payments, excluding incremental capital expenditure related to the Combination, will generally approximate one times its anticipated cost synergies. The Company expects to incur these costs over a three-year period post-close, with a significant portion of these costs being front loaded in 2019 and 2020.

In the fourth quarter of 2018, the Company began the process of terminating the U.S. Pension Plan after receiving approval from its Board of Directors. Participants of the U.S. Pension Plan will have their benefits either converted into a lump sum cash payment or an annuity contract placed with an insurance carrier. The U.S. Pension Plan is fully-funded on a U.S. GAAP basis. In order to terminate the U.S. Pension Plan in accordance with Internal Revenue Service and Pension Benefit Guaranty Corporation requirements, the Company will be required to fully fund the U.S. Pension Plan on a termination basis and will commit to contribute additional assets if necessary, to do so. The amount necessary to do so is not yet known but is currently estimated to be between $0 and $10 million. The Company currently estimates that the U.S. Pension Plan termination will be completed during 2020.

As of June 30, 2019, the Company's gross liability for uncertain tax positions, including interest and penalties, was $9.4 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 $1.0 million as a result of offsetting benefits in other tax jurisdictions.

The Company believes it is capable of supporting its operating requirements and funding its business objectives, including but not limited to, payments of dividends to shareholders, costs related to the Combination, pension plan contributions, capital expenditures, other business opportunities and other potential contingencies, through internally generated funds supplemented with debt or equity as needed.

Non-GAAP Measures

The information in this Form 10-Q filing includes non-GAAP (unaudited) financial information that includes EBITDA, adjusted EBITDA, non-GAAP operating income, 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 more indicative of future operating performance of the Company, and facilitate a better comparison among fiscal periods, as the non-GAAP financial measures exclude items that are not 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 income of associated companies. The Company also presents adjusted EBITDA which is calculated as EBITDA plus or minus certain items that are not 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 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 analysts, investors, and competitors 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 - adjusted, and taxes on income before equity in net income of associated companies - 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 analysts, investors, and competitors in our industry as well as by management in assessing the operating performance of the Company on a consistent basis.

During the first quarter of 2019, the Company updated its calculation methodology to include the use of interest expense net of interest income in the reconciliation of EBITDA and adjusted EBITDA, compared to its historical use of only interest expense, and also to include the non-service component of the Company's pension and postretirement benefit costs in the reconciliation of adjusted EBITDA, non-GAAP net income attributable to Quaker Chemical Corporation and non-GAAP earnings per diluted share. Prior year amounts have been recast for comparability purposes and the change in calculation methodology does not produce materially different results. The Company believes these updated calculations better reflect its underlying operating performance and better aligns the Company's calculations to those commonly used by analysts, investors, and competitors in our industry.

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):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	**2018**	**2019**	**2018**
Operating income	$ 20,531	$ 22,563	$ 40,360	$ 42,794
Houghton combination and other acquisition-related expenses (a)	4,604	4,291	9,087	9,500
Charges related to the settlement of a non-core equipment sale (b)	384	—	384	—
Non-GAAP operating income	$ 25,519	$ 26,854	$ 49,831	$ 52,294
Non-GAAP operating margin (%) (g)	12.4%	12.1%	11.9%	12.0%

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
Net income attributable to Quaker Chemical Corporation	$ 15,591	$ 19,246	$ 29,435	$ 31,978
Depreciation and amortization	4,843	4,981	9,702	10,028
Interest expense, net (a)	733	1,031	1,509	2,234
Taxes on income before equity in net income of associated companies (f)	4,800	3,668	9,729	9,224
EBITDA	$ 25,967	$ 28,926	$ 50,375	$ 53,464
Equity income in a captive insurance company (c)	(390)	(1,015)	(736)	(643)
Houghton combination and other acquisition-related expenses (a)	4,604	3,681	9,087	8,890
Pension and postretirement benefit costs, non-service components (d)	895	569	1,791	1,145
Charges related to the settlement of a non-core equipment sale (b)	384	—	384	—
Currency conversion impacts of hyper-inflationary economies (e)	(31)	26	163	244
Adjusted EBITDA	$ 31,429	$ 32,187	$ 61,064	$ 63,100
Adjusted EBITDA margin (%) (g)	15.3%	14.5%	14.6%	14.5%
Adjusted EBITDA	$ 31,429	$ 32,187	$ 61,064	$ 63,100
Less: Depreciation and amortization	4,843	4,981	9,702	10,028
Less: Interest expense, net - adjusted (a)	(130)	167	(216)	506
Less: Taxes on income before equity in net income of associated companies - adjusted (f)(h)	5,787	5,768	11,827	12,427
Non-GAAP net income	$ 20,929	$ 21,271	$ 39,751	$ 40,139

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
GAAP earnings per diluted share attributable to Quaker Chemical Corporation common shareholders	$ 1.17	$ 1.44	$ 2.20	$ 2.40
Equity income in a captive insurance company per diluted share (c)	(0.03)	(0.08)	(0.06)	(0.05)
Houghton combination and other acquisition-related expenses per diluted share (a)	0.34	0.29	0.69	0.66
U.S. Transition tax adjustment per diluted share (f)	—	(0.09)	—	(0.09)
Pension and postretirement benefit costs, non-service components per diluted share (d)	0.06	0.03	0.11	0.06
Charges related to the settlement of a non-core equipment sale per diluted share (b)	0.02	—	0.02	—
Currency conversion impacts of hyper-inflationary economies per diluted share (e)	(0.00)	0.00	0.01	0.02
Non-GAAP earnings per diluted share (i)	$ 1.56	$ 1.59	$ 2.97	$ 3.00

(a) Houghton combination and other acquisition-related expenses include certain legal, financial, and other advisory and consultant costs incurred in connection with due diligence, regulatory approvals and integration planning, as well as certain one-time labor costs associated with the Company's acquisition-related activities. These costs are not indicative of the future operating performance of the Company. Approximately $2.3 million and $3.5 million in the three and six months ended June 30, 2019, respectively, and $0.9 million and $2.7 million in the three and six months ended June 30, 2018, 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 both the three and

six months ended June 30, 2019 and 2018, the Company incurred $0.9 and $1.7 million, respectively, of ticking fees to maintain the bank commitment related to the Combination. These interest costs are included in the caption Interest expense, net in the reconciliation of net income attributable to the Company to EBITDA, but are excluded from Interest expense, net – adjusted in the reconciliation of adjusted EBITDA to non-GAAP net income attributable to the Company. Also, included in the caption Houghton combination and other acquisition-related expenses for the three and six months ended June 30, 2018 is a $0.6 million gain on the sale of an available-for-sale asset. See Note 2 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(b) Charges related to the settlement of a non-core equipment sale represents the pre-tax charge related to a one-time, uncommon, customer settlement associated with a prior sale of non-core equipment. These charges are not indicative of the future operating performance of the Company.

(c) Equity income in a captive insurance company represents the after-tax income attributable to the Company's interest in Primex, Ltd. ("Primex"), a captive insurance company. The Company holds a 33% investment in and has significant influence over Primex, and therefore accounts for this interest under the equity method of accounting. The 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.

(d) Pension and postretirement benefit costs, non-service components represent the pre-tax, non-service component of the Company's pension and postretirement net periodic benefit cost in each period. These costs are not indicative of the future operating performance of the Company. See Note 8 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(e) Currency conversion impacts of hyper-inflationary economies represents the foreign currency remeasurement impacts associated with the Company's affiliates whose local economies are designated as hyper-inflationary under U.S. GAAP. An entity which operates within an economy deemed to be hyper-inflationary under U.S. GAAP is required to remeasure its monetary assets and liabilities to the applicable published exchange rates and record the associated gains or losses resulting from the remeasurement directly to the Condensed Consolidated Statements of Income. Venezuela's economy has been considered hyper-inflationary under U.S. GAAP since 2010 while Argentina's economy has been considered hyper-inflationary beginning July 1, 2018. During the three and six months ended June 30, 2019, the Company incurred non-deductible, pre-tax charges related to the Company's Argentina affiliate. During the three months and six ended June 30, 2018, the Company incurred after-tax charges related to the Company's Venezuela affiliate. The charges incurred related to the immediate recognition of foreign currency remeasurement in the Condensed Consolidated Statements of Income associated with these entities are not indicative of the future operating performance of the Company. See Note 1 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(f) U.S. Transition tax adjustment represents the tax benefit recorded by the Company as a result of changes to the Company's initial fourth quarter of 2017 estimate of the one-time charge on deemed repatriation of undistributed earnings associated with the U.S. Tax Cuts and Jobs Act in December 2017. Specifically, the Company adjusted the amount estimated for the U.S. state impact of the gross deemed repatriation Transition tax on previously untaxed accumulated and current earnings and profits of certain of the Company's foreign subsidiaries. The U.S. Transition tax adjustment was based on guidance issued during the second quarter of 2018 by various state taxing authorities and was the result of a specific one-time event and is not indicative of future operating performance of the Company. U.S. Transition tax adjustment is included within the caption Taxes on income before equity in net income of associated companies in the reconciliation of Net income attributable to Quaker Chemical Corporation to Adjusted EBITDA, but is excluded from the caption Taxes on income before equity in net income of associated companies – adjusted in the reconciliation of adjusted EBITDA to non-GAAP net income attributable to the Company. See Note 10 of Notes to Condensed Consolidated Financial Statements, which appears in Item 1 of this Report.

(g) 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.

(h) Taxes on income before equity in net 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, which was determined utilizing the applicable rates in the taxing jurisdictions in which these adjustments occurred, subject to deductibility. Houghton combination and other acquisition-related expenses described in (a) resulted in incremental taxes of $0.7 million and $1.6 million for the three and six months ended June 30, 2019, respectively and $0.8 and $1.8 million for the three and six months ended June 30, 2018, respectively. Charges related to the settlement of a non-core equipment sale described in (b) resulted in incremental taxes of $0.1 million for both the three and six months ended June 30, 2019. Pension and postretirement benefit costs, non-service components described in (d) resulted in incremental taxes of $0.2 million and $0.4 million for the three and six months ended June 30, 2019, respectively, and $0.2 million and $0.3 million for the three and six months ended June 30, 2018, respectively. In addition, U.S. Transition tax adjustment described in (f) resulted in incremental taxes of $1.2 million for both the three and six months ended June 30, 2018.

(i) 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.

Operations

Consolidated Operations Review – Comparison of the Second Quarter of 2019 with the Second Quarter of 2018

Net sales were $205.9 million in the second quarter of 2019 compared to $222.0 million in the second quarter of 2018. The net sales decrease of $16.1 million or 7% quarter-over-quarter was driven by a negative impact from foreign currency translation of 3% or $6.6 million, a decrease in sales volumes of 3% and lower selling price and product mix of 1%.

Costs of goods sold ("COGS") in the second quarter of 2019 of $130.7 million decreased $10.3 million or 7% from $141.0 million in the second quarter of 2018. The decrease in COGS was primarily due to the positive impact of foreign currency translation, product mix and the decrease in product volumes, noted above.

Gross profit in the second quarter of 2019 decreased $5.8 million or 7% from the second quarter of 2018. The decrease in gross profit was primarily due to the decrease in net sales, noted above. The Company's gross margin was 36.5% in both the second quarters of 2019 and 2018, respectively.

SG&A in the second quarter of 2019 decreased $4.1 million compared to the second quarter of 2018 primarily due to the positive impact from foreign currency translation as well as lower incentive compensation and other labor-related costs quarter-over-quarter. These decreases to SG&A quarter-over-quarter were partially offset by a second quarter of 2019 non-core equipment settlement charge, described in the Non-GAAP Measures of this Item, above.

During the second quarter of 2019, the Company incurred $4.6 million of Houghton combination and other acquisition-related expenses, primarily for legal, financial and other advisory and consultant expenses for its acquisition-related activities. Comparatively, the Company incurred $4.3 million of similar acquisition-related expenses during the second quarter of 2018. See the Non-GAAP Measures section of this Item, above.

Operating income in the second quarter of 2019 was $20.5 million compared to $22.6 million in the second quarter of 2018. Excluding Houghton combination and other acquisition-related expenses as well as other non-core items in SG&A, the Company's current quarter non-GAAP operating income decreased to $25.5 million compared to $26.9 million in the prior year, primarily due to the negative impact from foreign currency translation.

The Company had other income, net, of less than $0.1 million in the second quarter of 2019 compared to $0.3 million in the second quarter of 2018. The quarter-over-quarter change was primarily driven by an increase in non-service pension and postretirement benefit costs and a prior year gain on the sale of an available-for-sale asset described in the Non-GAAP Measures section of this Item, above, partially offset by lower foreign currency transaction losses globally and higher receipts of local municipality-related grants in one of the Company's regions in the current quarter.

Interest expense decreased $0.3 million in the second quarter of 2019 compared to the second quarter of 2018, primarily due to lower average outstanding borrowings on the Company's existing credit facility during the current quarter. Interest income was relatively consistent quarter-over-quarter.

The Company's effective tax rates for the second quarters of 2019 and 2018 were 24.2% and 16.8%, respectively. These effective tax rates include the impacts of Houghton combination and other acquisition-related non-deductible costs in all periods presented. In addition, the Company's second quarter of 2018 effective tax rate includes a $1.2 million U.S. Transition tax adjustment. Excluding the impact of these expenses and all other non-core items in each quarter, described in the Non-GAAP Measures section of this Item, above, the Company estimates that its second quarters of 2019 and 2018 effective tax rates would have been approximately 22% and 21%, respectively. The Company's higher second quarter of 2019 effective tax rate was largely driven by higher current quarter tax expense related to the Company recording earnings in one of its subsidiaries at a higher statutory tax rate of 25% during the second quarter of 2019 while it awaits recertification of a concessionary 15% tax rate. The concessionary 15% tax rate was available to the Company's subsidiary during all quarters of 2018. Partially offsetting this increase to the Company's effective tax rate for the second quarter of 2019 was a favorable impact from a shift in earnings to entities with lower effective tax rates compared to the second quarter of 2018. The Company expects continued volatility in its effective tax rates due to several factors, including the timing 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, 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 ("equity income") decreased $0.6 million in the second quarter of 2019 compared to the second quarter of 2018, primarily due to lower earnings from the Company's interest in a captive insurance company in the current quarter. See the Non-GAAP Measures section of this Item, above.

Net income attributable to noncontrolling interest was consistent at $0.1 million in both the second quarters of 2019 and 2018.

Foreign exchange negatively impacted the Company's second quarter of 2019 earnings by approximately 3% or $0.04 per diluted share, primarily due to the negative impact from foreign currency translation partially offset by lower foreign exchange transaction losses quarter-over-quarter, noted above.

Consolidated Operations Review – Comparison of the First Six Months of 2019 with the First Six Months of 2018

Net sales were $417.1 million in the first six months of 2019 compared to $434.0 million in the first six months of 2018. The net sales decrease of $16.9 million or 4% year-over-year was driven by a negative impact from foreign currency translation of 4% or $16.2 million on both consistent volume levels as well as price and product mix.

Costs of goods sold in the first six months of 2019 of $266.2 million decreased approximately $11.4 million or 4% from $277.6 million in the first six months of 2018. The decrease in COGS was primarily due to the positive impact of foreign currency translation and product mix.

Gross profit in the first six months of 2019 decreased $5.5 million or 3% from the first six months of 2018. The decrease in gross profit was primarily due to the decrease in net sales, noted above, partially offset by a higher gross margin of 36.2% in the first six months of 2019 compared to 36.0% in the prior year. The increase in the Company's current year gross margin was primarily due to pricing initiatives and the mix of certain products sold.

SG&A in the first six months of 2019 decreased $2.6 million compared to the first six months of 2018 primarily due to the positive impact from foreign currency translation offset by higher labor-related costs, including annual merit increases and a second quarter of 2019 non-core equipment settlement charge, described in the Non-GAAP Measures section of this Item, above.

During the first six months of 2019, the Company incurred $9.1 million of Houghton combination and other acquisition-related expenses, primarily for legal, financial and other advisory and consultant expenses for its acquisition-related activities. Comparatively, the Company incurred $9.5 million of similar acquisition-related expenses during the first six months of 2018. See the Non-GAAP Measures section of this Item, above.

Operating income in the first six months of 2019 was $40.4 million compared to $42.8 million in the first six months of 2018. Excluding Houghton combination and other acquisition-related expenses as well as other non-core items in SG&A, the Company's first six months of 2019 non-GAAP operating income was $49.8 million compared to $52.3 million in the prior year due primarily to the decrease in net sales, partially offset by the higher current year gross margin and the decrease in SG&A, noted above.

The Company had other expense, net, of $0.6 million in the first six months of 2019 compared to $0.1 million in the first six months of 2018. The drivers of the year-over-year change were consistent with the quarterly discussion above.

Interest expense decreased $0.8 million in the first six months of 2019 compared to the first six months of 2018, primarily due to lower average outstanding borrowings on the Company's existing credit facility during the current year. Interest income was relatively consistent in both the first six months of 2019 and 2018.

The Company's effective tax rates for the first six months of 2019 and 2018 were 25.4% and 22.8%, respectively. Similar to the second quarter of 2019 summary above, the Company's first six months of 2019 and 2018 effective tax rates include the impacts of Houghton combination and other acquisition-related expenses, certain of which were non-deductible, as well as the prior year U.S. Transition tax adjustment. Excluding the impact of these expenses and all other 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 would have been approximately 23% and 24% in the first six months of 2019 and 2018, respectively. The Company's first six months of 2019 effective tax rate was positively impacted by a shift in earnings to entities with lower effective tax rates year-over-year, offset by higher current year tax expense related to the Company recording earnings in one of its subsidiaries at a statutory tax rate of 25% during the first six months of 2019 while it awaits recertification of a concessionary 15% tax rate. The concessionary 15% tax rate was available to the Company's subsidiary during all quarters of 2018.

Equity in net income of associated companies increased $0.1 million in the first six months of 2019 compared to the first six months of 2018, primarily due to higher earnings from the Company's interest in a captive insurance company. See the Non-GAAP Measures section of this Item, above.

Net income attributable to noncontrolling interest was relatively consistent in both the first six months of 2019 and 2018.

Foreign exchange negatively impacted the Company's first six months of 2019 earnings by approximately 3% or $0.10 per diluted share, primarily due to the negative impact from foreign currency translation partially offset by lower foreign exchange transaction losses year-over-year, noted above.

Reportable Operating Segments Review - Comparison of the Second Quarter of 2019 with the Second Quarter of 2018

The Company sells its industrial process fluids, chemical specialties and technical expertise to a wide range of industries in a global product portfolio throughout its four segments: (i) North America; (ii) EMEA; (iii) Asia/Pacific; and (iv) South America.

North America

North America represented approximately 46% of the Company's consolidated net sales in the second quarter of 2019. The segment's net sales were $94.4 million, a decrease of $3.0 million or 3% compared to the second quarter of 2018. The decrease in net sales was primarily due to lower volumes of 4%, partially offset by an increase in selling price and product mix of 1%. The decline in volumes compared to the second quarter of 2018 was driven by an uncommonly strong prior year period as well as current year challenges within certain of the segment's underlying end-markets. This segment's operating earnings, excluding indirect expenses, were $20.5 million, a decrease of $2.7 million or 12% compared to the second quarter of 2018. The decrease in operating earnings quarter-over-quarter was the result of a decrease in gross profit on the lower net sales noted above, coupled with a decrease in gross margin due to certain raw material cost increases and changes in product mix. These decreases to the segment's current quarter operating earnings were partially offset by slightly lower labor-related SG&A.

EMEA

EMEA represented approximately 26% of the Company's consolidated net sales in the second quarter of 2019. The segment's net sales were $53.2 million, a decrease of $7.0 million or 12% compared to the second quarter of 2018. The decrease in net sales was primarily due to the negative impact of foreign currency translation of 6%, lower volumes of 4% and decreases in selling price and product mix of 2%. The segment's volume decrease included lower volumes associated with a specific piece of business which the Company stopped selling during 2018 primarily due to its low profitability, and also current year challenges within certain of the segment's underlying end-markets. The foreign exchange impact was primarily due to the weakening of the euro against the U.S. dollar as this exchange rate averaged 1.12 in the second quarter of 2019 compared to 1.19 in the second quarter of 2018. This segment's operating earnings, excluding indirect expenses, were $9.0 million, a slight decrease compared to $9.1 million in the second quarter of 2018. The decrease in operating earnings quarter-over-quarter was driven by lower gross profit on the decline in net sales, noted above, partially offset by a higher gross margin in the current quarter due to changes in product mix and the impact of pricing initiatives. EMEA also benefited from lower SG&A in the second quarter of 2019 compared to the prior year quarter, primarily due to the impact of foreign currency translation.

Asia/Pacific

Asia/Pacific represented approximately 24% of the Company's consolidated net sales in the second quarter of 2019. The segment's net sales were $49.8 million, a decrease of $5.5 million or 10% compared to the second quarter of 2018. The decrease in net sales was primarily due to the negative impact of foreign currency translation of 5%, decreases in selling price and product mix of 4% and lower volumes of 1%. The slight decline in volumes compared to the second quarter of 2018 was primarily driven by an uncommonly strong prior year period which offset underlying volume growth in the current quarter despite difficult end-market conditions. The foreign exchange impact was primarily due to the weakening of the Chinese renminbi and Indian rupee against the U.S. dollar as these exchange rates averaged 6.82 and 69.58 in the second quarter of 2019 compared to 6.38 and 66.97 in the second quarter of 2018, respectively. This segment's operating earnings, excluding indirect expenses, were $12.7 million, a decrease of $1.9 million or 13% compared to the second quarter of 2018. The decrease in operating earnings was primarily driven by lower gross profit on the decrease in net sales, noted above, on a relatively consistent gross margin in both periods. Asia/Pacific also benefited from slightly lower SG&A in the second quarter of 2019 compared to the prior year quarter, which was primarily due to the impact of foreign currency translation.

South America

South America represented approximately 4% of the Company's consolidated net sales in the second quarter of 2019. The segment's net sales were $8.5 million, a decrease of $0.5 million or 6% compared to the second quarter of 2018. The decrease in net sales was primarily due to the negative impact of foreign currency translation of 8% and lower volumes of 5%, partially offset by an increase in selling price and product mix of 7%. The decrease in volumes compared to the prior year period was primarily due to current year challenges within certain of the segment's underlying end-markets. The foreign exchange impact was primarily due to the weakening of the Brazilian real against the U.S. dollar as this exchange rate averaged 3.92 in the second quarter of 2019 compared to 3.60 in the second quarter of 2018. This segment's operating earnings, excluding indirect expenses, were $1.2 million, an increase of $0.1 million compared to the second quarter of 2018. The increase in operating earnings was driven by lower SG&A in the second quarter of 2019 compared to the prior year quarter, which was primarily due to the impact of foreign currency translation. The segment's gross profit was relatively consistent in both periods, as the decrease in net sales, noted above, was offset by a higher gross margin in the current quarter due to changes in product mix and the impact of pricing initiatives, which more than offset certain raw material cost increases.

Reportable Operating Segments Review - Comparison of the First Six Months of 2019 with the First Six Months of 2018

North America

North America represented approximately 46% of the Company's consolidated net sales in the first six months of 2019. The segment's net sales were $189.6 million, an increase of $0.4 million or less than 1% compared to the first six months of 2018. The increase in net sales was primarily due to an increase in selling price and product mix of approximately 3% partially offset by lower volumes of 2%. The decline in volumes year-over-year was largely driven by lower production in certain of the segment's end-markets. This reportable segment's operating earnings, excluding indirect expenses, were $41.4 million, a decrease of $2.2 million or 5% compared to the first six months of 2018. The decrease during the first six months of 2019 was mainly driven by lower gross profit on a decrease in gross margin in the current year compared to the first six months of 2018, primarily driven by certain raw material cost increases and the mix of certain products sold. The decrease in gross margin was partially offset by the increase in net sales noted above, as well as slightly lower SG&A in the first six months of 2019 compared to the prior year due to the Company's discipline in managing its SG&A.

EMEA

EMEA represented approximately 26% of the Company's consolidated net sales in the first six months of 2019. The segment's net sales were $109.4 million, a decrease of $12.8 million or 10% compared to the first six months of 2018. The decrease in net sales was primarily due to the negative impact of foreign currency translation of 7%, lower volumes of 2% and decreases in selling price and product mix of 1%. The year-to-date volume comparison was impacted by an atypically high sales pattern in EMEA during the first quarter of 2018 lower volumes associated with a specific piece of business which the Company stopped selling during the second quarter of 2018 primarily due to its low profitability and a decline in end-market conditions year-over-year. The foreign exchange impact was primarily due to a weakening of the euro against the U.S. dollar as this exchange rate averaged 1.13 in the first six months of 2019 compared to 1.21 in the first six months of 2018. This reportable segment's operating earnings, excluding indirect expenses, were $17.8 million, a decrease of $1.6 million or 8% compared to the first six months of 2018. The decrease during the first six months of 2019 was the result of lower gross profit on the decreased net sales, noted above, partially offset by a higher gross margin on product mix and decreases in certain raw material costs compared to the prior year. In addition, EMEA benefited from lower SG&A in the first six months of 2019 compared to the prior year, which was primarily due to the impact of foreign currency translation.

Asia/Pacific

Asia/Pacific represented approximately 24% of the Company's consolidated net sales in the first six months of 2019. The segment's net sales were $100.4 million, a decrease of $3.8 million or 4% compared to the first six months of 2018. The decrease in net sales was primarily due to the negative impact of foreign currency translation of 5% and decreases in selling price and product mix of 3%, partially offset by higher volumes of approximately 5%. The foreign exchange impact was primarily due to the weakening of the Chinese renminbi and Indian rupee against the U.S. dollar as these exchange rates averaged 6.78 and 70.00 in the first six months of 2019 compared to 6.37 and 65.63 in the first six months of 2018, respectively. This reportable segment's operating earnings, excluding indirect expenses, were $25.8 million, a decrease of $1.0 million or 4% compared to the first six months of 2018. The decrease during the first six months of 2019 was the result of lower gross profit on the decreased net sales, noted above, partially offset by a slightly higher gross margin. The segment's SG&A was relatively consistent in both the first six months of 2019 and 2018.

South America

South America represented approximately 4% of the Company's consolidated net sales in the first six months of 2019. The segment's net sales were $17.7 million, a decrease of $0.8 million or approximately 4% compared to the first six months of 2018. The decrease in net sales was primarily due to the negative impact of foreign currency translation of 11% partially offset by increases in selling price and product mix of 6% and higher volumes of 1%. The foreign exchange impact was primarily due to the weakening of the Brazilian real against the U.S. dollar as this exchange rates averaged 3.84 in the first six months of 2019 compared to 3.41 in the first six months of 2018. This reportable segment's operating earnings, excluding indirect expenses, were $2.4 million, an increase of $0.7 million compared to the first six months of 2018. The increase during the first six months of 2019 was the result of higher gross profit on an increase in gross margin driven by pricing initiatives, product mix and certain raw material cost changes, as well as lower SG&A due to the impact of foreign currency translation, partially offset by the decrease in net sales, noted above.

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 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;
- our current and future results and plans; and
- statements that include the words "may," "could," "should," "would," "believe," "expect," "anticipate," "estimate," "intend," "plan" or other 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 2018 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 Quaker'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 its customers' products, which subjects the Company to uncertainties related to downturns in a customer's business and unanticipated customer production shutdowns. Other major risks and uncertainties include, but are not limited to, significant increases in raw material costs, customer financial stability, worldwide economic and political conditions, 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 steel, automobile, aircraft, appliance, and durable goods manufacturers. 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 its actual results to differ materially from expected and historical results.

Other factors beyond those discussed in this Report, could also adversely affect us including, but not limited to the following related to the Combination:

- potential adverse effects on Quaker Chemical Corporation's business, properties or operations caused by the implementation of the Combination;
- Quaker Chemical Corporation's ability to promptly, efficiently and effectively integrate the operations of Houghton and Quaker Chemical;
- the ability to develop or modify financial reporting, information systems and other related financial tools to ensure overall financial integrity and adequacy of internal control procedures;
- the ability to identify and take advantage of potential synergies, including cost reduction opportunities, while maintaining legacy business and other related attributes, as well as, the risk that the costs to achieve synergies may be more than anticipated;
- difficulties in managing a larger, combined company, addressing differences in business culture and retaining key personnel;
- risks related to each company's distraction from ongoing business operations due to the Combination; and,
- the outcome of any legal proceedings that may be instituted against the companies related to the Combination.

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 of our Form 10-K for the year ended December 31, 2018, as well as the proxy statement the Company filed on July 31, 2017 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.

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, 2018, and we believe there has been no material change to that information.

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 the end of the period covered by this report our disclosure controls and procedures were not effective as of June 30, 2019 because of a material weakness in our internal control over financial reporting. This control deficiency was identified following an internal review by PricewaterhouseCoopers LLP, the independent registered public accounting firm of the Company, of its 2018 audit of the Company’s consolidated financial statements as reported in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2018, originally filed with the SEC on February 28, 2019. The Company did not design and maintain effective internal control over certain aspects of its information technology. Specifically, we did not design and maintain effective internal controls related to (i) user access controls to adequately restrict user and privileged access to certain financial applications and data to the appropriate personnel, including ensuring appropriate segregation of duties as it relates to the preparation and review of journal entries and (ii) monitoring, documenting and approving system or data changes. As of June 30, 2019, this material weakness was not remediated. This control deficiency creates a reasonable possibility that a material misstatement in our consolidated financial statements would not have been prevented or detected on a timely basis.

Notwithstanding this material weakness, the Company has concluded that no material misstatements exist in the consolidated financial statements, in all material respects, the financial position of the Company as of June 30, 2019 and December 31, 2018, and the results of its operations and its cash flows for the three and six months ended June 30, 2019 and 2018, in conformity with accounting principles generally accepted in the United States of America.

Plan for Remediation of Material Weakness. The Company and its Board of Directors are committed to maintaining a strong internal control environment. Management has evaluated the material weakness described above and has made significant progress updating its design and implementation of internal controls to remediate the aforementioned control deficiency and enhance the Company’s internal control environment. The remediation plan is being implemented and includes a revised risk assessment coupled with additional controls and procedures. Management is committed to successfully implementing the remediation plan as promptly as possible, and currently plans to evaluate its updated internal controls design and determine whether the controls have operated effectively during the third quarter of 2019 in order to fully remediate the aforementioned material weakness in the Company’s internal control over financial reporting.

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 June 30, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Based on that evaluation, no significant changes to our internal control over financial reporting occurred during the quarter ended June 30, 2019.

PART II.
OTHER INFORMATION

Items 1A, 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 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)
April 1 - April 30	**—**	**$ —**	**—**	**$ 86,865,026**
May 1 - May 31	**—**	**$ —**	**—**	**$ 86,865,026**
June 1 - June 30	**252**	**$ 180.86**	**—**	**$ 86,865,026**
Total	**252**	**$ 180.86**	**—**	**$ 86,865,026**

(1) All of these shares were acquired from employees upon their 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.

(2) The price paid for shares acquired from employees pursuant to employee benefit and share-based compensation plans is, in each case, 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 or restricted stock was granted.

(3) On May 6, 2015, the Board of Directors of the Company approved, and the Company announced, a new 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"). The 2015 Share Repurchase Program, which replaced the Company's other share repurchase plans then in effect, has no expiration date. There were no shares acquired by the Company pursuant to the 2015 Share Repurchase Program during the quarter ended June 30, 2019.

Item 6. Exhibits.

(a) Exhibits

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
3.1	–	Articles of Incorporation (as amended through July 24, 2019)
101.INS	–	XBRL Instance Document
101.SCH	–	XBRL Extension Schema Document
101.CAL	–	XBRL Calculation Linkbase Document
101.DEF	–	XBRL Definition Linkbase Document
101.LAB	–	XBRL Label Linkbase Document
101.PRE	–	XBRL Presentation Linkbase Document

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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/ Mary Dean Hall

Date: August 1, 2019

Mary Dean Hall, Senior Vice President, Chief Financial Officer and Treasurer (officer duly authorized on behalf of, and principal financial officer of, the Registrant)

Click here to enter text.

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, Michael F. Barry, 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: August 1, 2019

/s/ Michael F. Barry
Michael F. Barry
Chief Executive Officer

Click here to enter text.

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, Mary Dean Hall, 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: August 1, 2019

/s/ Mary Dean Hall
Mary Dean Hall
Chief Financial Officer

Click here to enter text.

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 June 30, 2019 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: August 1, 2019

/s/ Michael F. Barry
Michael F. Barry
Chief Executive Officer of Quaker Chemical Corporation

Click here to enter text.

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 June 30, 2019 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: August 1, 2019

/s/ Mary Dean Hall
Mary Dean Hall
Chief Financial Officer of Quaker Chemical Corporation

Click here to enter text.

EXHIBIT 3.1

QUAKER CHEMICAL CORPORATION
(a Pennsylvania Corporation)

AMENDED AND RESTATED ARTICLES OF INCORPORATION
(as amended through July 24, 2019)

1. The name of the Corporation is: Quaker Chemical Corporation.

2. The location of its registered office in the Commonwealth of Pennsylvania is: One Quaker Park, 901 Hector Street, Conshohocken, PA 19428, Montgomery County.

3. The statute by or under which it was incorporated is: Act of April 29, 1874.

4. The date of its incorporation is: October 20, 1930.

5. (a) The authorized capital stock of the Corporation is 30,000,000 shares of Common Stock, $1 par value per share, and 10,000,000 shares of Preferred Stock, $1 par value per share.

(b) The shares of Preferred Stock may be divided into and issued from time to time in one or more series as may be designated by the Board of Directors of the Corporation, each such series to be distinctly titled and to consist of the number of shares designated by the Board of Directors. All shares of any one series of Preferred Stock so designated by the Board of Directors shall be alike in every particular, except that shares of any one series issued at different times may differ as to the dates from which dividends thereon (if any) shall accrue or be cumulative (or both). The designations, relative rights, preferences and limitations of any series of Preferred Stock may differ from those of any and all other series at any time outstanding. The Board of Directors may change the designation or number of shares, or the preferences, relative rights and limitations of the shares, of any theretofore established series of Preferred Stock, no shares of which have been issued. The Board of Directors of the Corporation is hereby expressly vested with authority to determine by resolution the preferences, relative rights and limitations of the Preferred Stock and each series thereof which may be designated by the Board of Directors, including, but without limiting the generality of the foregoing, the following:

1. The voting rights and powers (if any) of the Preferred Stock and each series thereof;

2. The rates and times at which, and the terms and conditions on which, dividends (if any) on Preferred Stock and each series thereof, will be paid, and any dividend preferences or rights of cumulation;

3. The rights (if any) of holders of Preferred Stock, and each series thereof, to convert the same into, or exchange the same for shares of other classes (or series of classes) of capital stock of the Corporation and the terms and conditions for each conversion or exchange, including provisions for adjustment of conversion or exchange prices or rates in events as the Board of Directors shall determine;

4. The redemption rights (if any) of the Corporation and times at which the terms and conditions on which Preferred Stock and each series thereof may be redeemed; and

5. The rights and preferences (if any) of the holders of Preferred Stock, and each series thereof, upon the voluntary or involuntary dissolution, liquidation or winding up of the Corporation.

(c) No holders of any class of stock of the Corporation shall have any preemptive or preferential right of subscription to any shares of any class of stock of the Corporation, whether now or hereafter authorized, and such stock may be sold or issued to such person or persons as the Board of Directors may determine.

6. Shareholders' cumulative voting rights for the election of Directors are eliminated and denied.

7. (a) In an election of directors that is not a contested election, each director shall be elected by the vote of the majority of the votes cast with respect to that director. For the purposes of this Article 7, a majority of the votes cast means that the number of votes cast "for" a nominee must exceed the number of votes cast "against" that nominee. This Article 7 shall not apply to an election of directors by holders of any class of stock (other than Common Stock) issued by the Corporation who have the right, voting separately as a class or otherwise, to elect directors.

(b) In a contested election of directors, the candidates receiving the highest number of votes, up to the number

of directors to be elected in such election, shall be elected. Shareholders shall not have the right to vote against a nominee in a contested election of directors.

(c) For purposes of this Article 7, a contested election is one in which the number of candidates exceeds the number of directors to be elected. The number of candidates for an election shall be determined in accordance with these Articles of Incorporation, the Corporation's By-Laws, including any advance notice provisions of each, and applicable law.

(d) If an incumbent director who is a candidate for re-election is not elected, the director shall be deemed to have tendered his or her resignation to the Board to be effective as of the adjournment of the meeting of the Board at which a decision on whether to accept the resignation is made by the Board. The Nominating Committee, if any, will make a recommendation to the Board on whether to accept or reject the resignation, or whether other action should be taken. The Board shall act on the Nominating Committee's recommendation and disclose its decision and the rationale therefor within 90 days after the date of the certification of the election results. The director who is deemed to have tendered his or her resignation shall not participate in the decisions of the Nominating Committee or of the Board with respect to his or her own resignation.

8. The number of directors of the Corporation shall be fixed from time to time in the manner provided in the By-Laws. The directors shall be divided into three classes: Class I, Class II and Class III. Each class shall consist, as nearly as may be possible, of one-third of the total number of directors. At the annual meeting of shareholders in 1983, Class I directors shall be elected for a one-year term, Class II directors for a two-year term and Class III directors for a three-year term. At each succeeding annual meeting of shareholders beginning in 1984, successors to the class of directors whose term expires at that annual meeting shall be elected for a three-year term. If the number of directors is changed, any increase or decrease shall be apportioned among the classes so as to maintain the number of directors in each class as nearly equal as possible, and any additional director of any class elected to fill a vacancy resulting from an increase in such class shall hold office for a term that shall coincide with the remaining term of that class, but in no case will a decrease in the number of directors shorten the term of any incumbent director. A director shall hold office until the annual meeting in the year in which his term expires and until his successor shall be elected and shall qualify, subject, however, to prior death, resignation, retirement, disqualification or removal from office. Any vacancy on the Board of Directors that results from an increase in the number of directors shall be filled by a majority of the Board of Directors in office, and any other vacancy occurring in the Board of Directors shall be filled by a majority of the directors in office, although less than a quorum, or by a sole remaining director. Any director elected to fill a vacancy not resulting from an increase in the number of directors shall have the same remaining term as that of his predecessor.

A director may be removed with or without cause only by the affirmative vote of the holders of at least eighty (80%) percent of the outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class.

Notwithstanding the foregoing, whenever the holders of any class of stock (other than Common Stock) issued by the Corporation shall have the right, voting separately as a class or otherwise, to elect directors, then the authorized number of directors of the Corporation shall be increased by the number of additional directors to be elected, and the election, term of office, filling of vacancies and other features of such directorships shall be governed by the terms of these Articles of Incorporation applicable thereto.

Notwithstanding any other provisions of these Articles of Incorporation or the By-Laws of the Corporation (and notwithstanding the fact that a lesser percentage may be specified by law, these Articles of Incorporation or the By-Laws of the Corporation), the affirmative vote of the holders of at least eighty (80%) percent of the outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to amend, alter, change or repeal, or adopt any provisions inconsistent with, this Article 8.

9. Special meetings of the shareholders may be called by the Chairman of the Board or the President and shall be called by the Secretary when directed by the Board of Directors or by the written request of the holders of at least eighty (80%) percent of the outstanding shares of capital stock of the Corporation entitled to vote at such meeting.

Notwithstanding any other provisions of these Articles of Incorporation or the By-Laws of the Corporation (and notwithstanding the fact that a lesser percentage may be specified by law, these Articles of Incorporation or the By-Laws of the Corporation), the affirmative vote of the holders of at least eighty (80%) percent of the outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to amend, alter, change or repeal, or adopt any provisions inconsistent with, this Article 9.

10. I. In addition to any affirmative vote required by Pennsylvania law or any other provision of these Articles of Incorporation, the affirmative vote of the holders of not less than eighty (80%) percent of the outstanding shares of "Voting Stock" of the Corporation (as hereinafter defined), voting together as a single class, shall be required for the approval or authorization of any "Business Combination" (as hereinafter defined) involving a "Related Person" (as hereinafter defined); provided, however, that the eighty (80%) percent voting requirement shall not be applicable if:

Click here to enter text.

(A) The "Continuing Directors" of the Corporation (as hereinafter defined) by a two-thirds vote have expressly approved the Business Combination either in advance of or subsequent to the acquisition of outstanding shares of Voting Stock of the Corporation that caused the Related Person to become a Related Person; or

(B) If the following conditions are satisfied:

(1) The aggregate amount of the cash and the fair market value, as determined by two-thirds of the Continuing Directors, of the property, securities or other consideration to be received per share of capital stock of the Corporation in the Business Combination by holders of capital stock of the Corporation, other than the Related Person involved in the Business Combination, is not less than the "Highest Per Share Price" or the "Highest Equivalent Price" (as these terms are hereinafter defined) paid by the Related Person in acquiring any of its holdings of the Corporation's capital stock; and

(2) A proxy or information statement complying with the requirements of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (or any subsequent provisions replacing such Act, rules or regulations) shall have been mailed to all shareholders of the Corporation at least 30 days prior to the consummation of such Business Combination (whether or not such proxy or information statement is required to be mailed pursuant to such Act or subsequent provisions). The proxy or information statement shall contain at the front thereof, in a prominent place, the position of the Continuing Directors as to the advisability (or inadvisability) of the Business Combination and, if deemed advisable by a majority of the Continuing Directors, the opinion of an investment banking firm selected by the Continuing Directors as to the fairness of the terms of the Business Combination from the point of view of the holders of the outstanding shares of capital stock of the Corporation other than any Related Person.

II. For purposes of this Article 10:

(A) The term "Business Combination" shall mean (i) any merger or consolidation of the Corporation or a subsidiary of the Corporation into or with a Related Person, in each case irrespective of which corporation or company is the surviving entity; (ii) any sale, lease, exchange, mortgage, pledge, transfer or other disposition to or with a Related Person (in a single transaction or a series of related transactions) of all or a "Substantial Part" (as hereinafter defined) of the assets of the Corporation (including without limitation any securities of a subsidiary) or of a subsidiary of the Corporation; (iii) any sale, lease, exchange, mortgage, pledge, transfer or other disposition to or with the Corporation or to or with a subsidiary of the Corporation (in a single transaction or series of related transactions) of all or a Substantial Part of the assets of a Related Person; (iv) the issuance of any securities of the Corporation or of a subsidiary of the Corporation to a Related Person (other than an issuance of securities which is effected on a pro rata basis to all shareholders of the Corporation); (v) any recapitalization or reclassification of securities (including any reverse stock split) of the Corporation which would have the effect, directly or indirectly, of increasing the proportionate share of the outstanding Voting Stock of the Corporation owned by a Related Person; (vi) the adoption of any plan or proposal for the liquidation or dissolution of the Corporation proposed by or on behalf of a Related Person; and (vii) the acquisition by the Corporation or by a subsidiary of the Corporation of any securities of a Related Person.

(B) The term "Related Person" shall mean any individual, corporation, partnership or other person or entity (other than any subsidiary of the Corporation and other than any profit-sharing, employee stock ownership or other employee benefit plan of the Corporation or a subsidiary of the Corporation) which, as of the record date for the determination of shareholders entitled to notice of and to vote on any Business Combination, or immediately prior to the consummation of such transaction, together with its "Affiliates" and "Associates" (as defined in Rule 12b-2 of the General Rules and Regulations under the Securities Exchange Act of 1934 as in effect at the date of the adoption of this Article by the shareholders of the Corporation (collectively and as so in effect, the "Exchange Act")), are "Beneficial Owners" (as defined in Rule 13d-3 of the Exchange Act) in the aggregate of ten (10%) percent or more of the outstanding shares of Voting Stock of the Corporation, and any Affiliate or Associate of any such individual, corporation, partnership or other person or entity.

(C) The term "Substantial Part" shall mean assets having a fair market value, as determined by two-thirds of the Continuing Directors, of more than twenty (20%) percent of the total consolidated assets of the Corporation and its subsidiaries taken as a whole, as of the end of its most recent fiscal year ending prior to the time the determination is being made.

(D) Without limitation, any shares of Voting Stock of the Corporation that any Related Person has the right to acquire at any time (notwithstanding that Rule 13d-3 of the Exchange Act deems such shares to be beneficially owned only if such right may be exercised within 60 days) pursuant to any agreement, or upon exercise of conversion rights, warrants or options, or otherwise, shall be deemed to be beneficially owned by the Related Person and to be outstanding for purposes of subparagraph (B) above.

(E) For the purposes of subparagraph (B)(1) of paragraph I of this Article 10, the term "other consideration to be received" shall include, without limitation, Common Stock or other capital stock of the Corporation retained by shareholders of the Corporation other than Related Persons or parties to such Business Combination in the event of a Business Combination in which the Corporation is the surviving corporation.

(F) The term “Voting Stock” shall mean all outstanding shares of capital stock of the Corporation entitled to vote generally in the election of directors and each reference to a proportion of Voting Stock shall refer to such proportion of the votes entitled to be cast by such shares.

(G) The term “Continuing Director” shall mean a director who was a member of the Board of Directors of the Corporation at the date of the adoption of this Article by the shareholders of the Corporation, together with each director who either (i) was a member of the Board of Directors immediately prior to the time that the Related Person involved in a Business Combination became the Beneficial Owner of ten (10%) percent of the Voting Stock of the Corporation, or (ii) was designated (before his or her initial election as director) as a Continuing Director by a majority of the then Continuing Directors.

(H) A Related Person shall be deemed to have acquired a share of the Voting Stock of the Corporation at the time when such Related Person became the Beneficial Owner thereof. With respect to the shares owned by Affiliates, Associates or other persons whose ownership is attributed to a Related Person under the foregoing definition of Related Person, if the price paid by such Related Person for such shares is not determinable by the Continuing Directors, the price so paid shall be deemed to be the higher of (i) the price paid upon the acquisition thereof by the Affiliate, Associate or other person or (ii) the market price of the shares in question at the time when the Related Person became the Beneficial Owner thereof.

(I) The terms “Highest Per Share Price” and “Highest Equivalent Price” as used in this Article 10 shall mean the following: If there is only one class of capital stock of the Corporation issued and outstanding, the Highest Per Share Price shall mean the highest price that can be determined to have been paid at any time by the Related Person for any share or shares of that class of capital stock. If there is more than one class of capital stock of the Corporation issued and outstanding, the Highest Equivalent Price shall mean with respect to each class and series of capital stock of the Corporation, the amount determined by two-thirds of the Continuing Directors, on whatever basis they believe is appropriate, to be the highest per share price equivalent of the highest price that can be determined to have been paid at any time by the Related Person for any share or shares of any class or series of capital stock of the Corporation. In determining the Highest Per Share Price and Highest Equivalent Price, appropriate adjustments shall be made for recapitalizations and for stock splits, stock dividends and like distributions or transactions, and all purchases by the Related Person shall be taken into account regardless of whether the shares were purchased before or after the Related Person became a Related Person. Also, the Highest Per Share Price and the Highest Equivalent Price shall include any brokerage commissions, transfer taxes and soliciting dealers’ fees paid by the Related Person with respect to the shares of capital stock of the Corporation acquired by the Related Person. In the case of any Business Combination with a Related Person, the Continuing Directors should determine the Highest Equivalent Price for each class and series of the capital stock of the Corporation.

III. Notwithstanding any other provisions of these Articles of Incorporation or the By-Laws of the Corporation (and notwithstanding the fact that a lesser percentage may be specified by law, these Articles of Incorporation or the By-Laws of the Corporation), the affirmative vote of the holders of at least eighty (80%) percent of the outstanding shares of Voting Stock of the Corporation, voting together as a single class, shall be required to amend, alter, change or repeal, or adopt any provisions inconsistent with, this Article 10.