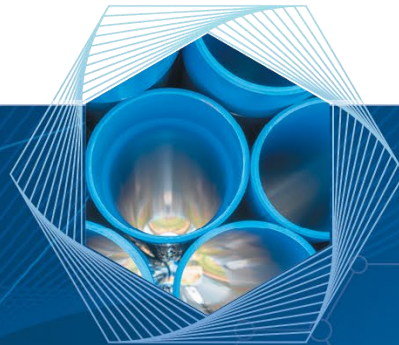




Third Quarter 2020

October 30, 2020 – 10:00 AM ET



INVESTOR PRESENTATION

LEGAL DISCUSSION

Forward-Looking Statements

Some of the information contained in this presentation, the conference call during which this presentation is reviewed and any discussions that follow constitutes “forward-looking statements”. Forward-looking statements can be identified by words such as “anticipates,” “intends,” “plans,” “seeks,” “believes,” “estimates,” “expects,” “projects” and similar references to future periods. Forward-looking statements are based on our current expectations and assumptions regarding our business, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict. Examples of forward looking statements include, but are not limited to, statements regarding the sale of the Performance Materials business segment and the review of strategic alternatives for the Performance Chemicals business segment, our future results of operations, financial condition, liquidity, prospects, growth, strategies, capital allocation programs, product and service offerings and end use demand trends, including the impact of the COVID-19 pandemic on such items, and financial 2020 outlook. Our actual results may differ materially from those contemplated by the forward-looking statements. We caution you, therefore, against relying on any of these forward-looking statements. They are neither statements of historical fact nor guarantees or assurances of future performance. Important factors that could cause actual results to differ materially from those in the forward-looking statements include, but are not limited to, our ability to close on the sale of the Performance Materials business segment on our anticipated timeline, or at all, our ability to identify a strategic alternative for the Performance Chemicals business segment and to execute on such alternative, regional, national or global political, economic, business, competitive, market and regulatory conditions, including the ongoing COVID-19 pandemic, tariffs, and trade disputes, currency exchange rates and other factors, including those described in the sections titled “Risk Factors” and “Management Discussion & Analysis of Financial Condition and Results of Operations” in our filings with the SEC, which are available on the SEC’s website at www.sec.gov. Any forward-looking statement made by us in this presentation, the conference call during which this presentation is reviewed and any discussions that follow speaks only as of the date on which it is made. Factors or events that could cause our actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by applicable law.

Non-GAAP Financial Measures

This presentation includes certain non-GAAP financial measures, including adjusted EBITDA, adjusted EBITDA margin, constant currency sales and adjusted EBITDA, adjusted net income, adjusted diluted EPS, and adjusted free cash flow, which are provided to assist in an understanding of our business and its performance. These non-GAAP financial measures should be considered only as supplemental to, and not as superior to, financial measures prepared in accordance with GAAP. Non-GAAP financial measures should be read only in conjunction with consolidated financials prepared in accordance with GAAP. Reconciliations of non-GAAP measures to the relevant GAAP measures are provided in the appendix of this presentation.

In discussing our operating results, the term currency exchange rates refers to the currency exchange rates we use to convert the operating results for all countries where the functional currency is not the U.S. dollar. We calculate constant currency sales and constant currency adjusted EBITDA by translating current period results at the prior period’s currency exchange rates. When we refer to constant currency sales and constant currency adjusted EBITDA, this means sales and adjusted EBITDA without the impact of the currency exchange rate fluctuations from period-to-period.

The Company is not able to provide a reconciliation of the Company’s non-GAAP financial guidance to the corresponding GAAP measures without unreasonable effort because of the inherent difficulty in forecasting and quantifying certain amounts necessary for such a reconciliation such as certain non-cash, nonrecurring or other items that are included in net income and EBITDA as well as the related tax impacts of these items and asset dispositions / acquisitions and changes in foreign currency exchange rates that are included in cash flow, due to the uncertainty and variability of the nature and amount of these future charges and costs.


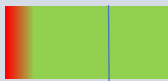





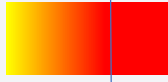



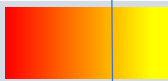

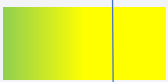

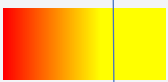
Zeolyst Joint Venture

Zeolyst International and Zeolyst C.V. (our 50% owned joint ventures that we refer to collectively as the “Zeolyst Joint Venture”), are accounted for as an equity method investment in accordance with GAAP. The presentation of the Zeolyst Joint Venture’s sales in this presentation represents 50% of the sales of the Zeolyst Joint Venture. We do not record sales by the Zeolyst Joint Venture as revenue and such sales are not consolidated within our results of operations. However, our adjusted EBITDA reflects our share of the earnings of the Zeolyst Joint Venture that have been recorded as equity in net income from affiliated companies in our consolidated statements of income for such periods and includes Zeolyst Joint Venture adjustments on a proportionate basis based on our 50% ownership interest. Accordingly, our adjusted EBITDA margins are calculated including 50% of the sales of the Zeolyst Joint Venture for the relevant periods in the denominator.

THIRD QUARTER 2020 OVERVIEW – CONSISTENT EXECUTION

FOCUS AREA	HIGHLIGHTS
 OPERATIONAL	<ul style="list-style-type: none">○ Top quartile safety performance YTD○ Operational and cost performance optimized with demand
 COMMERCIAL	<ul style="list-style-type: none">○ New multi-year customer contract to add volume growth to regeneration services○ Negotiating price increases for Performance Chemicals products as contracts allow
 FINANCIAL	<ul style="list-style-type: none">○ Sales increase 6% from Q2, in line with expectations○ ~27% margin on consistent cost actions
 STRATEGIC	<ul style="list-style-type: none">○ Finalizing Performance Materials sale, Advancing Performance Chemicals strategic review○ Accelerating Simpler + Stronger strategic actions○ Shifting towards higher margin, higher growth potential portfolio

DEMAND TRENDS: VAST MAJORITY STABLE TO IMPROVING

BUSINESS	END USE	KEY PRODUCTS	2019 % TOTAL SALES ¹	DEMAND TREND		EXPECTED DEMAND TRENDS
				Q3	Q4	
Refining Services ²	 Regeneration for Gasoline Refining	15%			US gasoline demand stable at ~90% of 2019 level; slow improvement in refinery utilization to >80%; Inventories return to typical levels	
	 Virgin Sulfuric Acid for Automotive & Industrial	11%			Vehicle sales continue to improve; now ~10% below pre-pandemic levels (February) after falling by ~48% from March to April	
Catalysts ³	 Packaging and Engineered Plastics	8%			Polyethylene operating rates remain at ~85% with demand ~2% below prior quarter and stable with prior year	
	 Refining & Emission Control	7%			2H 2020 catalyst change-outs by refineries deferred; Heavy-duty diesel truck sales recovering though production still >30% below prior year	
Performance Materials ⁴	 Highway Striping	13%			North America highway demand remains strong and Europe highway striping increasing	
	 Engineered Glass Materials	7%			Coatings and plastics recovering more quickly than metal finishing; automotive demand improving	
Performance Chemicals ⁵	 Personal Care / Detergents	15%			Demand moderate while easing from pull-forward surge in 1H 2020; hospitality and institutional end-use demand remains soft	
	 Industrial	24%			Construction and tire demand recovering well; running ahead of general industrial and paper	



Fuels & Emission Controls



Highway Safety & Construction



Industrial & Process Chemicals





Packaging & Engineered Plastics



Consumer Products

ESTIMATED END USE DEMAND IMPACT

-  <= 10% decline vs 2019 demand
-  >= 15% decline vs 2019 demand

- (1) Sales percentage includes proportionate 50% share of sales from Zeolyst JV
- (2) Refining Services reflects its two largest end uses with an aggregation of smaller end uses of natural resources and packaging & engineered plastics into industrial & process chemicals. Major product lines, regeneration services and virgin sulfuric acid are aligned to these summarized end uses
- (3) Catalysts sales includes proportionate 50% share of sales from Zeolyst JV, which serves packaging & engineered plastics and fuels & emission controls end uses
- (4) Performance Materials reflects its two largest end uses with an aggregation of smaller end uses of natural resources and packaging & engineered plastics into industrial & process chemicals. Major product lines, highway safety and engineered glass materials are aligned to these summarized end uses
- (5) Performance Chemicals reflects its two largest end uses with an aggregation of smaller end uses of highway safety & construction, natural resources and packaging & engineered plastics into industrial & process chemicals

Source: U.S. Energy Information Administration; Rhein Associates; PQ Estimates

THIRD QUARTER 2020 FINANCIAL RESULTS

(\$ in millions)	Third Quarter 2020	Third Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	380.3	423.8	(43.5)	(10.3)	(9.7)
Adjusted EBITDA	108.6	137.7	(29.1)	(21.1)	(21.0)
<i>Adjusted EBITDA Margin¹ (%)</i>	26.7	28.8		(210 bps)	

(\$ in millions)	Third Quarter 2020	Second Quarter 2020	\$ Change	% Change
Sales	380.3	359.5	20.8	5.8
Adjusted EBITDA	108.6	113.0	(4.4)	(3.9)
<i>Adjusted EBITDA Margin¹ (%)</i>	26.7	28.2		(150 bps)

REFINING SERVICES

(\$ in millions)	Third Quarter 2020	Third Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	107.6	118.3	(10.7)	(9.0)	(9.0)
Adjusted EBITDA	44.3	51.2	(6.9)	(13.5)	(13.5)
<i>Adjusted EBITDA Margin (%)</i>	41.2	43.3		(210 bps)	

- Regeneration services sales decline on lower refinery utilization as well as Hurricane Laura impact (~\$2 million); Virgin acid sales in line
- Adjusted EBITDA and margin reflect lower year-over-year sales volumes

Q3 Change Factors	
Sales:	%
Volume	(4.0)
Price/Mix	(5.0)
Currency	-
Sales Change	(9.0)

CATALYSTS

(\$ in millions)	Third Quarter 2020	Third Quarter 2019	\$ Change	% Change	% Constant Currency
Sales					
Silica Catalysts	23.1	25.6	(2.5)	(9.8)	(10.2)
Zeolyst JV	26.6	54.4	(27.8)	(51.1)	(51.1)
Adjusted EBITDA	11.8	31.6	(19.8)	(62.7)	(63.3)
Adjusted EBITDA Margin ¹ (%)	23.7	39.5		(1580 bps)	

- Zeolyst JV lower on specialty catalysts sales accelerated to Q2, deferred hydrocracking change outs and slower recovery for emission control catalysts in heavy-duty diesel production
- Adjusted EBITDA and margin reflect higher fixed costs as production adjusted to align with expected Q4 demand

Q3 Change Factors	
Sales:	%
Volume	(9.4)
Price/Mix	(0.8)
Currency	0.4
Sales Change	(9.8)

PERFORMANCE CHEMICALS

(\$ in millions)	Third Quarter 2020	Third Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	148.5	167.9	(19.4)	(11.6)	(9.8)
Adjusted EBITDA	33.9	36.8	(2.9)	(7.9)	(6.8)
<i>Adjusted EBITDA Margin (%)</i>	22.8	21.9		90 bps	

- Sales reflect softer demand for detergents, general industrial and oil processing applications
- Sodium silicate monthly volumes increased sequentially since June
- Adjusted EBITDA margin expands on transformation benefits and cost reduction initiatives

Q3 Change Factors	
Sales:	%
Volume	(11.3)
Price/Mix	1.4
Currency	(1.7)
Sales Change	(11.6)

PERFORMANCE MATERIALS

(\$ in millions)	Third Quarter 2020	Third Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	104.6	115.1	(10.5)	(9.1)	(9.6)
Adjusted EBITDA	25.3	25.8	(0.5)	(1.9)	(1.9)
<i>Adjusted EBITDA Margin (%)</i>	24.2	22.4		180 bps	

- Europe & industrial demand continues to improve
- North American highway demand steady but striping activity slower on COVID-related work restrictions
- Adjusted EBITDA margin benefits from pricing and favorable costs

Q3 Change Factors	
Sales:	%
Volume	(11.2)
Price/Mix	1.7
Currency	0.4
Sales Change	(9.1)

2020 FINANCIAL GUIDANCE

(\$ in millions, except per share)	2019 Actual	2020 Outlook including Performance Materials	2020 From Continuing Operations
Sales ¹	1,567.1	1,430 – 1,460	1,080 – 1,100
Adjusted EBITDA	474.3	410 – 425	330 – 345
Adjusted Free Cash Flow ²	166.2	145 – 155 ³	95 – 105 ³
Capital Expenditures	127.6	95 – 105	80 - 90

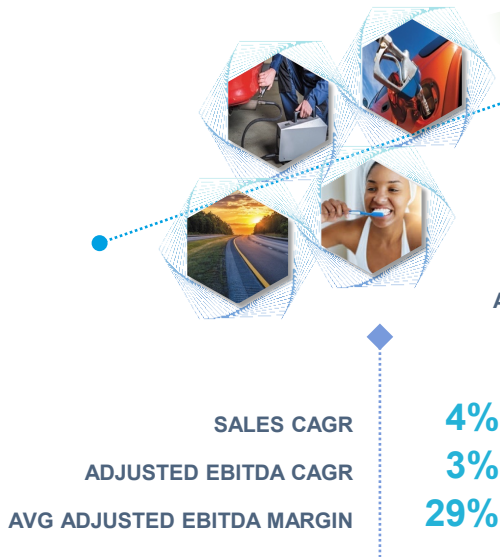
- ◆ Higher full-year 2020 Adjusted EBITDA margin from continuing operations of ~28%
- ◆ Pro forma leverage projected to be ~4x at December 31, 2020
- ◆ Sale proceeds and cash generation for debt reduction and special dividend

(1) GAAP sales only; Excludes proportionate 50% share of Zeolyst Joint Venture sales target of \$120 to \$130 million versus \$170 million in 2019
 (2) Adjusted free cash flow defined 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
 (3) Excludes \$18 million in cash proceeds from the sale of a non-core product line sale on July 1, 2020 in Performance Chemicals

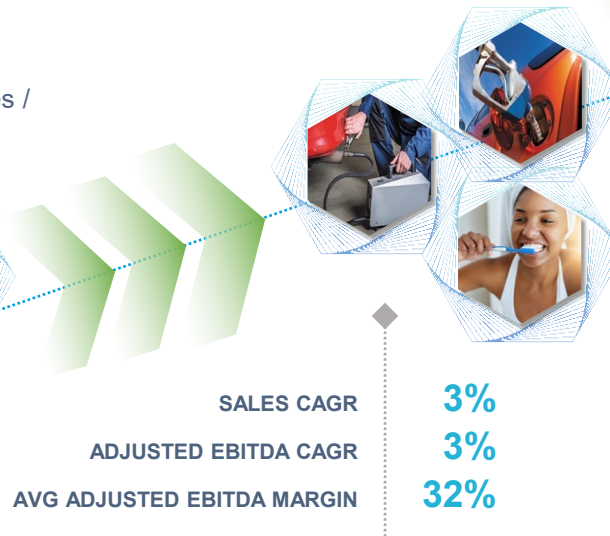
PORTFOLIO SHIFTS TO HIGHER GROWTH AND MARGINS

Simpler + **STRONGER** 2017–2019 Financial Performance

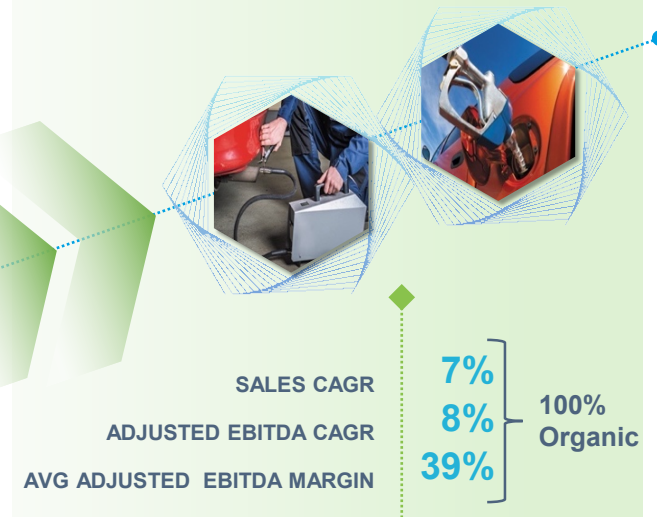
◆ **LEGACY PQ:**
Catalysts / Refining Services /
Performance Chemicals /
Performance Materials



◆ **CURRENT PQ:**
Catalysts / Refining Services /
Performance Chemicals

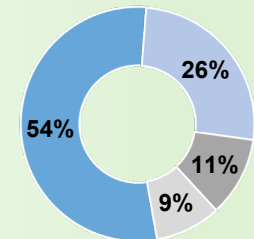


◆ **TARGET PQ:**
Catalysts / Refining Services



% of Sales by End Use¹

- Fuels & Emission Controls
- Packaging & Engineered Plastics
- Industrial & Process Chemicals
- Natural Resources



(1) Based on 2019 sales, which includes proportionate 50% share of sales from Zeolyst Joint Venture

CATALYSTS: ESSENTIAL FOR A SUSTAINABLE FUTURE



Competitive Strengths	Attractive Growth & Margins	Growth Drivers															
<ul style="list-style-type: none"> PQ silica-based catalyst technology improves strength-to-weight ratio of HDPE and LLDPE R&D pipeline focused on plastic recycling Zeolyst JV zeolite-based technology reduces emissions from refineries and vehicles 	<p>Sales</p> <table border="1"> <caption>Sales Data</caption> <thead> <tr> <th>Year</th> <th>Silica Catalyst</th> <th>Zeolyst JV</th> </tr> </thead> <tbody> <tr> <td>2009</td> <td>45</td> <td>63</td> </tr> <tr> <td>2019</td> <td>86</td> <td>170</td> </tr> </tbody> </table> <p>Adj. EBITDA</p> <table border="1"> <caption>Adjusted EBITDA Data</caption> <thead> <tr> <th>Year</th> <th>Adjusted EBITDA</th> </tr> </thead> <tbody> <tr> <td>2009</td> <td>39</td> </tr> <tr> <td>2019</td> <td>108</td> </tr> </tbody> </table> <p>Average Margin² ~ 38%</p>	Year	Silica Catalyst	Zeolyst JV	2009	45	63	2019	86	170	Year	Adjusted EBITDA	2009	39	2019	108	<ul style="list-style-type: none"> ~80% of polyethylene capacity expansions specify silica-based catalyst technology Broader global adoption of fuel emission standards drive hydrocracking capacity investments Tightening vehicle emission standards for improved air quality
Year	Silica Catalyst	Zeolyst JV															
2009	45	63															
2019	86	170															
Year	Adjusted EBITDA																
2009	39																
2019	108																

(1) Sales CAGR reflects the growth of combined sales (Silica Catalysts plus proportionate 50% share of sales from Zeolyst Joint venture)
 (2) Adjusted EBITDA margin calculation includes proportionate 50% share of sales from Zeolyst Joint venture

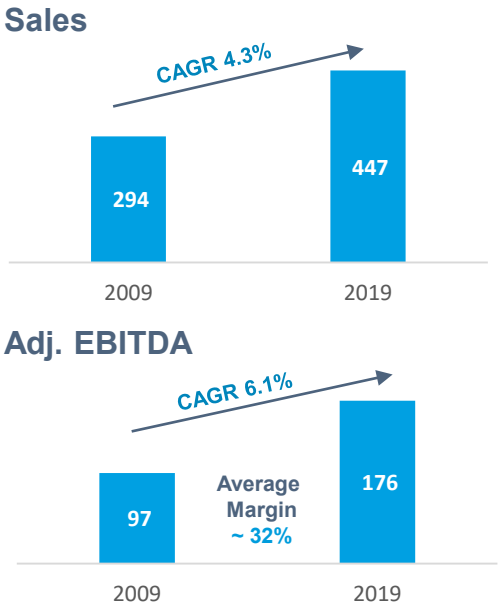
REFINING SERVICES: CRITICAL FOR SUSTAINABLE FUEL PRODUCTION



Competitive Strengths

- Largest regeneration network for recycling of sulfuric acid catalyst in U.S. Gulf and West Coast
- 5 to 10 year contracts with high cost pass-through
- Diversification of customer base with virgin acid sales into broader industrial applications

Attractive Growth & Margins



Growth Drivers

- Rising North American alkylate unit production for higher octane gasoline
- Virgin acid demand from a diverse set of growing industrial end uses
- Increasing opportunities to further integrate with refinery operations

ACCELERATING STRATEGIC TRANSFORMATION TO UNLOCK PORTFOLIO VALUE



- Continue track record of execution in operational and commercial performance
- Maintain readiness and agility to pivot with changing customer demand
- Close sale of Performance Materials and implement expanded capital allocation program
- Advance strategic plan for Performance Chemicals
- Fast-track reshaping the portfolio for higher margin and higher growth potential

APPENDIX



QUARTERLY SEGMENT SALES, ADJUSTED EBITDA AND MARGINS

(\$ in millions except %, unaudited)	Three Months Ended			Nine Months Ended	Three Months Ended				Year Ended
	March 31, 2020	June 30, 2020	September 30, 2020	September 30, 2020	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
Sales:									
Refining Services	100.7	90.4	107.6	298.7	105.8	117.3	118.3	105.7	447.1
Silica Catalysts	24.9	25.2	23.1	73.1	15.9	20.9	25.6	23.3	85.7
Performance Materials	65.5	104.3	104.6	274.3	61.1	118.9	115.1	67.9	363.0
Performance Chemicals	174.3	142.6	148.5	465.4	180.5	177.8	167.9	158.9	685.1
Eliminations	(3.8)	(3.0)	(3.5)	(10.1)	(4.1)	(3.2)	(3.1)	(3.4)	(13.8)
Total sales	361.6	359.5	380.3	1,101.4	359.2	431.7	423.8	352.4	1,567.1
Zeolyst joint venture sales	32.3	41.0	26.6	99.7	29.5	39.1	54.4	47.3	170.3
Adjusted EBITDA:									
Refining Services	37.2	35.0	44.3	116.5	39.7	42.8	51.2	41.9	175.6
Catalysts	22.7	25.3	11.8	59.7	18.1	29.6	31.6	28.5	107.8
Performance Materials	13.5	27.3	25.3	66.1	10.5	29.2	25.8	11.2	76.7
Performance Chemicals	40.5	34.0	33.9	108.4	42.7	41.2	36.8	33.6	154.3
Total Segment Adjusted EBITDA	113.8	121.6	115.3	350.7	111.0	142.8	145.4	115.2	514.4
Corporate	(10.7)	(8.6)	(6.7)	(26.0)	(10.0)	(10.3)	(7.7)	(12.1)	(40.1)
Total Adjusted EBITDA	103.1	113.0	108.6	324.7	101.0	132.5	137.7	103.1	474.3
Adjusted EBITDA Margin:									
Refining Services	36.9%	38.7%	41.2%	39.0%	37.5%	36.5%	43.3%	39.6%	39.3%
Catalysts ¹	39.7%	38.2%	23.7%	34.5%	40.0%	49.4%	39.5%	40.4%	42.1%
Performance Materials	20.6%	26.2%	24.2%	24.1%	17.2%	24.6%	22.4%	16.5%	21.1%
Performance Chemicals	23.2%	23.8%	22.8%	23.3%	23.7%	23.1%	21.9%	21.1%	22.5%
Total Adjusted EBITDA Margin¹	26.2%	28.2%	26.7%	27.0%	26.0%	28.1%	28.8%	25.8%	27.3%

SALES AND ADJUSTED EBITDA MAJOR CHANGE FACTORS

SALES

Sales (in \$ millions and %)	Three Months Ended September 30, 2020										Nine Months Ended September 30, 2020									
	PQ Group Holdings Inc		Refining Services		Catalysts		Performance Materials		Performance Chemicals		PQ Group Holdings Inc		Refining Services		Catalysts		Performance Materials		Performance Chemicals	
Sales:	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%
Volume	(39.3)	(9.3)	(4.8)	(4.0)	(2.4)	(9.4)	(13.0)	(11.2)	(18.9)	(11.3)	(90.3)	(7.4)	(24.1)	(7.0)	12.1	19.4	(24.1)	(8.2)	(54.3)	(10.3)
Price/Mix	(1.7)	(0.4)	(5.9)	(5.0)	(0.2)	(0.8)	2.0	1.7	2.4	1.4	(4.9)	(0.4)	(18.7)	(5.5)	(0.5)	(0.8)	5.8	2.0	8.5	1.6
Currency	(2.5)	(0.6)	—	—	0.1	0.4	0.5	0.4	(2.9)	(1.7)	(18.1)	(1.5)	—	—	(0.8)	(1.3)	(2.5)	(0.8)	(15.0)	(2.9)
Sales Change	(43.5)	(10.3)	(10.7)	(9.0)	(2.5)	(9.8)	(10.5)	(9.1)	(19.4)	(11.6)	(113.3)	(9.3)	(42.8)	(12.5)	10.8	17.3	(20.8)	(7.0)	(60.8)	(11.6)

ADJUSTED EBITDA

Adj EBITDA (in \$ millions and %)	Three Months Ended September 30, 2020										Nine Months Ended September 30, 2020									
	PQ Group Holdings Inc		Refining Services		Catalysts		Performance Materials		Performance Chemicals		PQ Group Holdings Inc		Refining Services		Catalysts		Performance Materials		Performance Chemicals	
Adj EBITDA:	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%
Volume/Mix	(36.7)	(26.7)	(3.7)	(7.2)	(17.5)	(55.3)	(5.2)	(20.2)	(10.4)	(28.2)	(55.1)	(14.9)	(17.3)	(13.0)	0.6	0.8	(11.3)	(17.3)	(27.1)	(22.4)
Price	(1.7)	(1.2)	(5.9)	(11.6)	(0.1)	(0.2)	1.9	7.5	2.4	6.5	(4.7)	(1.3)	(18.7)	(14.0)	(0.3)	(0.4)	5.8	8.9	8.5	7.1
Variable Cost	8.2	5.9	1.9	3.7	3.2	10.2	0.2	0.6	2.8	7.6	17.1	4.6	13.3	10.0	(0.9)	(1.2)	2.1	3.2	2.5	2.1
Currency	(0.2)	(0.2)	—	—	0.2	0.5	—	0.2	(0.4)	(1.2)	(4.2)	(1.1)	—	—	(0.3)	(0.4)	(0.5)	(0.8)	(3.5)	(2.9)
Other	1.4	1.1	0.8	1.6	(5.7)	(17.9)	2.6	10.0	2.7	7.4	0.5	0.1	5.5	4.1	(18.7)	(23.6)	4.5	6.9	7.3	6.1
Adj EBITDA Change	(29.1)	(21.1)	(6.9)	(13.5)	(19.8)	(62.7)	(0.5)	(1.9)	(2.9)	(7.9)	(46.5)	(12.5)	(17.2)	(12.9)	(19.7)	(24.8)	0.6	0.9	(12.2)	(10.1)

ADJUSTED FREE CASH FLOW

(\$ in millions)	YTD 2020	YTD 2019	Full Year 2019
Cash Flow from Operations before interest and tax	247.4	277.5	401.9
Less:			
Cash paid for taxes	21.5	13.3	17.4
Cash paid for interest ¹	75.3	82.3	116.8
Cash Flow from Operations	150.6	181.9	267.7
Less: Purchases of property, plant and equipment ²	76.8	91.7	127.6
Free Cash Flow	73.8	90.2	140.1
Plus: Proceeds from sale of assets	10.3	—	17.6
Plus: Net interest proceeds on currency swaps	4.6	8.4	8.5
Adjusted Free Cash Flow	88.7	98.6	166.2

RECONCILIATION OF NET INCOME TO SEGMENT ADJUSTED EBITDA

(\$ in millions)	Three Months Ended			Nine Months Ended	Three Months Ended				Year Ended
	March 31, 2020	June 30, 2020	September 30, 2020	September 30, 2020	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
Reconciliation of net income attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA									
Net income attributable to PQ Group Holdings Inc.	0.2	15.9	7.5	23.7	3.2	30.6	26.7	19.1	79.5
Provision for income taxes	1.4	16.3	11.8	29.4	2.4	20.3	16.7	1.2	40.7
Interest expense, net	24.5	22.3	18.6	65.4	28.6	28.5	27.7	26.7	111.5
Depreciation and amortization	45.7	44.8	45.8	136.3	45.9	45.1	44.2	46.9	182.1
EBITDA	71.8	99.3	83.7	254.8	80.1	124.5	115.3	93.9	413.8
Joint venture depreciation, amortization and interest(a)	3.8	3.7	3.6	11.1	3.8	3.7	3.7	3.5	14.7
Amortization of investment in affiliate step-up(b)	1.7	1.7	1.7	5.0	2.6	1.7	1.7	1.7	7.5
Impairment of fixed assets, intangibles, and goodwill	—	—	—	—	—	—	—	1.6	1.6
Debt extinguishment costs	2.5	—	14.0	16.5	—	—	1.8	1.6	3.4
Net loss (gain) on asset disposals(d)	9.4	(1.0)	(4.5)	3.9	0.8	(9.7)	1.1	(5.3)	(13.1)
Foreign currency exchange loss (gain) (e)	3.3	(0.9)	(4.6)	(2.1)	(2.7)	3.6	4.5	(2.6)	2.8
LIFO (benefit) expense(f)	(0.3)	(1.5)	(0.8)	(2.5)	10.2	0.1	0.5	0.3	11.1
Transaction and other related costs(h)	2.1	0.7	3.3	6.1	0.1	1.0	0.7	1.8	3.6
Equity-based and other non-cash compensation	5.9	6.4	6.1	18.4	3.4	5.4	4.8	4.6	18.2
Restructuring, integration and business optimization expenses(i)	2.0	3.6	4.6	10.2	0.7	—	0.7	2.7	4.1
Defined benefit pension plan (benefit) cost(j)	(0.2)	(0.3)	0.4	(0.1)	1.0	0.6	0.8	0.7	3.1
Other(l)	1.1	1.3	1.1	3.4	1.0	1.6	2.1	(1.4)	3.5
Adjusted EBITDA	103.1	113.0	108.6	324.7	101.0	132.5	137.7	103.1	474.3
Unallocated corporate costs	10.7	8.6	6.7	26.0	10.0	10.3	7.7	12.1	40.1
Total Segment Adjusted EBITDA¹	113.8	121.6	115.3	350.7	111.0	142.8	145.4	115.2	514.4
EBITDA Adjustments by Line Item									
EBITDA	71.8	99.3	83.7	254.8	80.1	124.5	115.3	93.9	413.8
Cost of goods sold	0.4	(0.4)	(0.1)	(0.2)	10.8	0.4	0.9	0.9	13.0
Selling, general and administrative expenses	6.5	7.0	6.8	20.5	4.4	5.9	5.7	5.6	21.6
Other operating expense (income), net	13.4	3.5	3.9	20.9	1.8	(7.3)	6.5	(1.0)	—
Equity in net (income) from affiliated companies	1.7	1.7	1.7	5.0	2.6	1.7	1.7	1.7	7.7
Other expense (income), net ²	5.5	(1.8)	9.0	12.6	(2.5)	3.6	3.9	(1.5)	3.5
Joint venture depreciation, amortization and interest(a)	3.8	3.7	3.6	11.1	3.8	3.7	3.7	3.5	14.7
Adjusted EBITDA	103.1	113.0	108.6	324.7	101.0	132.5	137.7	103.1	474.3

(1) For additional information with respect to each adjustment, see "Reconciliation of Non-GAAP Financial Measures"

(2) Other expense (income), net includes debt extinguishment costs

* Rounding discrepancies may arise when rounding results from dollars (in thousands) to dollars (in millions)

RECONCILIATION OF QUARTERLY NET INCOME TO ADJUSTED NET INCOME AND ADJUSTED DILUTED EARNINGS PER SHARE

(\$ in millions except share and per share data)	Three Months Ended			Nine Months Ended	Three Months Ended				Year Ended
	March 31, 2020	June 30, 2020	September 30, 2020	September 30, 2020	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
Net Income	0.5	16.2	7.8	24.6	3.5	30.7	26.8	19.4	80.3
Less: Net income attributable to the non-controlling interest	0.3	0.3	0.3	0.9	0.3	0.1	0.1	0.3	0.8
Net Income attributable to PQ Group Holdings, Inc. ¹	0.2	15.9	7.5	23.7	3.2	30.6	26.7	19.1	79.5
Diluted net income per share:	—	0.12	0.06	0.17	0.02	0.23	0.20	0.14	0.59
Net Income attributable to PQ Group Holdings, Inc. ¹	0.2	15.9	7.5	23.7	3.2	30.6	26.7	19.1	79.5
Amortization of investment in affiliate step-up(b)	1.1	1.0	0.9	2.9	1.6	1.0	1.1	1.2	5.0
Impairment of long-lived assets	—	—	—	—	—	—	—	1.1	1.1
Debt extinguishment costs	1.6	—	7.9	9.5	—	—	1.2	1.1	2.3
Net loss (gain) on asset disposals(d)	7.1	(1.1)	(1.9)	4.1	0.5	(7.4)	0.8	(3.5)	(9.7)
Foreign currency exchange loss (gain) (e)	1.0	0.5	(3.5)	(2.0)	(2.0)	4.1	3.9	(1.7)	4.3
LIFO (benefit) expense(f)	(0.2)	(0.9)	(0.4)	(1.5)	6.5	0.2	0.4	0.4	7.4
Transaction and other related costs(h)	1.3	0.3	1.8	3.5	0.1	0.6	0.4	1.3	2.4
Equity-based and other non-cash compensation	3.8	3.7	3.1	10.6	2.2	3.5	3.2	3.3	12.1
Restructuring, integration and business optimization expenses(i)	1.3	2.1	2.5	5.9	0.5	—	0.5	1.8	2.7
Defined benefit pension plan (benefit) cost(j)	(0.1)	(0.2)	0.2	(0.1)	0.6	0.4	0.5	0.5	2.1
Other(l)	0.7	0.8	0.5	1.9	0.6	1.0	1.4	(1.0)	2.2
Adjusted net income, including tax reform and non-cash GILTI tax	17.8	22.1	18.6	58.5	13.8	34.0	40.1	23.6	111.4
Impact of non-cash GILTI tax ²	3.9	7.9	7.3	19.1	3.7	7.5	8.2	(5.6)	13.8
Impact of tax reform ³	—	—	1.6	1.6	—	—	—	—	—
Adjusted net income	21.7	30.0	27.5	79.2	17.5	41.5	48.3	18.0	125.2
Adjusted diluted net income per share:	0.16	0.22	0.20	0.58	0.13	0.31	0.36	0.13	0.92
Diluted Weighted Average shares outstanding	136.1	135.7	136.0	136.2	134.9	135.3	135.6	136.2	135.5

- 1) For additional information with respect to each adjustment, see "Reconciliations of Non-GAAP Financial Measures" within this appendix
- 2) Amount represents the impact to tax expense in net income before non-controlling interest and the related adjustments to net income associated with GILTI provisions of the Tax Cuts and Jobs Act of 2017 ("TCJA"). Beginning January 1, 2018, GILTI results in taxation of "excess of foreign earnings," which is defined as amounts greater than a 10% rate of return on applicable foreign tangible asset basis. The Company is required to record incremental tax provision impact with respect to GILTI as a result of having historical U.S. net operating loss ("NOL") amounts to offset the GILTI taxable income inclusion. This NOL utilization precludes us from recognizing foreign tax credits ("FTCs") which would otherwise help offset the tax impacts of GILTI. No FTCs will be recognized with respect to GILTI until our cumulative NOL balance has been exhausted. Because the GILTI provision does not impact our cash taxes (given available U.S. NOLs), and given that we expect to recognize FTCs to offset GILTI impacts once the NOLs are exhausted, we do not view this item as a component of core operations.
- 3) Represents the transaction tax adjustment for the impact of the rate change in the United Kingdom related to the UK Finance Act recorded in net income.

* Rounding discrepancies may arise when rounding results from dollars (in thousands) to dollars (in millions)

CONSTANT CURRENCY SALES AND ADJUSTED EBITDA

(\$ in millions except %, unaudited)	Three Months Ended September 30, 2020			Three Months Ended September 30, 2019	Constant Currency % Change	Nine Months Ended September 30, 2020			Nine Months Ended September 30, 2019	Constant Currency % Change
	As Reported	FX Impact	Constant Currency	As Reported		As Reported	FX Impact	Constant Currency	As Reported	
Sales:	\$	\$	\$	\$	%	\$	\$	\$	\$	%
Refining Services	107.6	—	107.6	118.3	(9.0)	298.7	—	298.7	341.5	(12.5)
Silica Catalysts	23.1	(0.1)	23.0	25.6	(10.2)	73.1	0.8	73.9	62.3	18.6
Performance Materials	104.6	(0.5)	104.1	115.1	(9.6)	274.3	2.5	276.8	295.1	(6.2)
Performance Chemicals	148.5	2.9	151.4	167.9	(9.8)	465.4	15.0	480.4	526.2	(8.7)
Eliminations	(3.5)	0.2	(3.3)	(3.1)	(6.5)	(10.1)	(0.2)	(10.3)	(10.4)	1.0
Total sales	380.3	2.5	382.8	423.8	(9.7)	1,101.4	18.1	1,119.5	1,214.7	(7.8)
Zeolyst joint venture sales	26.6	—	26.6	54.4	(51.1)	99.7	—	99.7	123.0	(18.9)
Adjusted EBITDA:	\$	\$	\$	\$	%	\$	\$	\$	\$	%
Refining Services	44.3	—	44.3	51.2	(13.5)	116.5	—	116.5	133.7	(12.9)
Catalysts	11.8	(0.2)	11.6	31.6	(63.3)	59.7	0.3	60.0	79.4	(24.4)
Performance Materials	25.3	—	25.3	25.8	(1.9)	66.1	0.5	66.6	65.5	1.7
Performance Chemicals	33.9	0.4	34.3	36.8	(6.8)	108.4	3.5	111.9	120.6	(7.2)
Total Segment Adjusted EBITDA	115.3	0.2	115.5	145.4	(20.6)	350.7	4.3	355.0	399.2	(11.1)
Corporate	(6.7)	—	(6.7)	(7.7)	13.0	(26.0)	—	(26.0)	(28.0)	7.1
Total Adjusted EBITDA	108.6	0.2	108.8	137.7	(21.0)	324.7	4.3	329.0	371.2	(11.4)

RECONCILIATION FOR NET INCOME TO SEGMENT ADJUSTED EBITDA

(\$ in millions)	Year Ended December 31, 2019	Year Ended December 31, 2018	Year Ended December 31, 2017
Reconciliation of net income attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA			
Net income attributable to PQ Group Holdings Inc.	79.5	58.3	57.6
Provision for (benefit from) income taxes	40.7	29.0	(119.2)
Interest expense	111.5	113.7	179.0
Depreciation and amortization	182.1	185.2	177.1
EBITDA	413.8	386.2	294.5
Joint venture depreciation, amortization and interest ^a	14.7	12.6	11.1
Amortization of investment in affiliate step-up ^b	7.5	6.6	8.6
Amortization of inventory step-up ^c	—	1.6	0.9
Impairment of intangible assets	1.6	—	—
Debt extinguishment costs	3.4	7.8	61.9
Net loss (gain) on asset disposals ^d	(13.1)	6.6	5.8
Foreign currency exchange loss ^e	2.8	13.8	25.8
LIFO expense ^f	11.1	8.4	3.7
Management advisory fees ^g	—	—	3.8
Transaction and other related costs ^h	3.6	0.9	7.4
Equity-based compensation	18.2	19.5	8.8
Restructuring, integration and business optimization expenses ⁱ	4.1	14.0	13.2
Defined benefit plan pension cost (benefit) ^j	3.1	(0.8)	2.9
Gain on contract termination ^k	—	(20.6)	—
Other ^l	3.5	7.4	4.9
Adjusted EBITDA	474.3	464.0	453.3
Unallocated corporate costs	40.1	37.0	30.5
Total Segment Adjusted EBITDA¹	514.4	501.0	483.8

EBITDA Adjustments by Line Item			
EBITDA	413.8	386.2	294.5
Cost of goods sold	13.0	16.3	7.9
Selling, general and administrative expenses	21.6	23.0	13.2
Other operating expense (income), net	—	(0.9)	31.5
Equity in net (income) from affiliated companies	7.7	6.6	8.6
Other expense (income), net ²	3.5	20.2	86.5
Joint venture depreciation, amortization and interest ^a	14.7	12.6	11.1
Adjusted EBITDA	474.3	464.0	453.3

DESCRIPTIONS FOR RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

- 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 (the "Business Combination"). 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 inventory, fixed assets and intangible assets, including customer relationships and technical know-how.
- c) As a result of the Sovitec acquisition and the Business Combination, there was a step-up in the fair value of inventory, which is amortized through cost of goods sold in the statements of income.
- d) 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.
- e) 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.
- f) 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.
- g) Reflects consulting fees paid to CCMP and affiliates of INEOS for consulting services that include certain financial advisory and management services. These consulting agreements were terminated upon completion of our initial public offering ("IPO") on October 3, 2017
- h) 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.
- i) Includes the impact of restructuring, integration and business optimization expenses which are incremental costs that are not representative of our ongoing business operations.
- j) Represents adjustments for defined benefit pension plan (benefit) costs in our statements of income. More than two-thirds of our defined benefit pension plan obligations are under defined benefit pension plans that are frozen, and the remaining obligations primarily relate to plans operated in certain of our non-U.S. locations that, pursuant to jurisdictional requirements, cannot be frozen. As such, we do not view such (income) expenses as core to our ongoing business operations.
- k) Represents a non-cash gain on the write-off of the remaining liability under a contractual supply arrangement. As part of Eco's acquisition of substantially all of the assets of Solvay USA Inc's sulfuric acid refining services business unit on December 1, 2014, we recognized a liability as part of business combination accounting related to our obligation to serve a customer under a pre-existing unfavorable supply agreement. In December 2018, the customer who was party to the agreement closed its facility, and as a result, we were relieved from our obligation to continue to supply the customer on the below market contract. Because the fair value of the unfavorable contract liability was recognized as part of the application of business combination accounting, and since the write-off of the remaining liability was non-cash in nature, we believe this gain is a special item that is not representative of our ongoing business operations
- l) 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 the Business Combination, capital and franchise taxes, non-cash asset retirement obligation accretion and the initial implementation of procedures to comply with Section 404 of the Sarbanes-Oxley Act. Included in this line-item are rounding discrepancies that may arise from rounding from dollars (in thousands) to dollars (in millions).



PQ Corporation

