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

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2021

OR

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

For the transition period from to

Commission File Number: 001-38221

PQ Group Holdings Inc.

Delaware (State or other jurisdiction of incorporation or organization)	**81-3406833** (I.R.S. Employer Identification No.)
300 Lindenwood Drive **Malvern, Pennsylvania** (Address of principal executive offices)	**19355** (Zip Code)

(610) 651-4400
(Registrant's telephone number, including area code)

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

Title of each class	Trading symbol	Name of each exchange on which registered
Common stock, par value $0.01 per share	PQG	New York Stock Exchange

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

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

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

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

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

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

The number of shares of common stock outstanding as of May 13, 2021 was 136,924,458.

PQ GROUP HOLDINGS INC.

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March 31, 2021

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PART I—FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS (UNAUDITED).

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF INCOME
(in thousands, except share and per share amounts)
(unaudited)

	Three months ended March 31,	
	2021	2020
Sales	$ 126,624	$ 125,554
Cost of goods sold	96,505	87,850
Gross profit	30,119	37,704
Selling, general and administrative expenses	22,130	22,280
Other operating expense, net	5,507	3,450
Operating income	2,482	11,974
Equity in net (income) from affiliated companies	(5,210)	(8,295)
Interest expense, net	10,456	15,298
Debt extinguishment costs	—	2,513
Other expense, net	5,174	7,470
Loss from continuing operations before income taxes and noncontrolling interest	(7,938)	(5,012)
Benefit for income taxes	(5,190)	(1,665)
Net loss from continuing operations	(2,748)	(3,347)
Net (loss) income from discontinued operations, net of tax	(89,770)	3,856
Net (loss) income	(92,518)	509
Less: Net income attributable to the noncontrolling interest - discontinued operations	117	285
Net (loss) income attributable to PQ Group Holdings Inc.	$ (92,635)	$ 224
Loss from continuing operations attributable to PQ Group Holdings Inc.	$ (2,748)	$ (3,347)
(Loss) income from discontinued operations attributable to PQ Group Holdings Inc.	(89,887)	3,571
Net (loss) income attributable to PQ Group Holdings Inc.	$ (92,635)	$ 224
Net (loss) income per share:		
Basic loss per share - continuing operations	$ (0.02)	$ (0.02)
Diluted loss per share - continuing operations	$ (0.02)	$ (0.02)
Basic (loss) income per share - discontinued operations	$ (0.66)	$ 0.02
Diluted (loss) income per share - discontinued operations	$ (0.66)	$ 0.02
Basic loss per share	$ (0.68)	$ 0.00
Diluted loss per share	$ (0.68)	$ 0.00
Weighted average shares outstanding:		
Basic	136,006,082	135,240,897
Diluted	136,006,082	136,086,082

See accompanying notes to condensed consolidated financial statements.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)
(unaudited)

	Three months ended March 31,	
	2021	2020
Net (loss) income	$ (92,518)	$ 509
Other comprehensive loss, net of tax:		
Pension and postretirement benefits	(43)	(15)
Net gain (loss) from hedging activities	765	(529)
Foreign currency translation	(3,861)	(46,355)
Total other comprehensive loss	(3,139)	(46,899)
Comprehensive loss	(95,657)	(46,390)
Less: Comprehensive loss attributable to noncontrolling interests	(277)	(3,203)
Comprehensive loss attributable to PQ Group Holdings Inc.	$ (95,380)	$ (43,187)

See accompanying notes to condensed consolidated financial statements.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)
(unaudited)

	March 31, 2021	December 31, 2020
ASSETS		
Cash and cash equivalents	$ 55,171	$ 114,011
Accounts receivable, net	56,987	46,183
Inventories, net	48,934	52,789
Prepaid and other current assets	16,767	11,677
Current assets held for sale	191,380	204,007
Total current assets	369,239	428,667
Investments in affiliated companies	455,285	458,128
Property, plant and equipment, net	593,016	591,710
Goodwill	429,505	391,565
Other intangible assets, net	134,661	137,446
Right-of-use lease assets	31,711	28,943
Other long-term assets	15,142	12,445
Long-term assets held for sale	1,035,418	1,149,443
Total assets	$ 3,063,977	$ 3,198,347
LIABILITIES		
Current maturities of long-term debt	$ —	$ —
Accounts payable	42,012	38,106
Operating lease liabilities—current	7,458	6,715
Accrued liabilities	47,065	45,475
Current liabilities held for sale	96,087	111,569
Total current liabilities	192,622	201,865
Long-term debt, excluding current portion	1,401,573	1,400,369
Deferred income taxes	120,928	125,668
Operating lease liabilities—noncurrent	24,079	21,972
Other long-term liabilities	15,247	15,744
Long-term liabilities held for sale	123,045	155,550
Total liabilities	1,877,494	1,921,168
Commitments and contingencies (Note 17)		
EQUITY		
Common stock ($0.01 par); authorized shares 450,000,000; issued shares 137,815,163 and 137,102,143 on March 31, 2021 and December 31, 2020, respectively; outstanding shares 136,932,950 and 136,318,557 on March 31, 2021 and December 31, 2020, respectively	1,378	1,371
Preferred stock ($0.01 par); authorized shares 50,000,000; no shares issued or outstanding on March 31, 2021 and December 31, 2020	—	—
Additional paid-in capital	1,484,799	1,477,859
Accumulated deficit	(268,393)	(175,758)
Treasury stock, at cost; shares 882,213 and 783,586 on March 31, 2021 and December 31, 2020, respectively	(12,551)	(11,081)
Accumulated other comprehensive loss	(18,010)	(15,265)
Total PQ Group Holdings Inc. equity	1,187,223	1,277,126
Noncontrolling interest	(740)	53
Total equity	1,186,483	1,277,179
Total liabilities and equity	$ 3,063,977	$ 3,198,347

See accompanying notes to condensed consolidated financial statements.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)
(unaudited)

	Common stock	Additional paid-in capital	(Accumulated deficit)	Treasury stock, at cost	Accumulated other comprehensive income (loss)	Non-controlling interest	Total
Balance, December 31, 2020	$ 1,371	$ 1,477,859	$ (175,758)	$ (11,081)	$ (15,265)	$ 53	$ 1,277,179
Net (loss) income	—	—	(92,635)	—	—	117	(92,518)
Other comprehensive loss	—	—	—	—	(2,745)	(394)	(3,139)
Repurchases of common shares	—	—	—	(1,470)	—	—	(1,470)
Distributions to noncontrolling interests	—	—	—	—	—	(516)	(516)
Stock compensation expense	—	6,877	—	—	—	—	6,877
Shares issued under equity incentive plan, net of forfeitures	7	63	—	—	—	—	70
Balance, March 31, 2021	$ 1,378	$ 1,484,799	$ (268,393)	$ (12,551)	$ (18,010)	$ (740)	$ 1,186,483

	Common stock	Additional paid-in capital	Retained earnings	Treasury stock, at cost	Accumulated other comprehensive income (loss)	Non-controlling interest	Total
Balance, December 31, 2019	$ 1,369	$ 1,696,899	$ 103,013	$ (6,483)	$ (15,348)	$ 5,868	$ 1,785,318
Net income	—	—	224	—	—	285	509
Other comprehensive loss	—	—	—	—	(43,411)	(3,488)	(46,899)
Repurchases of common shares	—	—	—	(3,889)	—	—	(3,889)
Stock compensation expense	—	5,920	—	—	—	—	5,920
Shares issued under equity incentive plan, net of forfeitures	4	177	—	—	—	—	181
Balance, March 31, 2020	$ 1,373	$ 1,702,996	$ 103,237	$ (10,372)	$ (58,759)	$ 2,665	$ 1,741,140

See accompanying notes to condensed consolidated financial statements.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Three months ended March 31, 2021	Three months ended March 31, 2020
Cash flows from operating activities:		
Net (loss) income	$ (92,518)	$ 509
Net loss (income) from discontinued operations	89,770	(3,856)
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation	16,526	15,777
Amortization	2,974	2,898
Amortization of deferred financing costs and original issue discount	532	724
Foreign currency exchange loss	5,101	7,070
Pension and postretirement healthcare (benefit) expense	(595)	131
Pension and postretirement healthcare funding	—	(891)
Deferred income tax benefit	(4,344)	(699)
Net loss on asset disposals	778	163
Stock compensation	6,305	4,294
Equity in net income from affiliated companies	(5,210)	(8,295)
Dividends received from affiliated companies	5,000	—
Other, net	(3,395)	(267)
Working capital changes that provided (used) cash, excluding the effect of acquisitions and dispositions:		
Receivables	(9,404)	(1,219)
Inventories	4,564	3,495
Prepaids and other current assets	(2,232)	(291)
Accounts payable	4,652	(3,111)
Accrued liabilities	(1,958)	(5,352)
Net cash provided by operating activities, continuing operations	16,546	11,080
Net cash provided by (used in) operating activities, discontinued operations	877	(6,549)
Net cash provided by operating activities	17,423	4,531
Cash flows from investing activities:		
Purchases of property, plant and equipment	(12,563)	(10,005)
Business combinations, net of cash acquired	(41,994)	—
Proceeds from sale of assets	—	2,375
Net cash used in investing activities, continuing operations	(54,557)	(7,630)
Net cash used in investing activities, discontinued operations	(22,012)	(14,568)
Net cash used in investing activities	(76,569)	(22,198)

	Three months ended March 31,	
	2021	2020
Cash flows from financing activities:		
Draw down of revolving credit facilities	—	104,029
Repayments of revolving credit facilities	—	(44,983)
Debt issuance costs	—	(3,023)
Stock repurchases	(1,470)	(3,889)
Other, net	12	447
Net cash (used in) provided by financing activities, continuing operations	(1,458)	52,581
Net cash (used in) provided by financing activities, discontinued operations	(520)	5,720
Net cash (used in) provided by financing activities	$ (1,978)	$ 58,301
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(2,708)	(4,263)
Net change in cash, cash equivalents and restricted cash	(63,832)	36,371
Cash, cash equivalents and restricted cash at beginning of period	137,219	73,917
Cash, cash equivalents and restricted cash at end of period	$ 73,387	$ 110,288
Less: cash, cash equivalents, and restricted cash of discontinued operations	(16,625)	(53,356)
Cash, cash equivalents and restricted cash at end of period of continuing operations	$ 56,762	$ 56,932

For supplemental cash flow disclosures, see Note 21.

See accompanying notes to condensed consolidated financial statements.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
(unaudited)

1. Background and Basis of Presentation:

Description of Business

PQ Group Holdings Inc. and subsidiaries (the "Company" or "PQ Group Holdings") is a leading integrated and innovative global provider of specialty catalysts and services. The Company supports customers globally through its strategically located network of manufacturing facilities. The Company believes that its products, which are predominantly inorganic, and services contribute to improving the sustainability of the environment.

The Company has two uniquely positioned specialty businesses: Refining Services provides sulfuric acid recycling to the North American refining industry for the production of alkylate and provides on-purpose virgin sulfuric acid for water treatment, mining, and industrial applications; and Catalysts provides finished silica catalysts and catalyst supports necessary to produce high strength and high stiffness plastics and, through its Zeolyst joint venture, supplies zeolites used for catalysts that remove nitric oxide from diesel engine emissions as well as sulfur from fuels during the refining process.

The Company's Refining Services segment typically experiences seasonal fluctuations as a result of higher demand for gasoline products in the summer months and lower demand in the winter months. These demand fluctuations result in higher sales and working capital requirements in the second and third quarters.

Effective December 14, 2020, the Company completed the sale of its Performance Materials business and the results of operations of this business have been presented as discontinued operations in the condensed consolidated financial statements for the three months ended March 31, 2020. See Note 3 for more information on the transaction.

On February 28, 2021, the Company entered into a definitive agreement to sell its Performance Chemicals business for $1,100,000, subject to certain purchase price adjustments as set forth in the agreement. Upon entering into the definitive agreement, the transaction met the held for sale criteria and consequently the financial results of the Performance Chemicals business are reported in discontinued operations in the condensed consolidated financial statements for all periods presented. See Note 3 for more information on the transaction.

The notes to the condensed consolidated financial statements, unless otherwise indicated, are on a continuing operations basis.

Basis of Presentation

The condensed consolidated financial statements included herein are unaudited. Certain information and footnote disclosures normally included in annual financial statements prepared in accordance with accounting principles generally accepted in the United States ("GAAP") have been condensed or omitted pursuant to such rules and regulations for interim reporting. In the opinion of management, all adjustments of a normal and recurring nature necessary to state fairly the financial position and results of operations have been included. The results of operations are not necessarily indicative of the results to be expected for the full year. The accompanying unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and related notes included in the Company's Annual Report on Form 10-K for the year ended December 31, 2020.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
(unaudited)

2. New Accounting Standards:

Recently Adopted Accounting Standards

In December 2019, the FASB issued new guidance to simplify the accounting for income taxes by removing certain exceptions to the general principles and also simplification of areas such as franchise taxes, step-up in tax basis goodwill, separate entity financial statements and interim recognition of enactment of tax laws or rate changes. The new guidance is effective for fiscal years beginning after December 15, 2020 and interim periods within those fiscal years, with early adoption permitted. The Company adopted the new guidance effective January 1, 2021, with no material impact to the Company's condensed consolidated financial position, results of operations or cash flows.

Accounting Standards Not Yet Adopted

In March 2020, the FASB issued guidance to address certain accounting consequences from the anticipated transition from the use of the London Interbank Offered Rate ("LIBOR") and other interbank offered rates to alternative reference rates. The new guidance contains practical expedients for reference rate reform related activities that impact debt, leases, derivatives and other contracts. The guidance is optional and may be elected over time as reference rate reform activities occur. The Company elected to apply the hedge accounting expedients related to probability and the assessments of effectiveness for future LIBOR-indexed cash flows to assume that the index upon which future hedged transactions will be based on matches the index of the corresponding derivatives. Application of these expedients preserves the presentation of derivatives consistent with past presentation. The Company continues to evaluate the impact of the guidance and may apply other elections as applicable as additional changes in the market occur.

3. Divestitures:

Performance Materials Divestiture

On December 14, 2020, the Company completed the sale of its Performance Materials business. In the fourth quarter of 2020, the Performance Materials business met the criteria set forth in Accounting Standards Codification 205-20, Presentation of Financial Statements - Discontinued Operations ("ASC 205-20"), as the sale represented a strategic shift that had a major effect on the Company's operations and financial results. As a result, the Company's condensed consolidated financial statements for the three months ended March 31, 2020 reflect the Performance Materials business as a discontinued operation. The divested business historically represented a reportable segment of the Company, including certain Australian operations that were historically reported in the Performance Chemicals reportable segment.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
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The following table summarizes the results of discontinued operations related to the Performance Materials divestiture:

	Three months ended March 31, 2020
Sales	$ 67,891
Cost of goods sold	51,587
Selling, general and administrative expenses	9,285
Other operating expense, net	12,874
Operating loss	(5,855)
Interest expense, net [1]	5,132
Other income, net	(912)
Loss from discontinued operations before income tax	(10,075)
Benefit for income taxes	(4,285)
Loss from discontinued operations, net of tax	$ (5,790)

(1) The closing of the transaction triggered the Company's obligation to provide partial repayment under its Amended and Restated Term Loan Credit Agreement, dated May 4, 2016 and its New Term Loan Credit Agreement, dated as of July 22, 2020. As such, interest expense has been allocated to discontinued operations on the basis of the Company's mandatory repayment of $275,787 of the Senior Secured Term Loan Facility due February 2027 and its mandatory repayment of $188,722 of the New Senior Secured Term Loan Facility due February 2027.

During the three months ended March 31, 2021, the Company incurred transaction costs of $1,446 and stock-based compensation expense of $653, and an associated tax benefit of $514 related to the Performance Materials divestiture which is included in loss from discontinued operations, net of tax.

Net income attributable to the noncontrolling interest related to the Performance Materials business, net of tax was $51 for the three months ended March 31, 2020. Net loss attributable to PQ Group Holdings Inc., related to the Performance Materials business, net of tax was $5,841 for the three months ended March 31, 2020.

Upon the close of the transaction, the Company entered into a Transition Services Agreement with the buyer pursuant to which the buyer is receiving certain services to provide for the orderly transition of various functions and processes after the closing of the transaction. The services under the Transition Services Agreement include information technology, accounting, tax, financial services, human resources, facilities, and other administrative support services. These services are provided for a period of nine months, with three 30-day extensions available. The Company billed $1,571 under the Transition Services Agreement to the buyer during the three months ended March 31, 2021. Those billings are included in selling, general and administrative expenses on the condensed consolidated financial statements for the three months ended March 31, 2021.

Performance Chemicals Divestiture

On February 28, 2021, the Company entered into a definitive agreement to sell its Performance Chemicals business to Sparta Aggregator L.P., a partnership established by Koch Minerals & Trading, LLC and Cerberus Capital Management, L.P. for a purchase price of $1,100,000 which is subject to certain adjustments including indebtedness, cash, working capital and transaction expenses. The transaction is expected to close by the end of 2021, subject to regulatory approvals and customary closing conditions.

In the first quarter of 2021, the Performance Chemicals business met the criteria set forth in ASC 205-20, as the sale represents a strategic shift that will have a major effect on the Company's operations and financial results. As a result, the Company's condensed consolidated financial statements for all periods presented reflect the Performance Chemicals business as a discontinued operation. The Performance Chemicals business historically represented a reportable segment of the Company.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
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The disposal group was tested for recoverability as of the balance sheet date, and the Company recognized an expected disposal loss of approximately $95,594 during the three months ended March 31, 2021. The expected disposal loss is included in net loss from discontinued operations, net of tax on the condensed consolidated statement of income. In the condensed consolidated balance sheet as of March 31, 2021, the Company recorded the disposal loss to goodwill and a valuation allowance of approximately $75,084 and $20,514, respectively, included in long-term assets held for sale. Completion of the sale may be for amounts that could vary from the current fair value estimate. The Company's estimate of fair value will be evaluated and recognized each reporting period until the divestiture is complete.

The following table summarizes the results of discontinued operations related to Performance Chemicals for the periods presented:

	Three months ended March 31,	
	2021	2020
Sales	$ 164,523	$ 171,184
Cost of goods sold	125,853	136,593
Selling, general and administrative expenses	11,716	11,733
Other operating expense, net	17,480	5,617
Impairment of assets held for sale	95,594	—
Operating (loss) income	(86,120)	17,241
Equity in net income from affiliated companies	(38)	(55)
Interest expense, net [(1)]	3,215	4,026
Other income, net	(5,523)	(3,753)
(Loss) income from discontinued operations before income tax	(83,774)	17,023
Provision for income taxes	4,411	7,377
(Loss) income from discontinued operations, net of tax	$ (88,185)	$ 9,646

(1) Upon the close of the transaction and finalization of net cash proceeds, the Company is required to use a portion of the proceeds to repay outstanding debt and is expected to restructure its debt, which is estimated to result in a debt reduction of $450,000 to $550,000. Certain debt requirements will be triggered that will result in the Company's obligation to provide partial repayment under its Amended and Restated Term Loan Credit Agreement, dated May 4, 2016 and its New Term Loan Credit Agreement, dated as of July 22, 2020. As such, interest expense has been allocated to discontinued operations on the basis of the Company's estimated mandatory repayment of $296,859 of the Senior Secured Term Loan Facility due February 2027 and its estimated mandatory repayment of $203,141 of the New Senior Secured Term Loan Facility due February 2027.

Net income attributable to the noncontrolling interest related to the Performance Chemicals business, net of tax was $117 and $234 for the three months ended March 31, 2021 and 2020, respectively. Net (loss) income attributable to PQ Group Holdings Inc., related to the Performance Chemicals business, net of tax was $(88,302) and $9,412 for the three months ended March 31, 2021 and 2020, respectively.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
(unaudited)

The following table summarizes the assets and liabilities of discontinued operations related to the Performance Chemicals divestiture as of March 31, 2021 and December 31, 2020.

	March 31, 2021	December 31, 2020
ASSETS		
Cash and cash equivalents	$ 16,579	$ 21,520
Accounts receivables, net	91,265	86,961
Inventories, net	68,907	74,647
Prepaid and other current assets	14,629	20,879
Current assets held for sale	$ 191,380	$ 204,007
Investments in affiliated companies	$ 362	$ 324
Property, plant and equipment, net	382,699	391,524
Goodwill	248,736	326,173
Other intangible assets, net	381,001	388,857
Right-of-use lease assets	19,610	19,296
Other long-term assets	23,524	23,269
Valuation allowance	(20,514)	—
Long-term assets held for sale	$ 1,035,418	$ 1,149,443
LIABILITIES		
Accounts payable	$ 63,918	$ 74,754
Operating lease liabilities—current	8,105	8,479
Accrued liabilities	24,064	28,336
Current liabilities held for sale	$ 96,087	$ 111,569
Deferred income taxes	$ 53,572	$ 50,232
Operating lease liabilities—noncurrent	10,256	10,047
Other long-term liabilities	59,217	95,271
Long-term liabilities held for sale	$ 123,045	$ 155,550

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
(unaudited)

4. Revenue from Contracts with Customers:

Disaggregated Revenue

The Company's primary means of disaggregating revenues is by reportable segments, which can be found in Note 18 to these condensed consolidated financial statements.

The Company's portfolio of products is integrated into a variety of end uses, which are described in the table below.

Key End Uses	Key Products
Industrial & process chemicals	• Sulfur derivatives for industrial production
	• Treatment services
Fuels & emission control	• Refining catalysts
	• Emission control catalysts
	• Catalyst recycling services
Packaging & engineered plastics	• Catalysts for high-density polyethlene and chemicals syntheses
	• Antiblock for film packaging
	• Sulfur derivatives for nylon production
Natural resources	• Sulfur derivatives for mining

The following tables disaggregate the Company's sales, by segment and end use, for the three months ended March 31, 2021 and 2020:

	Three months ended March 31, 2021		
	Refining Services	Catalysts	Total
Industrial & process chemicals	$ 16,947	$ —	$ 16,947
Fuels & emission control[(1)]	55,192	—	55,192
Packaging & engineered plastics	10,622	26,402	37,024
Natural resources	17,461	—	17,461
Total segment sales	100,222	26,402	126,624

	Three months ended March 31, 2020		
	Refining Services	Catalysts	Total
Industrial & process chemicals	$ 19,359	$ 47	$ 19,406
Fuels & emission control[(1)]	55,710	—	55,710
Packaging & engineered plastics	10,734	24,817	35,551
Natural resources	14,887	—	14,887
Total segment sales	100,690	24,864	125,554

(1) As described in Note 1, the Company experiences seasonal sales fluctuations to customers in the fuels & emission control end use.

Contract Assets and Liabilities

A contract asset is a right to consideration in exchange for goods that the Company has transferred to a customer when that right is conditional on something other than the passage of time. A contract liability exists when the Company receives consideration in advance of performance obligations being satisfied. The Company has no contract assets or liabilities on its condensed consolidated balance sheets as of March 31, 2021 and December 31, 2020. For the three months ended March 31, 2021 and 2020, revenue recognized from performance obligations related to prior periods was not material.

(Dollars in thousands, except share and per share amounts)

5. Fair Value Measurements:

Fair values are based on quoted market prices when available. When market prices are not available, fair values are generally estimated using discounted cash flow analyses, incorporating current market inputs for similar financial instruments with comparable terms and credit quality. In instances where there is little or no market activity for the same or similar instruments, the Company estimates fair values using methods, models and assumptions that management believes a hypothetical market participant would use to determine a current transaction price. These valuation techniques involve some level of management estimation and judgment that becomes significant with increasingly complex instruments or pricing models. Where appropriate, adjustments are included to reflect the risk inherent in a particular methodology, model or input used.

The Company's financial assets and liabilities carried at fair value have been classified based upon a fair value hierarchy. The hierarchy gives the highest ranking to fair values determined using unadjusted quoted prices in active markets for identical assets and liabilities (Level 1) and the lowest ranking to fair values determined using methodologies and models with unobservable inputs (Level 3). The classification of an asset or a liability is based on the lowest level input that is significant to its measurement. For example, a Level 3 fair value measurement may include inputs that are both observable (Levels 1 and 2) and unobservable (Level 3). The levels of the fair value hierarchy are as follows:

- Level 1—Values are unadjusted quoted prices for identical assets and liabilities in active markets accessible at the measurement date. Active markets provide pricing data for trades occurring at least weekly and include exchanges and dealer markets.
- Level 2—Inputs include quoted prices for similar assets or liabilities in active markets, quoted prices from those willing to trade in markets that are not active, or other inputs that are observable or can be corroborated by market data for the term of the instrument. Such inputs include market interest rates and volatilities, spreads and yield curves.
- Level 3—Certain inputs are unobservable (supported by little or no market activity) and significant to the fair value measurement. Unobservable inputs reflect the Company's best estimate of what hypothetical market participants would use to determine a transaction price for the asset or liability at the reporting date.

The following table presents information about the Company's assets and liabilities that were measured at fair value on a recurring basis as of March 31, 2021 and December 31, 2020, and indicates the fair value hierarchy of the valuation techniques the Company utilized to determine such fair value.

	March 31, 2021	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Derivative contracts (Note 14)	$ 285	$ —	$ 285	$ —
Liabilities:				
Derivative contracts (Note 14)	$ 3,023	$ —	$ 3,023	$ —

	December 31, 2020	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Derivative contracts (Note 14)	$ 3,704	$ —	$ 3,704	$ —

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Derivative contracts

Derivative assets and liabilities can be exchange-traded or traded over-the-counter ("OTC"). The Company generally values exchange-traded derivatives using models that calibrate to market transactions and eliminate timing differences between the closing price of the exchange-traded derivatives and their underlying instruments. OTC derivatives are valued using market transactions and other market evidence whenever possible, including market-based inputs to models, model calibration to market transactions, broker or dealer quotations or alternative pricing sources with reasonable levels of price transparency. When models are used, the selection of a particular model to value an OTC derivative depends on the contractual terms of, and specific risks inherent in, the instrument as well as the availability of pricing information in the market. The Company generally uses similar models to value similar instruments. Valuation models require a variety of inputs, including contractual terms, market prices and rates, forward curves, measures of volatility, and correlations of such inputs. For OTC derivatives that trade in liquid markets, such as forward contracts, swaps and options, model inputs can generally be corroborated by observable market data by correlation or other means, and model selection does not involve significant management judgment.

During the quarter ended March 31, 2021, the Company had interest rate caps and cross-currency swaps that were fair valued using Level 2 inputs. In March 2021, the Company settled its cross-currency swaps, which were used as a hedging instrument of its net investment in foreign assets in its Performance Chemicals segment. Refer to Note 14 of these condensed consolidated financial statements for additional information. In addition, the Company applies a credit valuation adjustment to reflect credit risk which is calculated based on credit default swaps. To the extent that the Company's net exposure under a specific master agreement is an asset, the Company utilizes the counterparty's default swap rate. If the net exposure under a specific master agreement is a liability, the Company utilizes a default swap rate comparable to PQ Group Holdings. The credit valuation adjustment is added to the discounted fair value to reflect the exit price that a market participant would be willing to receive to assume the Company's liabilities or that a market participant would be willing to pay for the Company's assets.

6. Stockholders' Equity:

Accumulated Other Comprehensive Income (Loss)

The following tables present the tax effects of each component of other comprehensive income (loss) for the three months ended March 31, 2021 and 2020:

	Three months ended March 31,					
	2021			2020		
	Pre-tax amount	Tax benefit/ (expense)	After-tax amount	Pre-tax amount	Tax benefit/ (expense)	After-tax amount
Defined benefit and other postretirement plans:						
Amortization of net gains	$ 1	$ —	$ 1	$ 44	$ (8)	$ 36
Amortization of prior service cost	(58)	14	(44)	(64)	13	(51)
Benefit plans, net	(57)	14	(43)	(20)	5	(15)
Net gain (loss) from hedging activities	1,020	(255)	765	(705)	176	(529)
Foreign currency translation[1]	(6,308)	2,447	(3,861)	(50,057)	3,702	(46,355)
Other comprehensive loss	$ (5,345)	$ 2,206	$ (3,139)	$ (50,782)	$ 3,883	$ (46,899)

(1) The income tax benefit or expense included in other comprehensive income is attributed to the portion of foreign currency translation associated with the Company's cross-currency interest rate swaps, for which the tax effect is based on the applicable U.S. deferred income tax rate. See Note 14 to these condensed consolidated financial statements for information regarding the Company's cross-currency interest rate swaps.

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The following table presents the changes in accumulated other comprehensive income (loss), net of tax, by component for the three months ended March 31, 2021 and 2020:

	Defined benefit and other postretirement plans	Net gain (loss) from hedging activities	Foreign currency translation	Total
December 31, 2020	$ 5,278	$ (660)	$ (19,883)	$ (15,265)
Other comprehensive income (loss) before reclassifications	(86)	683	(3,467)	(2,870)
Amounts reclassified from accumulated other comprehensive income[1]	43	82	—	125
March 31, 2021	$ 5,235	$ 105	$ (23,350)	$ (18,010)
December 31, 2019	$ 3,568	$ (1,838)	$ (17,078)	$ (15,348)
Other comprehensive loss before reclassifications	(2)	(984)	(42,867)	(43,853)
Amounts reclassified from accumulated other comprehensive income[1]	(13)	455	—	442
March 31, 2020	$ 3,553	$ (2,367)	$ (59,945)	$ (58,759)

(1) See the following table for details about these reclassifications. Amounts in parentheses indicate debits.

The following table presents the reclassifications out of accumulated other comprehensive income for the three months ended March 31, 2021 and 2020:

Details about Accumulated Other Comprehensive Income Components	Amounts Reclassified from Accumulated Other Comprehensive Income[1]		Affected Line Item where Income is Presented
	Three months ended March 31,		
	2021	2020	
Amortization of defined benefit and other postretirement items:			
Prior service (cost) credit	$ (58)	$ 52	Other income (expense)[2]
Actuarial gains (losses)	1	(34)	Other income (expense)[2]
	(57)	18	Total before tax
	14	(5)	Tax benefit (expense)
	$ (43)	$ 13	Net of tax
Gains and losses on cash flow hedges:			
Interest rate caps	$ (109)	$ (231)	Interest expense
Natural gas swaps	—	(373)	Cost of goods sold
	(109)	(604)	Total before tax
	27	149	Tax benefit
	$ (82)	$ (455)	Net of tax
Total reclassifications for the period	$ (125)	$ (442)	Net of tax

(1) Amounts in parentheses indicate debits to profit/loss.

(2) These accumulated other comprehensive income (loss) components are components of net periodic pension and other postretirement cost (see Note 16 to these condensed consolidated financial statements for additional details).

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Stock Repurchase Program

The Company records repurchases of its common stock for treasury at cost. Upon the reissuance of the Company's common stock from treasury, differences between the proceeds from reissuance and the average cost of the treasury stock are credited or charged to capital in excess of par value to the extent of prior credits related to the reissuance of treasury stock. If no such credits exist, the differences are charged to retained earnings.

On March 12, 2020, the Company's Board approved a plan to purchase up to $50,000 of PQ Group Holdings Inc. common stock under a stock repurchase program approved by the Company's Board of Directors. The Company may repurchase shares from time to time for cash in open market transactions or in privately negotiated transactions in accordance with applicable federal securities laws. The Company will determine the timing and the amount of any repurchases based on its evaluation of market conditions, share price and other factors. The stock repurchase program is valid until March 2022.

During the three months ended March 31, 2020, the Company repurchased 211,700 shares on the open market at an average price of $9.73, for a total of $2,059. The Company has not made any additional repurchases under the program through March 31, 2021. As of March 31, 2021, $47,941 was available for additional share repurchases under the program.

7. Acquisition:

On March 1, 2021 (the "Closing Date"), the Company completed the acquisition of Chem32, LLC ("Chem32") as part of a stock transaction (the "Acquisition") for $44,000 in cash. The net cash paid on the closing date by the Company was $41,994, after certain customary adjustments for indebtedness, working capital, cash and a holdback amount pursuant to the agreement. Based in Orange, Texas, Chem32 is a leader in ex situ pre-sulfiding and pre-activation for hydro-processing catalysts.

The Acquisition was accounted for using the acquisition method of accounting. Under the acquisition method, the purchase price was allocated to the identifiable net assets acquired based on the fair values of the identifiable assets acquired and liabilities assumed as of the Closing Date. The excess of the purchase price over fair values of the identifiable net assets acquired was recorded to goodwill.

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The following table sets forth the calculation and preliminary allocation of the purchase price to the identifiable net assets acquired with respect to the Acquisition:

	Provisional Purchase Price Allocation
Cash paid, net of cash acquired	$ 41,994
Holdback	2,000
Total consideration, net of cash acquired	$ 43,994
Recognized amounts of identifiable assets acquired and liabilities assumed:	
Receivables	$ 1,368
Inventories	204
Prepaid and other current assets	351
Property, plant and equipment	5,046
Other long-term assets	38
Fair value of assets acquired	7,007
Accounts payable	207
Accrued liabilities	452
Fair value of net identifiable assets acquired	6,348
Goodwill	37,646
	$ 43,994

The valuation of the identifiable assets and liabilities included in the table above is preliminary and is subject to change, as the Company is in the process of evaluating the information required to determine the fair values of certain identifiable assets and liabilities acquired, including inventory, property, plant and equipment and intangible assets. An increased portion of the purchase price allocated to the identifiable net assets acquired will reduce the amount recognized for goodwill and may result in increased cost of goods sold, depreciation and/or amortization expense. Adjustments to the provisional amounts during the measurement period that result in changes to depreciation, amortization or other income effects will be recognized in the reporting period(s) in which the adjustments are determined.

The Company's condensed consolidated financial statements include Chem32's results of operations from the Closing Date through March 31, 2021. Net sales and net income attributable to Chem32 during this period are included in the Company's condensed consolidated statement of income and are immaterial for the period presented. Pro forma financial information has not been presented as it is immaterial for the three months ended March 31, 2021 and 2020.

The Company believes that the Acquisition will enable it to offer a more robust portfolio of services within the refining industry leveraging our existing relationships, which contributed to a total purchase price that resulted in the recognition of goodwill. All of the goodwill was assigned to the Company's Refining Services segment. The goodwill associated with the Acquisition is deductible for tax purposes.

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8. Goodwill:

The change in the carrying amount of goodwill for the three months ended March 31, 2021 is summarized as follows:

	Refining Services	Catalysts	Total
Balance as of December 31, 2020	$ 311,892	$ 79,673	$ 391,565
Goodwill recognized (Note 7)	37,646	—	37,646
Foreign exchange impact	—	294	294
Balance as of March 31, 2021	$ 349,538	$ 79,967	$ 429,505

9. Other Operating Expense, Net:

A summary of other operating expense, net is as follows:

	Three months ended March 31, 2021	Three months ended March 31, 2020
Amortization expense	$ 2,186	$ 2,172
Transaction and other related costs	472	800
Restructuring, integration and business optimization costs[1]	2,259	348
Net loss on asset disposals	778	163
Other, net	(188)	(33)
	$ 5,507	$ 3,450

[1] During the three months ended March 31, 2021, the Company's results were impacted by costs associated with severance charges for certain executives and employees.

10. Inventories, Net:

Inventories, net, are classified and valued as follows:

	March 31, 2021	December 31, 2020
Finished products and work in process	$ 44,171	$ 48,500
Raw materials	4,763	4,289
	$ 48,934	$ 52,789
Valued at lower of cost or market:		
LIFO basis	$ 32,074	$ 31,072
Valued at lower of cost and net realizable value:		
FIFO or average cost basis	16,860	21,717
	$ 48,934	$ 52,789

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11. Investments in Affiliated Companies:

The Company accounts for investments in affiliated companies under the equity method. Affiliated companies accounted for on the equity basis as of March 31, 2021 are as follows:

Company	Country	Percent Ownership
Zeolyst International	USA	50%
Zeolyst C.V.	Netherlands	50%

Following is summarized information of the combined investments[(1)]:

	Three months ended March 31, 2021	Three months ended March 31, 2020
Sales	$ 66,205	$ 70,300
Gross profit	21,946	30,864
Operating income	14,174	20,861
Net income	13,737	19,924

(1) Summarized information of the combined investments is presented at 100%; the Company’s share of the net assets and net income of affiliates is calculated based on the percent ownership specified in the table above.

The Company’s investments in affiliated companies balance as of March 31, 2021 and December 31, 2020 includes net purchase accounting fair value adjustments of $242,240 and $243,899, respectively, related to the series of transactions consummated on May 4, 2016 to reorganize and combine the businesses of PQ Holdings Inc. and Eco Services Operations LLC, consisting primarily of goodwill and intangible assets such as customer relationships, technical know-how and trade names. Consolidated equity in net income from affiliates is net of $1,658 and $1,658 of amortization expense related to purchase accounting fair value adjustments for the three months ended March 31, 2021 and 2020, respectively.

12. Property, Plant and Equipment:

A summary of property, plant and equipment, at cost, and related accumulated depreciation is as follows:

	March 31, 2021	December 31, 2020
Land	$ 93,912	$ 93,650
Buildings	79,181	76,010
Machinery and equipment	669,655	656,502
Construction in progress	43,777	42,446
	886,525	868,608
Less: accumulated depreciation	(293,509)	(276,898)
	$ 593,016	$ 591,710

Depreciation expense was $16,526 and $15,777 for the three months ended March 31, 2021 and 2020, respectively.

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13. Long-term Debt:

The summary of long-term debt is as follows:

	March 31, 2021	December 31, 2020
Senior Secured Term Loan Facility due February 2027	$ 671,710	$ 671,710
New Senior Secured Term Loan Facility due February 2027	459,653	459,653
5.75% Senior Unsecured Notes due 2025	295,000	295,000
ABL Facility	—	—
Total debt	1,426,363	1,426,363
Original issue discount	(15,072)	(15,641)
Deferred financing costs	(9,718)	(10,353)
Total debt, net of original issue discount and deferred financing costs	1,401,573	1,400,369
Less: current portion	—	—
Total long-term debt, excluding current portion	$ 1,401,573	$ 1,400,369

The fair value of a financial instrument is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. As of March 31, 2021 and December 31, 2020, the fair value of the term loan facilities, senior secured and unsecured notes was $1,428,967 and $1,427,123, respectively. The fair value is classified as Level 2 based upon the fair value hierarchy (see Note 5 to these condensed consolidated financial statements for further information on fair value measurements).

14. Financial Instruments:

The Company uses interest rate related derivative instruments to manage its exposure to changes in interest rates on its variable-rate debt instruments. The Company does not speculate using derivative instruments.

By using derivative financial instruments to hedge exposures to changes in interest rates, the Company exposes itself to credit risk and market risk. Credit risk is the failure of the counterparty to perform under the terms of the derivative contract. When the fair value of a derivative contract is an asset, the counterparty owes the Company, which creates credit risk for the Company. When the fair value of a derivative contract is a liability, the Company owes the counterparty and therefore, the Company is not exposed to the counterparty's credit risk in those circumstances. The Company minimizes counterparty credit risk in derivative instruments by entering into transactions with high quality counterparties. The derivative instruments entered into by the Company do not contain credit-risk-related contingent features.

Market risk is the adverse effect on the value of a derivative instrument that results from a change in interest rates. The market risk associated with the Company's derivative instruments is managed by establishing and monitoring parameters that limit the types and degree of market risk that may be undertaken.

Use of Derivative Financial Instruments to Manage Interest Rate Risk. The Company is exposed to fluctuations in interest rates on its senior secured credit facilities. Changes in interest rates will not affect the market value of such debt but will affect the Company's interest payments over the term of the loans. Likewise, an increase in interest rates could have a material impact on the Company's cash flow. The Company hedges the interest rate fluctuations on debt obligations through interest rate cap agreements. The Company records these agreements at fair value as assets or liabilities in its consolidated balance sheet. As the derivatives are designated and qualify as cash flow hedges, the gains or losses on the interest rate cap agreements are recorded in stockholders' equity as a component of OCI, net of tax. Reclassifications of the gains and losses on the interest rate cap agreements into earnings are recorded as part of interest expense in the condensed consolidated statements of income as the Company makes its interest payments on the hedged portion of its senior secured credit facilities. Fair value is determined based on estimated amounts that would be received or paid to terminate the contracts at the reporting date based on quoted market prices.

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In November 2018, the Company entered into interest rate cap agreements to mitigate interest volatility from July 2020 through July 2022, with a cap rate of 3.50% on $500,000 of notional variable-rate debt and a $3,380 premium annuitized during the effective period. In February 2020, the Company restructured its $500,000 of notional variable-rate debt interest rate cap agreements from July 2020 through July 2022, to lower the interest cap rate to 2.50% with an incremental $130 premium annuitized during the effective period. In March 2020, the Company again amended such interest rate cap agreements to lower the cap rate to 0.84% from 2.50% on $500,000 of notional variable-rate debt and paid an additional incremental $900 premium annuitized during the effective period. The term remains unchanged from July 2020 through July 2022. The total cumulative annuitized premium on the $500,000 of notional variable-rate debt is $4,410. The cap rate in effect at March 31, 2021 was 0.84% associated with the $500,000 of notional variable-rate debt.

In July 2020, the Company entered into additional interest rate cap agreements to mitigate interest rate volatility from August 2020 to August 2023, with a cap rate of 1.00% on $400,000 of notional variable-rate debt. The cap rate in effect at March 31, 2021 was 1.00% associated with the $400,000 of notional variable-rate debt.

Use of Derivative Financial Instruments to Manage Foreign Currency Risk. The Company is exposed to risks related to its net investments in foreign operations due to fluctuations in foreign currency exchange rates, particularly between the United States dollar and the Euro. In February 2018, the Company entered into multiple cross-currency interest rate swap arrangements with an aggregate notional amount of €280,000 ($328,098 as of March 31, 2021) to hedge this exposure on the net investments of certain of its Euro-denominated subsidiaries in its Performance Materials and Performance Chemicals businesses. The Company recorded these swap agreements at fair value as assets or liabilities in its consolidated balance sheet. As the derivatives are designated and qualify as net investment hedges, changes in the fair value of the swaps attributable to changes in the spot exchange rates are recognized in cumulative translation adjustment ("CTA") within OCI and are held there until the hedged net investments are sold or substantially liquidated. Upon such sale or liquidation, the amount recognized in CTA is reclassified to earnings and reported in the same line item as the gain or loss on the liquidation of the net investments. Changes in the fair value of the swaps attributable to the cross-currency basis spread are excluded from the assessment of hedge effectiveness and are recorded in current period earnings.

In March 2021, as a result of the Performance Materials and Performance Chemicals divestitures, the Company settled its cross-currency swaps. At the date of settlement, the total notional value of the cross-currency swaps was $311,380. The Company paid $13,170 in cash to settle the swaps, which is included in net cash used in investing activities, discontinued operations in the Company's condensed consolidated statement of cash flows for the three months ended March 31, 2021, as the underlying subsidiary subject to the net investment hedging relationship is part of the Performance Chemicals business.

As of March 31, 2021, an unrealized pre-tax gain of $16,708 is recorded in accumulated other comprehensive income in the Company's condensed consolidated balance sheet. This gain will be reclassified into earnings as part of the gain (loss) on sale upon completion of the Performance Chemicals divestiture.

The fair values of derivative instruments held as of March 31, 2021 and December 31, 2020 are shown below:

	Balance sheet location	March 31, 2021	December 31, 2020
Derivative assets:			
Derivatives designated as cash flow hedges:			
Interest rate caps	Other long-term assets	$ 285	$ —
Total derivative assets		$ 285	$ —
Derivative liabilities:			
Derivatives designated as cash flow hedges:			
Interest rate caps	Accrued liabilities	$ 1,974	$ 1,954
Interest rate caps	Other long-term liabilities	1,049	1,750
Total derivative liabilities		$ 3,023	$ 3,704

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The following tables show the effect of the Company’s derivative instruments designated as cash flow hedges on AOCI for the three months ended March 31, 2021 and 2020:

		Three months ended March 31,			
		2021		2020	
	Location of gain (loss) reclassified from AOCI into income	Amount of gain (loss) recognized in OCI on derivatives	Amount of gain (loss) reclassified from AOCI into income	Amount of gain (loss) recognized in OCI on derivatives	Amount of gain (loss) reclassified from AOCI into income
Interest rate caps	Interest (expense) income	$ 912	$ (109)	$ (595)	$ (231)

The following tables show the effect of the Company’s cash flow hedge accounting on the condensed consolidated statements of income for the three months ended March 31, 2021 and 2020:

	Location and amount of gain (loss) recognized in income on cash flow hedging relationships			
	Three months ended March 31,			
	2021		2020	
	Cost of goods sold	Interest (expense) income	Cost of goods sold	Interest (expense) income
Total amounts of income and expense line items presented in the statement of income in which the effects of cash flow hedges are recorded	(96,505)	(10,456)	(87,850)	(15,298)
The effects of cash flow hedging:				
Gain (loss) on cash flow hedging relationships:				
Interest contracts:				
Amount of gain (loss) reclassified from AOCI into income	—	(109)	—	(231)

The amount of unrealized losses in AOCI related to the Company’s cash flow hedges that is expected to be reclassified to the condensed consolidated statement of income over the next twelve months is $574 as of March 31, 2021.

The following tables show the effect of the Company’s net investment hedges on AOCI and the condensed consolidated statements of income for the three months ended March 31, 2021 and 2020:

	Amount of pre-tax gain (loss) recognized in OCI on derivative		Location of gain (loss) reclassified from AOCI into income	Amount of gain (loss) reclassified from AOCI into income		Location of gain (loss) recognized in income on derivative (amount excluded from effectiveness testing)	Amount of gain (loss) recognized in income on derivative (amount excluded from effectiveness testing)	
	Three months ended March 31,			Three months ended March 31,			Three months ended March 31,	
	2021	2020		2021	2020		2021	2020
Cross-currency interest rate swaps	$ 9,787	$ 14,809	Net income from discontinued operations [(1)]	$ —	$ —	Interest (expense) income	$ 545	$ 1,692

(1) Includes the gain (loss) on the sale of the underlying subsidiary.

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15. Income Taxes:

The effective income tax rate for the three months ended March 31, 2021 was 65.4% compared to 33.2% for the three months ended March 31, 2020. The Company's effective income tax rate has fluctuated primarily due to changes in income mix, the impacts of the Global Intangible Low Taxed Income ("GILTI") tax rules, discrete impacts related to intraperiod allocation revaluation of deferred tax assets and liabilities as a result of the Performance Chemicals divestiture and changes in foreign exchange gains and losses, which create permanent differences in certain jurisdictions.

The difference between the U.S. federal statutory income tax rate and the Company's effective income tax rate for the three months ended March 31, 2021 was mainly due to state and local taxes, discrete tax impacts related to intraperiod allocation revaluation of deferred tax assets and liabilities as a result of the Performance Chemicals divestiture, and the tax effect of permanent differences related to foreign currency exchange gain or loss.

The difference between the U.S. federal statutory income tax rate and the Company's effective income tax rate for the three months ended March 31, 2020 was mainly due to the impacts of GILTI, state and local taxes, and the tax effect of permanent differences related to foreign currency exchange gain or loss.

16. Benefit Plans:

The following information is provided for (1) the Company-sponsored defined benefit pension plans covering employees in the U.S. and certain employees at its foreign subsidiaries and (2) the Company-sponsored unfunded plans to provide certain health care benefits to retired employees in the U.S.

Components of net periodic expense (benefit) are as follows:

Defined Benefit Pension Plans

	U.S.		Foreign	
	Three months ended March 31,		Three months ended March 31,	
	2021	2020	2021	2020
Service cost	$ —	$ 192	$ —	$ 261
Interest cost	551	675	65	72
Expected return on plan assets	(1,094)	(970)	(65)	(69)
Amortization of net loss	—	—	—	23
Net periodic (benefit) expense	$ (543)	$ (103)	$ —	$ 287

Other Postretirement Benefit Plans

	Three months ended March 31,	
	2021	2020
Interest cost	4	5
Amortization of prior service credit	(58)	(58)
Amortization of net loss	1	—
Net periodic benefit	$ (53)	$ (53)

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17. Commitments and Contingent Liabilities:

There is a risk of environmental impact in chemical manufacturing operations. The Company’s environmental policies and practices are designed to comply with existing laws and regulations and to minimize the possibility of significant environmental impact. The Company is also subject to various other lawsuits and claims with respect to matters such as governmental regulations, labor and other actions arising out of the normal course of business. While management believes that the liabilities resulting from such lawsuits and claims are not probable or reasonably estimable, certain accruals have been reflected in the Company’s condensed consolidated financial statements. When these matters are ultimately concluded and determined, the Company believes that there will be no material adverse effect on its consolidated financial position, results of operations or liquidity.

18. Reportable Segments:

Summarized financial information for the Company’s reportable segments is shown in the following table:

	Three months ended March 31,	
	2021	2020
Sales:		
Refining Services	$ 100,222	$ 100,690
Catalysts[(1)]	26,402	24,864
Total	$ 126,624	$ 125,554
Segment Adjusted EBITDA:[(2)]		
Refining Services	$ 33,002	$ 37,183
Catalysts[(3)]	18,469	22,667
Total Segment Adjusted EBITDA[(4)]	$ 51,471	$ 59,850

(1) Excludes the Company’s proportionate share of sales from the Zeolyst International and Zeolyst C.V. joint ventures (collectively, the “Zeolyst Joint Venture”) accounted for using the equity method (see Note 11 to these condensed consolidated financial statements for further information). The proportionate share of sales is $28,978 and $32,291 for the three months ended March 31, 2021 and 2020, respectively.

(2) The Company defines Adjusted EBITDA as EBITDA adjusted for certain items as noted in the reconciliation below. Management evaluates the performance of its segments and allocates resources based on several factors, of which the primary measure is Adjusted EBITDA. Adjusted EBITDA should not be considered as an alternative to net income as an indicator of the Company’s operating performance. Adjusted EBITDA as defined by the Company may not be comparable with EBITDA or Adjusted EBITDA as defined by other companies.

(3) The Adjusted EBITDA from the Zeolyst Joint Venture included in the Catalysts segment is $10,537 for the three months ended March 31, 2021, which includes $5,237 of equity in net income plus $1,658 of amortization of investment in affiliate step-up and $3,645 of joint venture depreciation, amortization and interest. The Adjusted EBITDA from the Zeolyst Joint Venture included in the Catalysts segment is $ 13,725 for the three months ended March 31, 2020, which includes $8,317 of equity in net income plus $1,658 of amortization of investment in affiliate step-up and $3,750 of joint venture depreciation, amortization and interest.

(4) Total Segment Adjusted EBITDA differs from the Company’s consolidated Adjusted EBITDA due to unallocated corporate expenses.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
(unaudited)

A reconciliation of net loss from continuing operations to Segment Adjusted EBITDA is as follows:

	Three months ended March 31,	
	2021	2020
Reconciliation of net loss from continuing operations to Segment Adjusted EBITDA		
Net loss from continuing operations	$ (2,748)	$ (3,347)
Benefit for income taxes	(5,190)	(1,665)
Interest expense, net	10,456	15,298
Depreciation and amortization	19,500	18,675
Segment EBITDA	22,018	28,961
Joint venture depreciation, amortization and interest	3,645	3,750
Amortization of investment in affiliate step-up	1,658	1,658
Debt extinguishment costs	—	2,513
Net loss on asset disposals	778	163
Foreign currency exchange loss	5,101	7,070
LIFO benefit	(253)	(1,681)
Transaction and other related costs	472	800
Equity-based compensation	6,305	4,294
Restructuring, integration and business optimization expenses	2,259	348
Defined benefit pension plan benefit	(595)	(131)
Other	916	896
Adjusted EBITDA	42,304	48,641
Unallocated corporate expenses	9,167	11,209
Segment Adjusted EBITDA	$ 51,471	$ 59,850

(Dollars in thousands, except share and per share amounts)

19. Stock-Based Compensation:

The Company is authorized to issue shares for common stock awards to employees, directors and affiliates of the Company in connection with the PQ Group Holdings Inc. 2017 Omnibus Incentive Plan, as Amended and Restated (the "2017 Plan"). During the three months ended March 31, 2021, the Company granted 1,697,623 restricted stock units and 211,985 performance stock units (at target) under the 2017 Plan as part of its equity incentive compensation program. Each restricted stock unit provides the recipient with the right to receive a share of common stock subject to graded vesting terms based on service, which for the awards granted during the three months ended March 31, 2021, generally requires approximately one year of service for members of the Company's board of directors and approximately three years of service for employees.

The performance stock units granted during the three months ended March 31, 2021 provide the recipients with the right to receive shares of common stock dependent on the achievement of a total shareholder return ("TSR") goal, and are generally subject to the provision of service through the vesting date of the award. The performance period for the TSR goal is measured based on a three-year performance period from January 1, 2021 through December 31, 2023. The TSR goal is based on the Company's actual TSR percentage increase over the performance period. Depending on the Company's performance relative to the TSR goal, each performance stock unit award recipient is eligible to earn a percentage of the target number of shares granted to the recipient, ranging from zero to 200%. The performance stock units, to the extent earned, will vest on the date the Company's compensation and governance committee certifies the achievement of the performance metric for the three-year period ending December 31, 2023, which will occur subsequent to the end of the performance period but before the Company files its annual consolidated financial statements for the year ending December 31, 2023.

The value of the restricted stock units granted during the three months ended March 31, 2021 was based on the average of the high and low trading prices of the Company's common stock on the NYSE on the preceding trading day, in accordance with the Company's policy for valuing such awards. Compensation expense related to the restricted stock units is recognized on a straight-line basis over the respective vesting period.

The TSR goal of the performance stock units granted during the three months ended March 31, 2021 is considered a market condition as opposed to a vesting condition. Because a market condition is not considered a vesting condition, it is reflected in the grant date fair value of the award, and the associated compensation cost based on the fair value of the award is recognized over the performance period, regardless of whether the Company actually achieves the market condition or the level of achievement, as long as service is provided by the recipient. The Company used a Monte Carlo simulation to estimate the fair value of the portion of the awards subject to the TSR goal. The following table provides the assumptions used to determine the grant date fair value of the market condition-dependent / TSR goal-based portion of the Company's performance stock units granted during the three months ended March 31, 2021 using a Monte Carlo simulation:

Expected dividend yield	— %
Risk-free interest rate	0.20 %
Expected volatility	41.70 %
Expected term (in years)	2.95
Grant date fair value	$ 13.21

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(Dollars in thousands, except share and per share amounts)
(unaudited)

The following table summarizes the activity for the Company's restricted stock units and performance stock units for the three months ended March 31, 2021:

	Restricted Stock Units		Performance Stock Units	
	Number of Units	Weighted Average Grant Date Fair Value (per share)	Number of Units	Weighted Average Grant Date Fair Value (per share)
Nonvested as of December 31, 2020	1,841,139	$ 16.14	965,736	$ 17.69
Granted	1,697,623	$ 15.39	211,985	$ 13.21
Vested	(745,647)	$ 16.06	—	$ —
Forfeited	(4,966)	$ 16.11	(7,829)	$ 12.24
Nonvested as of March 31, 2021	2,788,149	$ 15.70	1,169,892	$ 16.92

Stock-based compensation expense for the Company is as follows:

	Three months ended March 31, 2021	Three months ended March 31, 2020
Continuing operations	$ 6,305	$ 4,294
Discontinued operations	1,875	1,626
Stock-based compensation expense	8,180	5,920
Continuing operations	(1,543)	(1,065)
Discontinued operations	(459)	(403)
Income tax benefit	(2,002)	(1,468)
Continuing operations	4,762	3,229
Discontinued operations	1,416	1,223
Stock-based compensation expense, net of income tax benefit	$ 6,178	$ 4,452

With the new grants of restricted stock units and performance stock units during the three months ended March 31, 2021, unrecognized compensation cost at March 31, 2021 was $40,425 for restricted stock units and $11,962 for performance stock units considered probable of vesting. The weighted-average period over which these costs are expected to be recognized at March 31, 2021 is 2.02 years for the restricted stock units and1.66 years for the performance stock units. Activity related to the Company's stock options and restricted stock awards was not material for the three months ended March 31, 2021. No expense had previously been recognized related to these awards, as the performance vesting condition was not achieved nor considered probable of achievement.

20. Earnings per Share:

Basic earnings per share is calculated as income (loss) available to common stockholders, divided by the weighted average number of common shares outstanding during the period. The weighted average number of common shares outstanding during the period for the computation of basic earnings per share excludes restricted stock awards that have legally been issued but are nonvested during the period, as the sale of these shares is prohibited pending satisfaction of certain vesting conditions by the award recipients in order to earn the rights to the shares.

Diluted earnings per share is calculated as income (loss) available to common stockholders, divided by the weighted average number of common and potential common shares outstanding during the period, if dilutive. Potential common shares reflect (1) unvested restricted stock awards and restricted stock units with service vesting conditions, (2) performance stock units with vesting conditions considered probable of achievement and (3) options to purchase common stock, all of which have been included in the diluted earnings per share calculation using the treasury stock method.

PQ GROUP HOLDINGS INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except share and per share amounts)
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The reconciliation from basic to diluted weighted average shares outstanding is as follows:

	Three months ended March 31,	
	2021	**2020**
Weighted average shares outstanding – Basic	136,006,082	135,240,897
Dilutive effect of unvested common shares and restricted stock units with service conditions, performance stock units considered probable of vesting and assumed stock option exercises and conversions	—	845,185
Weighted average shares outstanding – Diluted	136,006,082	136,086,082

Basic and diluted loss per share are calculated as follows:

	Three months ended March 31,	
	2021	**2020**
Numerator:		
Net (loss) income attributable to PQ Group Holdings Inc.	$ (92,635)	$ 224
Denominator:		
Weighted average shares outstanding – Basic	136,006,082	135,240,897
Weighted average shares outstanding – Diluted	136,006,082	136,086,082
Net loss per share:		
Basic loss per share	$ (0.68)	$ 0.00
Diluted loss per share	$ (0.68)	$ 0.00

The table below presents the details of the Company’s weighted average equity-based awards outstanding during each respective period that were excluded from the calculation of diluted earnings per share:

	Three months ended March 31,	
	2021	**2020**
Restricted stock awards with performance only targets not yet achieved	883,380	1,526,613
Stock options with performance only targets not yet achieved	376,812	516,000
Anti-dilutive restricted stock awards, restricted stock units and performance stock units	—	1,264,324
Anti-dilutive stock options	—	850,807

Restricted stock awards and stock options with performance only vesting conditions were not included in the dilution calculation, as the performance targets have not been achieved nor were probable of achievement as of the end of the respective periods. On a weighted average basis, options to purchase 609,491 shares of common stock at $16.97 per share and 241,316 shares of common stock at $17.50 per share for the three months ended March 31, 2020, were excluded from the computation of diluted earnings per share, because the combination of the options’ exercise price and remaining unamortized stock-based compensation expense was greater than the average market price of the common shares. The stock options with an exercise price of $16.97 per share expire on October 2, 2027, while the stock options with an exercise price of $17.50 per share expire on August 9, 2028. Anti-dilutive awards are not included in the dilution calculation, as their inclusion would have the effect of increasing diluted income per share.

(Dollars in thousands, except share and per share amounts)

21. Supplemental Cash Flow Information:

With the exception of operating leases, the following table presents supplemental cash flow information for the consolidated Company:

	Three months ended March 31,	
	2021	2020
Cash paid during the period for:		
Income taxes, net of refunds	$ 4,248	$ 8,388
Interest[1]	17,791	19,751
Non-cash investing activity:		
Capital expenditures acquired on account but unpaid as of the period end	8,118	13,223
Right-of-use assets obtained in exchange for new lease liabilities (non-cash):		
Operating leases	4,738	499

(1) Cash paid for interest is shown net of capitalized interest for the periods presented and excludes $2,307 and $1,771 of net interest proceeds on swaps designated as net investment hedges for the three months ended March 31, 2021 and 2020, respectively, which are included within cash flows from investing activities, discontinued operations in the Company's condensed consolidated statements of cash flows.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the condensed consolidated balance sheets as of March 31, 2021 and 2020 to the total of the same amounts shown in the condensed consolidated statements of cash flows for the three months then ended:

	March 31,	
	2021	2020
Cash and cash equivalents	$ 55,171	$ 54,655
Restricted cash included in prepaid and other current assets	1,591	2,277
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statements of cash flows	$ 56,762	$ 56,932

22. Subsequent Events:

The Company has evaluated subsequent events since the balance sheet date and determined that there are no additional items to disclose.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

Unless the context requires otherwise, references in this report to "PQ Group Holdings," "the company," "we," "us" or "our" refer to PQ Group Holdings Inc. and its consolidated subsidiaries.

Forward-looking Statements

This periodic report on Form 10-Q ("Form 10-Q") includes statements that express our opinions, expectations, beliefs, plans, objectives, assumptions or projections regarding future events or future results and therefore are, or may be deemed to be, "forward-looking statements". The words "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect," "should" and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy, short- and long-term business operations and objectives, and financial needs. Examples of forward-looking statements include, but are not limited to, statements we make regarding the announced pending sale of our Performance Chemicals segment, our financial results and our liquidity, including our belief that our existing cash, cash equivalents and cash flow from operations, combined with availability under our asset based lending revolving credit facility will be sufficient to meet our presently anticipated future cash needs for at least the next 12 months. These forward-looking statements are subject to a number of risks, uncertainties and assumptions. Moreover, we operate in a very competitive and rapidly changing environment and new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed herein may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include risks related to:

- the impact of the ongoing COVID-19 pandemic on the global economy and financial markets, as well as on our business and our suppliers, and the response of governments and of our company to the outbreak;
- as a global business, we are exposed to local business risks in different countries;
- we are affected by general economic conditions and economic downturns;
- exchange rate fluctuations could adversely affect our financial condition, results of operations and cash flows;
- our international operations require us to comply with anti-corruption laws, trade and export controls and regulations of the U.S. government and various international jurisdictions in which we do business;
- alternative technology or other changes in our customers' products may reduce or eliminate the need for certain of our products;
- our new product development and research and development efforts may not succeed and our competitors may develop more effective or successful products;
- our substantial level of indebtedness could adversely affect our financial condition;
- if we are unable to pass on increases in raw material prices, including natural gas, to our customers or to retain or replace our key suppliers, our results of operations and cash flows may be negatively affected;
- we face substantial competition in the industries in which we operate;
- we are subject to the risk of loss resulting from non-payment or non-performance by our customers;
- we rely on a limited number of customers for a meaningful portion of our business;
- multi-year customer contracts in our refining services segment are subject to potential early termination and such contracts may not be renewed at the end of their respective terms;
- our quarterly results of operations are subject to fluctuations because demand for some of our products is seasonal;
- our growth projects may result in significant expenditures before generating revenues, if any, which may materially and adversely affect our ability to implement our business strategy;
- we may be liable to damages based on product liability claims brought against us or our customers for costs associated with recalls of our or our customers' products;
- we are subject to extensive environmental, health and safety regulations and face various risks associated with potential non-compliance or releases of hazardous materials;

- existing and proposed regulations to address climate change by limiting greenhouse gas emissions may cause us to incur significant additional operating and capital expenses and may impact our business and results of operations;
- production and distribution of our products could be disrupted for a variety of reasons, and such disruptions could expose us to significant losses or liabilities;
- the insurance that we maintain may not fully cover all potential exposures;
- we could be subject to damages based on claims brought against us by our customers or lose customers as a result of the failure of our products to meet certain quality specifications;
- our failure to protect our intellectual property and infringement on the intellectual property rights of third parties;
- losses and damages in connection with information technology risks could adversely affect our operations; and
- other factors set forth in Part I, “Item 1A. Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2020.

The forward-looking statements included herein are made only as of the date hereof. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this Form 10-Q to conform these statements to actual results or to changes in our expectations.

Overview

We are a leading integrated and innovative global provider of specialty catalysts and services. We believe that our products, which are predominantly inorganic, and services contribute to improving the sustainability of the environment.

We conduct operations through two reporting segments: (1) Refining Services and (2) Catalysts (including our 50% interest in the Zeolyst Joint Venture).

Refining Services: We are the leading provider of sulfuric acid recycling services to North American refineries for the production of alkylate, an essential gasoline component for lowering vapor pressure and increasing octane to meet stringent gasoline specifications and fuel efficiency standards. We are also a leading North American producer of on-purpose virgin sulfuric acid for water treatment, mining, and industrial applications.

Catalysts: We are a global supplier of finished silica catalysts and catalyst supports necessary to produce high strength and high stiffness plastics used in packaging films, bottles, containers, and other molded applications. We are also a leading global supplier of zeolites used for catalysts that remove nitric oxide from diesel engine emissions as well as sulfur from fuels during the refining process.

Recent Developments

On December 14, 2020, we completed the sale of our Performance Materials business for $650.0 million, which was subject to certain adjustments for indebtedness, working capital and cash at the closing of the transaction. The results of operations, financial condition, and cash flows for the Performance Materials business are presented herein as discontinued operations. Except where noted, any tables, percentages or metrics included within this filing exclude the results of our former Performance Materials business. Refer to Note 3 to our condensed consolidated financial statements for additional information.

On February 28, 2021, we announced the entry into a definitive agreement to sell our Performance Chemicals business to a partnership established by Koch Mineral & Trading LLC and Cerberus Capital Management, L.P. for a purchase price of $1.1 billion, which is subject to certain adjustments including for indebtedness, cash, working capital and transaction expenses. The results of operations, financial condition, and cash flows for the Performance Chemicals business are presented herein as discontinued operations. Except where noted, any tables, percentages or metrics included within this filing exclude the results of our Performance Chemicals business. Refer to Note 3 to our condensed consolidated financial statements for additional information.

Key Performance Indicators

Adjusted EBITDA and Adjusted Net Income

Adjusted EBITDA and adjusted net income are financial measures that are not prepared in accordance with accounting principles generally accepted in the United States ("GAAP") and that we use to evaluate our operating performance, for business planning purposes and to measure our performance relative to that of our competitors. Adjusted EBITDA and adjusted net income are presented as key performance indicators as we believe these financial measures will enhance a prospective investor's understanding of our results of operations and financial condition. EBITDA consists of net income (loss) attributable to continuing operations before interest, taxes, depreciation and amortization. Adjusted EBITDA consists of EBITDA adjusted for (i) non-operating income or expense, (ii) the impact of certain non-cash, nonrecurring or other items included in net income (loss) and EBITDA that we do not consider indicative of our ongoing operating performance, and (iii) depreciation, amortization and interest of our 50% share of the Zeolyst Joint Venture. Adjusted net income consists of net income (loss) attributable to continuing operations adjusted for (i) non-operating income or expense and (ii) the impact of certain non-cash, nonrecurring or other items included in net income (loss) that we do not consider indicative of our ongoing operating performance. We believe that these non-GAAP financial measures provide investors with useful financial metrics to assess our operating performance from period-to-period by excluding certain items that we believe are not representative of our core business.

You should not consider adjusted EBITDA or adjusted net income in isolation or as alternatives to the presentation of our financial results in accordance with GAAP. The presentation of adjusted EBITDA and adjusted net income financial measures may differ from similar measures reported by other companies and may not be comparable to other similarly titled measures. In evaluating adjusted EBITDA and adjusted net income, you should be aware that we are likely to incur expenses similar to those eliminated in this presentation in the future and that certain of these items could be considered recurring in nature. Our presentation of adjusted EBITDA and adjusted net income should not be construed as an inference that our future results will be unaffected by unusual or nonrecurring items. Reconciliations of adjusted EBITDA and adjusted net income to GAAP net income (loss) are included in the results of operations discussion that follows for each of the respective periods.

Key Factors and Trends Affecting Operating Results and Financial Condition

Sales

Market demand has significantly rebounded since the 2020 lows that resulted from the impact of COVID-19. Refineries have seen demand return with increasing miles driven. Emission control and refining catalysts continue to lag, but show signs of rebound in the second half of 2021.

In February 2021, the Gulf Coast of the United States experienced significant and unexpectedly severe weather. Extended freezing temperatures led to shutdowns or slowdowns at nearly all refineries and extensive damage due to frozen piping. Some plants remained down for nearly a month. Our Refining Services facilities located in the Gulf experienced damage and required certain repairs.

Sales in our Refining Services and Catalysts segments are made on both a purchase order basis and pursuant to long-term contracts.

Cost of Goods Sold

Cost of goods sold consists of variable product costs, fixed manufacturing expenses, depreciation expense and freight expenses. Variable product costs include all raw materials, energy and packaging costs that are directly related to the manufacturing process. Fixed manufacturing expenses include all plant employment costs, manufacturing overhead and periodic maintenance costs. The primary raw materials for our Refining Services segment include spent sulfuric acid, sulfur, acids, bases (including sodium hydroxide, or "caustic soda"), and certain metals. The primary raw materials used in the manufacture of products in our Catalysts segments include sodium silicate and cesium hydroxide.

Most of our Refining Services contracts feature take-or-pay volume protection and/or quarterly price adjustments for commodity inputs, labor, the Chemical Engineering Index (U.S. chemical plant construction cost index) and natural gas. Spent acid for our Refining Services segment is supplied by customers for a nominal charge as part of their contracts. Over 80% of our Refining Services segment sales for the year ended December 31, 2020 were under contracts featuring quarterly price adjustments. The price adjustments generally reflect actual costs for producing acid and tend to protect us from volatility in labor, fixed costs and raw material pricing. The take-or-pay volume protection allows us to cover fixed costs through intermittent, temporary production issues at customer refineries.

While natural gas is not a direct feedstock for any product, natural gas powered furnaces are used to heat raw materials and create the chemical reactions necessary to produce end-products. We maintain multiple suppliers wherever possible, make forward purchases of natural gas in the United States and structure our customer contracts when possible to allow for the pass-through of raw material and natural gas costs.

Joint Ventures

We account for our investments in our equity joint ventures under the equity method. Our largest joint venture, the Zeolyst Joint Venture, manufactures high performance, specialty, zeolite-based catalysts for use in the packaging and engineered plastics, emission control, refining and petrochemical industries and other areas of the broader chemicals industry. We share proportionally in the management of our joint ventures with the other parties to each such joint venture.

Seasonality

Our Refining Services segment typically experiences seasonal fluctuations as a result of higher demand for gasoline products in the summer months and lower demand in the winter months. These demand fluctuations result in higher sales and working capital requirements in the second and third quarter.

Foreign Currency

As a global business, we are subject to the impact of gains and losses on currency translations, which occur when the financial statements of foreign operations are translated into U.S. dollars. We operate in various geographies with approximately 10% of our sales for the three months ended March 31, 2021 and the year ended December 31, 2020 are in currencies other than the U.S. dollar. Because our consolidated financial results are reported in U.S. dollars, sales or earnings generated in currencies other than the U.S. dollar can result in a significant increase or decrease in the amount of those sales and earnings when translated to U.S. dollars. The foreign currency to which we have the most significant exchange rate exposure is the British pound.

Results of Operations

Three Months Ended March 31, 2021 Compared to the Three Months Ended March 31, 2020

Highlights

The following is a summary of our financial performance for the three months ended March 31, 2021 compared with the three months ended March 31, 2020.

Sales

- Sales increased $1.0 million to $126.6 million. The increase in sales was primarily due to favorable cost pass-through pricing and higher polyethylene catalysts volumes offset by lower volumes of regeneration and virgin sulfuric acid.

Gross Profit

- Gross profit decreased $7.6 million to $30.1 million. The decrease in gross profit was primarily due to lower sales volumes and an increase in manufacturing costs, which was partially offset by favorable customer pricing and product mix.

Operating Income

- Operating income decreased by $9.4 million to $2.5 million. The decrease in operating income was due to a decrease in gross profit during the current year period.

Equity in Net Income of Affiliated Companies

- Equity in net income of affiliated companies for the three months ended March 31, 2021 was $5.2 million, compared with $8.3 million for the three months ended March 31, 2020. The decrease of $3.1 million was due to a decrease in earnings generated by the Zeolyst Joint Venture for the three months ended March 31, 2021.

The following is our unaudited condensed consolidated statements of income and a summary of financial results for the three months ended March 31, 2021 and 2020:

	Three months ended March 31,		Change	
	2021	2020	$	%
	(in millions, except percentages)			
Sales	$ 126.6	$ 125.6	$ 1.0	0.8 %
Cost of goods sold	96.5	87.9	8.6	9.8 %
Gross profit	30.1	37.7	(7.6)	(20.2)%
Gross profit margin	*23.8 %*	*30.0 %*		
Selling, general and administrative expenses	22.1	22.3	(0.2)	(0.9)%
Other operating expense, net	5.5	3.5	2.0	57.1 %
Operating income	2.5	11.9	(9.4)	(79.0)%
Operating income margin	*2.0 %*	*9.5 %*		
Equity in net (income) from affiliated companies	(5.2)	(8.3)	3.1	(37.3)%
Interest expense, net	10.5	15.3	(4.8)	(31.4)%
Debt extinguishment costs	—	2.5	(2.5)	(100.0)%
Other expense, net	5.1	7.5	(2.4)	(32.0)%
Loss before income taxes and noncontrolling interest	(7.9)	(5.1)	(2.8)	54.9 %
Benefit for income taxes	(5.2)	(1.7)	(3.5)	205.9 %
Effective tax rate	*65.4 %*	*33.2 %*		
Net loss from continuing operations	(2.7)	(3.4)	0.7	(20.6)%
Net (loss) income from discontinued operations, net of tax	(89.8)	3.9	(93.7)	NM
Net (loss) income	(92.5)	0.5	(93.0)	NM
Less: Net income attributable to the noncontrolling interest - discontinued operations	0.1	0.3	(0.2)	(66.7)%
Net (loss) income attributable to PQ Group Holdings Inc.	$ (92.6)	$ 0.2	$ (92.8)	NM

Sales

	Three months ended March 31,		Change	
	2021	2020	$	%
	(in millions, except percentages)			
Sales:				
Refining Services	$ 100.2	$ 100.7	$ (0.5)	(0.5)%
Catalysts	26.4	24.9	1.5	6.0 %
Total sales	$ 126.6	$ 125.6	$ 1.0	0.8 %

Refining Services: Sales in Refining Services for the three months ended March 31, 2021 were $100.2 million, a decrease of $0.5 million, or 0.5%, compared to sales of $100.7 million for the three months ended March 31, 2020. The decrease in sales was due to lower sales volumes of $7.4 million partially offset by higher average selling prices of $5.8 million. The decline in sales volumes, estimated at $6.0 million, was a result of extensive damages to both our facilities and our customers facilities due to the freezing weather in the Gulf of Mexico. Higher average selling prices benefited from pass-through of favorable sulfur pricing of $3.1 million in our virgin sulfuric acid product group.

Catalysts: Sales in Silica Catalysts for the three months ended March 31, 2021 were $26.4 million, an increase of $1.5 million, or 6.0%, compared to sales of $24.9 million for the three months ended March 31, 2020. The increase in sales was primarily due to product mix of polyethylene catalysts resulting in an increase in pricing of $0.8 million.

Gross Profit

Gross profit for the three months ended March 31, 2021 was $30.1 million, a decrease of $7.6 million, or 20.2%, compared with $37.7 million for the three months ended March 31, 2020. The decrease in gross profit was due to lower sales volumes of $9.6 million and higher manufacturing costs of $7.0 million, which was partially offset by favorable customer pricing of $6.6 million and favorable product mix of $3.2 million.

Sales volumes declined within the fuels and emission control end uses as a result of extensive damages to both our facilities and our customers facilities due to the freezing weather in the Gulf of Mexico. The increase in manufacturing costs, estimated at $9.0 million, included one-time repair costs and higher inventory absorption costs. Favorable product mix was a result of increased sales of higher-margin polyethylene catalysts sales.

Selling, General and Administrative Expenses

Selling, general and administrative expenses for the three months ended March 31, 2021 was $22.1 million, a decrease of $0.2 million as compared to $22.3 million for the three months ended March 31, 2020. The decrease in selling, general and administrative expenses was due to the benefits of the transition service agreement entered into as part of the sale of the Performance Materials business, which was partially offset by increased stock compensation expense.

Other Operating Expense, Net

Other operating expense, net for the three months ended March 31, 2021 was $5.5 million, an increase of $2.0 million, compared with $3.5 million for the three months ended March 31, 2020. The increase in other operating expense, net was a result of severance charges incurred in the current year period.

Equity in Net Income of Affiliated Companies

Equity in net income of affiliated companies for the three months ended March 31, 2021 was $5.2 million, compared to $8.3 million for the three months ended March 31, 2020. The decrease was primarily due to $3.1 million of lower earnings from the Zeolyst Joint Venture during the three months ended March 31, 2021. The decline in earnings was a result of deferred change-outs related to reduced output from oil refineries and heavy duty vehicle production, which led to a decrease in demand for our emission control and hydrocracking catalysts.

Interest Expense, Net

Interest expense, net for the three months ended March 31, 2021 was $10.5 million, a decrease of $4.8 million, as compared with $15.3 million for the three moths ended March 31, 2020. The decrease in interest expense was primarily due to lower interest rates on our variable debt offset by higher interest due on our interest rate caps.

Debt Extinguishment Costs

Debt extinguishment costs for the three months endedMarch 31, 2020 was $2.5 million. On February 7, 2020, we amended our existing senior secured term loan facility to reduce the applicable interest rates and extend the maturity of the facility to February 2027. We recorded $2.2 million of new creditor and third-party financing fees as debt extinguishment costs. In addition, previously unamortized deferred financing costs of $0.1 million and original issue discount of $0.2 million associated with the existing senior secured term loan facility were written off as debt extinguishment costs for the three months ended March 31, 2020.

Other Expense, Net

Other expense, net for the three months ended March 31, 2021 was expense of $5.1 million, a decrease of $2.4 million, as compared with expense of $7.5 million for the three months ended March 31, 2020. The change in other expense, net primarily consisted of a decrease in foreign currency losses for the three months ended March 31, 2021 as compared to foreign currency losses for the three months ended March 31, 2020. Foreign currency gains and losses are primarily driven by the fluctuations in our non-permanent intercompany debt denominated in local currency and translated to U.S. dollars.

Benefit for Income Taxes

The benefit for income taxes for the three months ended March 31, 2021 was $5.2 million compared to a $1.7 million benefit for the three months ended March 31, 2020. The effective income tax rate for the three months ended March 31, 2021 was 65.4% compared to 33.2% for the three months ended March 31, 2020.

The Company’s effective income tax rate fluctuates primarily due to income mix, the impacts of GILTI, discrete impacts of the divestiture of the Performance Chemicals business and changes in foreign exchange gains and losses, which create permanent differences in certain jurisdictions.

The difference between the U.S. federal statutory income tax rate and the Company's effective income tax rate for the three months ended March 31, 2021 was mainly due to the impacts of GILTI, discrete tax impacts related to intraperiod allocation revaluation of deferred tax assets and liabilities as a result of the Performance Chemicals divestiture, and the tax effect of permanent differences related to foreign currency exchange gain or loss.

Net (Loss) Income Attributable to PQ Group Holdings

For the foregoing reasons and after the effect of the non-controlling interest in earnings of subsidiaries for each period presented, net loss attributable to PQ Group Holdings was $92.6 million for the three months ended March 31, 2021 compared with net income of $0.2 million for the three months ended March 31, 2020.

Adjusted EBITDA

Summarized Segment Adjusted EBITDA information is shown below in the following table:

	Three months ended March 31,		Change	
	2021	**2020**	**$**	**%**
	(in millions, except percentages)			
Segment Adjusted EBITDA:[1]				
Refining Services	$ 33.0	$ 37.2	$ (4.2)	(11.3)%
Catalysts[2]	18.5	22.7	(4.2)	(18.5)%
Total Segment Adjusted EBITDA[3]	51.5	59.9	(8.4)	(14.0)%
Unallocated corporate expenses	(9.2)	(11.3)	2.1	18.6 %
Total Adjusted EBITDA	$ 42.3	$ 48.6	$ (6.3)	(13.0)%

(1) We define Segment Adjusted EBITDA as EBITDA adjusted for certain items as noted in the reconciliation below. Our management evaluates the performance of our segments and allocates resources based primarily on Segment Adjusted EBITDA. Segment Adjusted EBITDA does not represent cash flow for periods presented and should not be considered as an alternative to net income as an indicator of our operating performance or as an alternative to cash flows as a source of liquidity. Segment Adjusted EBITDA may not be comparable with EBITDA or Adjusted EBITDA as defined by other companies.

(2) The Adjusted EBITDA from the Zeolyst Joint Venture included in the Catalysts segment is $10.5 million for the three months ended March 31, 2021, which includes $5.2 million of equity in net income, excluding $1.7 million of amortization of investment in affiliate step-up plus $3.6 million of joint venture depreciation, amortization and interest. The Adjusted EBITDA from the Zeolyst Joint Venture included in the Catalysts segment is $13.7 million for the three months ended March 31, 2020, which includes $8.3 million of equity in net income, excluding $1.7 million of amortization of investment in affiliate step-up plus $3.8 million of joint venture depreciation, amortization and interest.

(3) Our total Segment Adjusted EBITDA differs from our total consolidated Adjusted EBITDA due to unallocated corporate expenses. Rounding discrepancies may arise when rounding segment results from dollars (in thousands) to dollars (in millions).

Refining Services: Adjusted EBITDA for the three months ended March 31, 2021 was $33.0 million, a decrease of $4.2 million, or 11.3%, compared with $37.2 million for the three months ended March 31, 2020. The decrease in Adjusted EBITDA from lower volumes and higher repair costs to both our facilities and our customers facilities, estimated at $9.0 million, is related to unfavorable weather conditions in the Gulf of Mexico.

Catalysts: Adjusted EBITDA for the three months ended March 31, 2021 was $18.5 million, a decrease of $4.2 million, or 18.5%, compared with $22.7 million for the three months ended March 31, 2020. The decrease in Adjusted EBITDA was a result of lower fuels and emission control catalysts and unfavorable fixed cost absorption.

A reconciliation of net loss from continuing operations to Segment Adjusted EBITDA is as follows:

	Three months ended March 31, 2021	Three months ended March 31, 2020
	(in millions)	
Reconciliation of net loss from continuing operations to Segment Adjusted EBITDA		
Net loss from continuing operations	$ (2.7)	$ (3.4)
Benefit for income taxes	(5.2)	(1.7)
Interest expense, net	10.5	15.3
Depreciation and amortization	19.5	18.7
EBITDA	22.1	29.0
Joint venture depreciation, amortization and interest[(a)]	3.6	3.7
Amortization of investment in affiliate step-up[(b)]	1.7	1.7
Debt extinguishment costs	—	2.5
Net loss on asset disposals[(c)]	0.8	0.2
Foreign currency exchange loss[(d)]	5.1	7.1
LIFO benefit[(e)]	(0.3)	(1.7)
Transaction and other related costs[(f)]	0.5	0.8
Equity-based compensation	6.3	4.3
Restructuring, integration and business optimization expenses[(g)]	2.3	0.3
Defined benefit pension plan benefit[(h)]	(0.6)	(0.1)
Other[(i)]	0.8	0.8
Adjusted EBITDA	42.3	48.6
Unallocated corporate expenses	9.2	11.3
Segment Adjusted EBITDA	$ 51.5	$ 59.9

(a) We use Adjusted EBITDA as a performance measure to evaluate our financial results. Because our Catalysts segment includes our 50% interest in the Zeolyst Joint Venture, we include an adjustment for our 50% proportionate share of depreciation, amortization and interest expense of the Zeolyst Joint Venture.

(b) Represents the amortization of the fair value adjustments associated with the equity affiliate investment in the Zeolyst Joint Venture as a result of the combination of the businesses of PQ Holdings Inc. and Eco Services Operations LLC in May 2016. We determined the fair value of the equity affiliate investment and the fair value step-up was then attributed to the underlying assets of the Zeolyst Joint Venture. Amortization is primarily related to the fair value adjustments associated with fixed assets and intangible assets, including customer relationships and technical know-how.

(c) When asset disposals occur, we remove the impact of net gain/loss of the disposed asset because such impact primarily reflects the non-cash write-off of long-lived assets no longer in use.

(d) Reflects the exclusion of the foreign currency transaction gains and losses in the statements of income primarily related to the non-permanent intercompany debt denominated in local currency translated to U.S. dollars.

(e) Represents non-cash adjustments to the Company's LIFO reserves for certain inventories in the U.S. that are valued using the LIFO method, which we believe provides a means of comparison to other companies that may not use the same basis of accounting for inventories.

(f) Relates to certain transaction costs, including debt financing, due diligence and other costs related to transactions that are completed, pending or abandoned, that we believe are not representative of our ongoing business operations.

(g) Includes the impact of restructuring, integration and business optimization expenses which are incremental costs that are not representative of our ongoing business operations.

(h) Represents adjustments for defined benefit pension plan (benefit) costs in our statements of income. All of our defined benefit pension plan obligations are under defined benefit pension plans that are frozen. As such, we do not view such income or expenses as core to our ongoing business operations.

(i) Other costs consist of certain expenses that are not core to our ongoing business operations, including environmental remediation-related costs associated with the legacy operations of our business prior to a business combination consummated in a prior year period and capital and franchise taxes. Included in this line-item are rounding discrepancies that may arise from rounding from dollars (in thousands) to dollars (in millions).

Adjusted Net Income

Summarized adjusted net income information is shown below in the following table:

	Three months ended March 31,					
	2021			2020		
	Pre-tax	Tax expense (benefit)	After-tax	Pre-tax	Tax expense (benefit)	After-tax
	(in millions)					
Reconciliation of net loss from continuing operations to Adjusted Net Income(1)(2)						
Net loss from continuing operations	$ (7.9)	$ (5.2)	$ (2.7)	$ (5.1)	$ (1.7)	$ (3.4)
Less: Net income attributable to non-controlling interest - continuing operations	—	—	—	—	—	—
Net income attributable to PQ Group Holdings Inc.	(7.9)	(5.2)	(2.7)	(5.1)	(1.7)	(3.4)
Amortization of investment in affiliate step-up(b)	1.7	0.6	1.1	1.7	0.6	1.1
Debt extinguishment costs	—	—	—	2.5	0.8	1.7
Net loss on asset disposals(c)	0.8	0.2	0.6	0.2	0.1	0.1
Foreign currency exchange loss(d)	5.1	1.4	3.7	7.1	2.3	4.8
LIFO benefit(e)	(0.3)	(0.1)	(0.2)	(1.7)	(0.6)	(1.1)
Transaction and other related costs(f)	0.5	0.1	0.4	0.8	0.3	0.5
Equity-based compensation	6.3	1.8	4.5	4.3	1.4	2.9
Restructuring, integration and business optimization expenses(g)	2.3	0.7	1.6	0.3	0.1	0.2
Defined benefit pension plan benefit(h)	(0.6)	(0.2)	(0.4)	(0.1)	—	(0.1)
Other(i)	0.8	0.4	0.4	0.8	0.2	0.6
Adjusted Net Income, including Intraperiod allocation	$ 8.7	$ (0.3)	$ 9.0	$ 10.8	$ 3.5	$ 7.3
Intraperiod allocation for restating discontinued operations(3)	—	2.9	(2.9)	—	—	—
Adjusted Net Income	$ 8.7	$ 2.6	$ 6.1	$ 10.8	$ 3.5	$ 7.3

(1) We define adjusted net income as net income attributable to PQ Group Holdings adjusted for non-operating income or expense and the impact of certain non-cash or other items that are included in net income that we do not consider indicative of our ongoing operating performance. Adjusted net income is presented as a key performance indicator as we believe it will enhance a prospective investor's understanding of our results of operations and financial condition. Adjusted net income may not be comparable with net income or adjusted net income as defined by other companies.

(2) Refer to the Adjusted EBITDA notes above for more information with respect to each adjustment.

(3) Due to reporting the Performance Chemicals business as held for sale in discontinued operations, the estimated tax rate used to value deferred tax assets ("DTAs") and deferred tax liabilities ("DTLs") needs to be adjusted to remove the Performance Chemicals rate. Given it is a direct result of the sale of discontinued operations and the need to adjust the estimated tax rate arose because of discontinued operations, the impact of revaluing the reporting entity's DTAs and DTLs are reflected in continuing operations. Due to this revaluation being solely as a result of the Performance Chemicals divestiture and a non-cash item, it is treated as an addback.

The adjustments to net income attributable to PQ Group Holdings Inc. are shown net of applicable tax rates of 28.8% and 32.5% for the three months ended March 31, 2021 and 2020, respectively, except for the foreign currency exchange loss and discrete impacts of the divestiture of the Performance Chemicals business.

Financial Condition, Liquidity and Capital Resources

Our primary sources of liquidity consist of cash flow from operations, existing cash balances as well as funds available under our asset based lending revolving credit facility. We expect that ongoing requirements for debt service and capital expenditures will be funded from these sources of funds. Our primary liquidity requirements include funding working capital requirements (primarily inventory and accounts receivable, net of accounts payable and other accrued liabilities), debt service requirements and capital expenditures. Our capital expenditures include both maintenance of business, which include spending on maintenance and health, safety and environmental initiatives as well as growth, which includes spending to drive organic sales growth and cost savings initiatives.

We believe that our existing cash, cash equivalents and cash flows from operations, combined with availability under our asset based lending revolving credit facility, will be sufficient to meet our presently anticipated future cash needs for at least the next twelve months. We may also pursue strategic acquisition or divestiture opportunities, which may impact our future cash requirements. We may, from time to time, increase borrowings under our asset based lending revolving credit facility to meet our future cash needs. As of March 31, 2021, we had cash and cash equivalents of $55.2 million and availability of $105.6 million under our asset based lending revolving credit facility, after giving effect to $17.8 million of outstanding letters of credit, for a total available liquidity of $160.8 million. We did not have any revolving credit facility borrowings as of March 31, 2021. As of March 31, 2021, we were in compliance with all covenants under our debt agreements.

Included in our cash and cash equivalents balance as of March 31, 2021 was $0.8 million of cash and cash equivalents held in foreign jurisdictions on a continuing operations basis. We repatriate cash held outside of the United States from certain foreign subsidiaries in order to meet domestic liquidity needs. Depending on domestic and foreign cash balances, we have certain flexibility to repatriate funds in order to meet those needs. Specifically, we have an intercompany loan structure in place with several of our foreign subsidiaries that allows us to repatriate foreign cash in a tax efficient manner from those subsidiaries. In certain cases, the repatriation of foreign cash under previous U.S. tax law had generally been subject to U.S. income taxes at the time of cash distribution. Due to the enactment of the TCJA in December 2017, future overseas earnings repatriation will generally no longer be subject to U.S. federal income taxes at the time of cash distribution. However, future foreign earnings may still be taxed for state income tax purposes, as well as subject to certain foreign withholding tax obligations, when cash amounts are distributed back to the U.S.

Our liquidity requirements are significant, primarily due to debt service requirements. As reported, our cash interest paid for the three months ended March 31, 2021 and 2020 was approximately $17.8 million and $19.8 million, respectively. Before any impact of hedges, a one percent change in assumed interest rates for our variable interest credit facilities would have an annual impact of approximately $11.3 million on interest expense. We hedge the interest rate fluctuations on debt obligations through interest rate cap agreements. As of March 31, 2021, we had interest rate caps on $500.0 million of notional variable debt with a cap rate of 0.84% through July 2022 and $400.0 million of notional variable-rate debt with a cap rate of 1.00% through August 2023.

Cash Flow

	Three months ended March 31,	
	2021	**2020**
	(in millions)	
Continuing Operations		
Net cash provided by (used in):		
Operating activities	$ 16.5	$ 11.1
Investing activities	(54.5)	(7.6)
Financing activities	(1.5)	52.6
Discontinued Operations		
Net cash provided by (used in):		
Operating activities	0.9	(6.5)
Investing activities	(22.0)	(14.6)
Financing activities	(0.5)	5.7
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(2.7)	(4.3)
Net change in cash, cash equivalents and restricted cash	(63.8)	36.4
Cash, cash equivalents and restricted cash at beginning of period	137.2	73.9
Cash, cash equivalents and restricted cash at end of period	73.4	110.3
Less: cash, cash equivalents and restricted cash of discontinued operations	(16.6)	(53.4)
Cash, cash equivalents and restricted cash at end of period of continuing operations	$ 56.8	$ 56.9

	Three months ended March 31,	
	2021	2020
	(in millions)	
Continuing Operations		
Net (loss) income	$ (2.7)	$ (3.4)
Non-cash and non-working capital related activities[1]	27.7	22.0
Changes in working capital	(4.3)	(6.5)
Other operating activities	(4.2)	(1.0)
Net cash provided by operating activities, continuing operations	$ 16.5	$ 11.1

(1) Includes depreciation, amortization, amortization of deferred financing costs and original issue discount, foreign currency exchange gains and losses, deferred income tax provision (benefit), net (gains) losses on asset disposals, stock compensation expense and equity in net income and dividends received from affiliated companies.

	Three months ended March 31,	
	2021	2020
	(in millions)	
Continuing Operations		
Working capital changes that provided (used) cash:		
Receivables	$ (9.4)	$ (1.2)
Inventories	4.6	3.5
Prepaids and other current assets	(2.2)	(0.3)
Accounts payable	4.7	(3.1)
Accrued liabilities	(2.0)	(5.4)
	$ (4.3)	$ (6.5)

	Three months ended March 31,	
	2021	2020
	(in millions)	
Continuing Operations		
Purchases of property, plant and equipment	$ (12.6)	$ (10.0)
Business combinations, net of cash acquired	(42.0)	—
Proceeds from sale of assets	—	2.4
Net cash used in investing activities, continuing operations	$ (54.6)	$ (7.6)

	Three months ended March 31,	
	2021	2020
	(in millions)	
Continuing Operations		
Net revolving credit facilities borrowings	$ —	$ 59.0
Net cash borrowings (repayments) on debt obligations	—	(3.0)
Other financing activities	(1.5)	(3.5)
Net cash (used in) provided by financing activities, continuing operations	$ (1.5)	$ 52.5

The following discussions related to our cash flows are presented on a continuing operations basis, which excludes the cash flows from our Performance Materials and Performance Chemicals businesses accounted for as discontinued operations. The discussion related to our adjusted free cash flow metric is presented on a consolidated basis.

Net cash provided by operating activities was $16.5 million for the three months ended March 31, 2021, compared to $11.1 million provided for the three months ended March 31, 2020. Cash generated by operating activities, other than changes in working capital, was higher during the three months ended March 31, 2021 by $3.4 million compared to the same period in the prior year. The change in working capital during the three months ended March 31, 2021 was favorable compared to the three months ended March 31, 2020. Cash used to fund working capital was $4.3 million and $6.5 million for the three months ended March 31, 2021 and 2020, respectively.

The increase in cash generated by operating activities, other than changes in working capital, was higher by $3.4 million as compared to the prior year period primarily due to an increase in dividends received from affiliated companies offset by a decline in operating profit.

The increase in cash from working capital of $2.2 million as compared to the prior year was primarily due to favorable changes in inventories, accounts payable and accrued liabilities which were partially offset by unfavorable changes in accounts receivable and prepaid and other current assets.

The increase in cash provided by inventory changes was due to the timing of sales orders for our polyethylene catalysts in the current year period and inventory build in the prior year period. The favorable change in accounts payable is due to the timing of capital spending and the favorable change in accrued liabilities relates to changes in various expense accruals. The unfavorable change in accounts receivable was driven by the timing of collections on receivable balances.

Net cash used in investing activities was $54.6 million for the three months ended March 31, 2021, compared to cash used of $7.6 million during the same period in 2020. Cash used in investing activities consisted of utilizing $12.6 million and $10.0 million to fund capital expenditures during the three months ended March 31, 2021 and 2020, respectively. During the quarter ended March 31, 2021, we acquired Chem32, LLC for $42.0 million. We received proceeds of $2.4 million related to the sale of non-core assets during the three months ended March 31, 2020.

Net cash used in financing activities was $1.5 million for the three months ended March 31, 2021, compared to net cash provided of $52.5 million during the same period in 2020. Net cash used in financing activities was primarily driven by $1.5 million of stock repurchases during the three months ended March 31, 2021. Net cash provided by financing activities was primarily driven by $59.0 million of net borrowings under our revolving credit facilities made through the three months ended March 31, 2020.

Adjusted Free Cash Flow

Adjusted free cash flow is a non-GAAP metric management reviews to gauge liquidity performance. Adjusted free cash flow is calculated as cash flow from operating activities less purchases of property, plant and equipment, adjusted for proceeds from the sale of assets, net interest proceeds on swaps designated as net investment hedges and the cash paid for costs related to segment disposals. For the three months ended March 31, 2021, adjusted free cash flow of $2.7 million was favorable to the prior year as cash flow from operating activities increased on a favorable change in working capital. Purchases of property, plant and equipment decreased as lower spending in discontinued operations was partially offset by higher maintenance of business capital in Refining Services.

	Three months ended March 31,	
	2021	2020
	(in millions)	
Net cash provided by operating activities, continuing operations	$ 16.5	$ 11.1
Net cash provided by operating activities, discontinued operations	0.9	(6.5)
Net cash provided by operating activities	17.4	4.6
Less:		
Purchases of property, plant and equipment, continuing operations	(12.6)	(10.0)
Purchases of property, plant and equipment, discontinued operations	(11.7)	(18.1)
Purchases of property, plant and equipment[(1)]	(24.3)	(28.1)
Free cash flow	(6.9)	(23.5)
Adjustments to free cash flow:		
Proceeds from sale of assets	0.3	2.4
Net interest proceeds on currency swaps	2.3	1.8
Cash paid for costs related to segment disposals	7.0	—
Adjusted free cash flow[(2)]	$ 2.7	$ (19.3)
Net cash used in investing activities[(3)]	$ (54.6)	$ (7.6)
Net cash used in financing activities	$ (1.5)	$ 52.5

(1) Excludes the company's proportionate 50% share of capital expenditures from the Zeolyst joint venture.

(2) We define adjusted free cash flow as net cash provided by operating activities less purchases of property, plant and equipment, adjusted for proceeds from sale of assets and net interest proceeds on swaps designated as net investment hedges and the cash paid for costs related to segment disposals. Adjusted free cash flow is a non-GAAP financial measure that we believe will enhance a prospective investor's understanding of our ability to generate additional cash from operations, including the reduction in cash paid for interest related to our cross-currency interest rate swaps, and is an important financial measure for use in evaluating our financial performance. Our presentation of adjusted free cash flow is not intended to replace, and should not be considered superior to, the presentation of our net cash provided by operating activities determined in accordance with GAAP. Additionally, our definition of adjusted free cash flow is limited, in that it does not represent residual cash flows available for discretionary expenditures, due to the fact that the measure does not deduct the payments required for debt service and other contractual obligations or payments made for business acquisitions. Therefore, we believe it is important to view adjusted free cash flow as a measure that provides supplemental information to our consolidated statements of cash flows. You should not consider adjusted free cash flow in isolation or as an alternative to the presentation of our financial results in accordance with GAAP. The presentation of adjusted free cash flow may differ from similar measures reported by other companies and may not be comparable to other similarly titled measures.

(3) Net cash used in investing activities includes purchases of property, plant and equipment, proceeds from sale of assets and net interest proceeds on swaps designated as net investment hedges, which are also included in our computation of adjusted free cash flow.

Debt

	March 31, 2021	December 31, 2020
	(in millions)	
Senior Secured Term Loan Facility due February 2027	$ 671.7	$ 671.7
New Senior Secured Term Loan Facility due February 2027	459.7	459.7
5.75% Senior Unsecured Notes due 2025	295.0	295.0
ABL Facility	—	—
Total debt	1,426.4	1,426.4
Original issue discount	(15.1)	(15.6)
Deferred financing costs	(9.7)	(10.4)
Total debt, net of original issue discount and deferred financing costs	1,401.6	1,400.4
Less: current portion	—	—
Total long-term debt, excluding current portion	$ 1,401.6	$ 1,400.4

As of March 31, 2021, our total debt was $1,426.4 million, excluding the original issue discount of $15.1 million and deferred financing fees of $9.7 million for our senior secured credit facilities and notes. Our net debt as of March 31, 2021 was $1,371.2 million, including cash and cash equivalents of $55.2 million. We may seek, subject to market conditions and other factors, opportunities to repurchase, refinance or otherwise reprice our debt.

Capital Expenditures

Maintenance capital expenditures include spending on maintenance of business, health, safety and environmental initiatives. Growth capital expenditures include spending to drive organic sales growth and cost savings initiatives. These capital expenditures represent our "book" capital expenditures for which the company has recorded, but not necessarily paid for the capital expenditures.

	Three months ended March 31,	
	2021	2020
	(in millions)	
Maintenance capital expenditures	$ 9.2	$ 7.2
Growth capital expenditures	2.6	2.3
Total capital expenditures	$ 11.8	$ 9.5

Capital expenditures remained at a level sufficient for required maintenance and certain expansion growth initiatives during these periods. Maintenance capital expenditures were higher in the three months ended March 31, 2021 as compared to the three months ended March 31, 2020 due to higher spending on health and safety. Growth capital expenditures were in-line in the three months ended March 31, 2021 as compared to the three months ended March 31, 2020.

Pension Funding

We paid $0.0 million and $0.9 million in cash contributions into our defined benefit pension plans and other post-retirement plans during the three months ended March 31, 2021 and 2020, respectively. The net periodic pension expense was $0.6 million and $0.1 million for those same periods, respectively.

Off–Balance Sheet Arrangements

We had $17.8 million of outstanding letters of credit on our ABL Facility as of March 31, 2021.

Contractual Obligations

Information related to our contractual obligations at December 31, 2020 can be found in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on March 17, 2021, which we refer to as our Annual Report on Form 10-K. During the three months ended March 31, 2021, there have been no significant changes to our contractual obligations as disclosed in our Annual Report on Form 10-K.

Critical Accounting Policies and Estimates

We prepare our condensed consolidated financial statements in conformity with GAAP and our significant accounting policies are described in Note 2 to our audited consolidated financial statements included in our Annual Report on Form 10-K. The preparation of financial statements in conformity with GAAP requires us to make estimates and assumptions that affect reported amounts and related disclosures. We base our estimates and judgments on historical experience and other relevant factors that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We evaluate our critical accounting estimates, assumptions and judgments on an ongoing basis.

There has been no material change in our critical accounting policies and use of estimates from those described in Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” included in our Annual Report on Form 10-K.

Accounting Standards Not Yet Adopted

See Note 2 to our unaudited condensed consolidated financial statements for a discussion of recently issued accounting standards and their effect on us.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Our major market risk exposure is potential losses arising from changing rates and prices regarding foreign currency exchange rate risk, interest rate risk, commodity price risk and credit risk. The audit committee of our board of directors regularly reviews foreign exchange, interest rate and commodity hedging activity and monitors compliance with our hedging policy. We do not use financial instruments for speculative purposes, and we limit our hedging activity to the underlying economic exposure.

There have been no material changes in the foreign exchange risk, interest rate risk, commodity risk or credit risk discussed in Item 7A., “Quantitative and Qualitative Disclosures about Market Risk,” included in our Annual Report on Form 10-K. other than the following item:

Foreign Exchange Risk

In March 2021, as a result of the Performance Materials and Performance Chemicals divestitures, we settled our cross-currency swaps. At the date of settlement, the total notional value of the cross-currency swaps was $311.4 million. We paid $13.2 million in cash to settle the swaps, which is included in net cash used in investing activities, discontinued operations in our condensed consolidated statement of cash flows for the three months ended March 31, 2021, as the underlying subsidiary subject to the net investment hedging relationship is part of the Performance Chemicals business.

ITEM 4. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2021, the end of the period covered by this Quarterly Report on Form 10-Q.

The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (“Exchange Act”), means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at a reasonable assurance level.

Changes in Internal Control Over Financial Reporting

No changes in our internal control over financial reporting occurred during the quarter ended March 31, 2021 that materially affected, or which are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.

From time to time we may be subject to various legal claims and proceedings incidental to the normal conduct of business, relating to such matters as personal injury, product liability and warranty claims, waste disposal practices, release of chemicals into the environment and other matters that may arise in the ordinary course of our business. We currently believe that there is no litigation pending that is likely to have a material adverse effect on our business. Regardless of the outcome, legal proceedings can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

ITEM 1A. RISK FACTORS.

"Item 1A, Risk Factors" in our Annual Report on Form 10-K includes a discussion of our risk factors. There have been no material changes from the risk factors described in our Annual Report on Form 10-K.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.

Tax Withholdings

The following table contains information about shares of common stock delivered to the Company by employees to satisfy income tax withholding obligations of the employees in connection with the vesting of restricted stock units during the first quarter of 2021.

	Total Number of Shares of Common Stock Purchased	Average Price Paid per Share of Common Stock	Total Number of Shares of Common Stock Purchased as Part of Publicly Announced Plan or Programs	Maximum Number (or Dollar Value) of Shares of Common Stock that May Yet Be Purchased Under the Plans or Programs
January 1, 2021 - January 31, 2021	98,627	$ 14.90	N/A	N/A
February 1, 2021 - February 28, 2021	—	—	N/A	N/A
March 1, 2021 - March 31, 2021	—	—	N/A	N/A
Total	98,627			

ITEM 6. EXHIBITS.

The following exhibits are being filed or furnished as part of this Quarterly Report on Form 10-Q:

Exhibit No.	Description
2.1	Stock Purchase Agreement, dated as of February 28, 2021, by and among PQ Group Holdings Inc. and Sparta Aggregator L.P. (incorporated by reference to Exhibit 2.1 to the Company's Form 8-K, filed March 4, 2021)
10.1	Transition Agreement and General Release and Waiver of Claims by and between the Company, PQ and Michael Crews (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K, filed March 23, 2021)
31.1	Certification of Chief Executive Officer of PQ Group Holdings Inc. pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer of PQ Group Holdings Inc. pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Chief Executive Officer of PQ Group Holdings Inc. pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of Chief Financial Officer of PQ Group Holdings Inc. pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101	The following materials from the Quarterly Report on Form 10-Q of PQ Group Holdings Inc. for the quarter ended March 31, 2021, formatted in Inline XBRL: (i) Condensed Consolidated Statements of Income, (ii) Condensed Consolidated Statements of Comprehensive Income, (iii) Condensed Consolidated Balance Sheets, (iv) Condensed Consolidated Statements of Stockholders' Equity, (v) Condensed Consolidated Statements of Cash Flows, (vi) Notes to Condensed Consolidated Financial Statements and (vii) document and entity information, tagged as blocks of text and including detailed tags
104	The cover page from the Quarterly Report on Form 10-Q of PQ Group Holdings Inc. for the quarter ended March 31, 2021, formatted in Inline XBRL and included as Exhibit 101

SIGNATURES

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

PQ GROUP HOLDINGS INC.

Date: May 17, 2021	By: /s/ MICHAEL CREWS
	Michael Crews
	Executive Vice President and Chief Financial Officer
	(Duly Authorized Officer and Principal Financial and Accounting Officer)

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002

I, Belgacem Chariag, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PQ Group Holdings Inc.;

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: May 17, 2021

/s/ BELGACEM CHARIAG
Belgacem Chariag
Chairman of the Board, President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002**

I, Michael Crews, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PQ Group Holdings Inc.;

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: May 17, 2021

/s/ MICHAEL CREWS

Michael Crews
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the quarterly report of PQ Group Holdings Inc. (the "Company") on Form 10-Q for the quarterly period ended March 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Belgacem Chariag, Chairman of the Board, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 17, 2021

/s/ BELGACEM CHARIAG
Belgacem Chariag
Chairman of the Board, President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the quarterly report of PQ Group Holdings Inc. (the “Company”) on Form 10-Q for the quarterly period ended March 31, 2021 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Michael Crews, Executive Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 17, 2021	/s/ MICHAEL CREWS
	Michael Crews
	Executive Vice President and Chief Financial Officer
	(Principal Financial Officer)