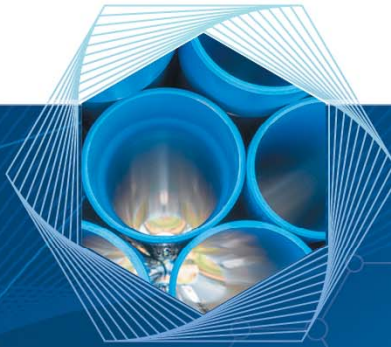




Second Quarter 2020

July 30, 2020 – 11:00 AM ET



**INVESTOR PRESENTATION**

# LEGAL DISCLAIMER

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## 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 our future results of operations, financial condition, liquidity, prospects, growth, strategies, 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, 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](http://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.








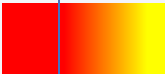








# SECOND QUARTER 2020 PERFORMANCE MARKED BY MULTIPLE ACHIEVEMENTS

FOCUS AREA	HIGHLIGHT	ACHIEVEMENTS
 <p><b>OPERATIONAL &amp; COMMERCIAL</b></p>	<p><b>Executing well and demonstrating resilience despite macro level headwinds</b></p>	<ul style="list-style-type: none"> <li>○ Safety results improved by &gt;65% from 1H 2019</li> <li>○ Maintained business continuity and customers' support</li> <li>○ Secured several key Performance Chemicals long-term customer contracts with favorable terms</li> </ul>
 <p><b>FINANCIAL</b></p>	<p><b>Delivered strong financial results with a successful refinancing outcome</b></p>	<ul style="list-style-type: none"> <li>○ Adjusted EBITDA of \$113 million with robust margin of 28% that exceeded expectations through effective cost management initiatives</li> <li>○ Completed refinancing, reducing cost of capital and lowering cash interest</li> </ul>
 <p><b>PORTFOLIO</b></p>	<p><b>Continued actions to optimize the portfolio</b></p>	<ul style="list-style-type: none"> <li>○ Lowered and managed capital spending in line with current business and demand trends</li> <li>○ Monetized three non-core assets leading to ~\$27 million in cash proceeds through July</li> </ul>






**Reinitiating full-year 2020 financial guidance;  
Raising Adjusted free cash flow target to \$145 - \$155 million<sup>1</sup>**



# DEMAND TRENDS: RECOVERY PATH VARIES BY END USE

BUSINESS	END USE	KEY PRODUCTS	2019 % TOTAL SALES <sup>1</sup>	DEMAND TREND		2H 2020 EXPECTED DEMAND DRIVERS
				Q2	2H 2020	
Refining Services <sup>2</sup>		Regeneration for Gasoline Refining	15%			US gasoline demand improved ~ 70% by June from its low point in early April. Return to >90% of 2019 demand expected in 2H 2019
		Virgin sulfuric acid for Automotive & Industrial	11%			Demand increasing from May low point as automotive restart complements stable demand for mining and water treatment
Performance Materials <sup>3</sup>		Highway Striping	13%			North American highway demand continues to be strong and European highway striping is increasing
		Engineered Glass Materials	7%			Metal finishing and polymer additive demand remain depressed. Orders improving as industrial activity slowly increases
Catalysts <sup>4</sup>		Packaging and Engineered Plastics	8%			Increased demand for polyethylene packaging normalized during Q2. Consumer discretionary demand beginning to recover
		Refining & Emission Control	7%			2H 2020 catalyst change-outs by refineries deferred to 2021. Heavy duty diesel truck production remains >30% below 2H 2019
Performance Chemicals <sup>5</sup>		Personal Care / Detergents	15%			Personal care remains strong. Elevated detergent demand normalized in Q2. 2H demand decline expected
		Industrial	24%			Construction, automotive and tire demand all improving gradually

 Fuels & Emission Controls  
 Industrial & Process Chemicals

 Highway Safety & Construction  
 Packaging & Engineered Plastics  
 Consumer Products

## 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) 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
- (4) Catalysts sales includes proportionate 50% share of sales from Zeolyst JV, which serves packaging & engineered plastics and fuels & emission controls 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

# SECOND QUARTER 2020 FINANCIAL RESULTS

(\$ in millions)	Second Quarter 2020	Second Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	359.5	431.7	(72.2)	(16.7)	(14.4)
Adjusted EBITDA	113.0	132.5	(19.5)	(14.7)	(12.6)
<i>Adjusted EBITDA Margin<sup>1</sup> (%)</i>	28.2	28.1		10 bps	

- Results reflect impact of lower volumes from COVID-19 stay-at-home mandates and demand disruption for industrial applications
- Rapidly responded to declining demand by managing production levels, reducing discretionary spending and optimizing structural costs
- Adjusted EBITDA margin exceeded targeted range and rose 10 bps versus second quarter 2019

# REFINING SERVICES

(\$ in millions)	Second Quarter 2020	Second Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	90.4	117.3	(26.9)	(22.9)	(22.9)
Adjusted EBITDA	35.0	42.8	(7.8)	(18.2)	(18.2)
<i>Adjusted EBITDA Margin (%)</i>	38.7	36.5		220 bps	

- Regeneration services impacted by lower gasoline demand
- Virgin sulfuric acid sales declined on weaker automotive and industrial consumption
- Adjusted EBITDA margin rose to nearly 39%

Q2 Change Factors	
<b>Sales:</b>	%
Volume	(18.2)
Price/Mix	(4.7)
Currency	-
<b>Sales Change</b>	<b>(22.9)</b>

# CATALYSTS

(\$ in millions)	Second Quarter 2020	Second Quarter 2019	\$ Change	% Change	% Constant Currency
Sales					
Silica Catalysts	25.2	20.9	4.3	20.6	23.9
Zeolyst JV	41.0	39.1	1.9	4.9	4.9
Adjusted EBITDA	25.3	29.6	(4.3)	(14.5)	(13.5)
<i>Adjusted EBITDA Margin<sup>1</sup> (%)</i>	38.2	49.4		(1120 bps)	

- Demand for chemical catalysts and polyolefins remained strong, benefitting from acceleration of orders
- Adjusted EBITDA and margin reflect unfavorable fixed cost absorption from reductions of inventory to align with second half demand

Q2 Change Factors	
<b>Sales:</b>	%
Volume	26.3
Price/Mix	(2.4)
Currency	(3.3)
<b>Sales Change</b>	<b>20.6</b>

# PERFORMANCE MATERIALS

(\$ in millions)	Second Quarter 2020	Second Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	104.3	118.9	(14.6)	(12.3)	(11.0)
Adjusted EBITDA	27.3	29.2	(1.9)	(6.5)	(5.1)
<i>Adjusted EBITDA Margin (%)</i>	26.2	24.6		160 bps	

- North American highway safety striping remained stable with Europe lagging
- Engineered glass materials down on lower industrial application demand
- Operating and cost optimization limited volume impact on Adjusted EBITDA while expanding Adjusted EBITDA margin

Q2 Change Factors	
<b>Sales:</b>	%
Volume	(13.4)
Price/Mix	2.4
Currency	(1.3)
<b>Sales Change</b>	<b>(12.3)</b>



# PERFORMANCE CHEMICALS

(\$ in millions)	Second Quarter 2020	Second Quarter 2019	\$ Change	% Change	% Constant Currency
Sales	142.6	177.8	(35.2)	(19.8)	(15.4)
Adjusted EBITDA	34.0	41.2	(7.2)	(17.5)	(12.4)
<i>Adjusted EBITDA Margin (%)</i>	23.8	23.1		70 bps	

- Sodium silicate volumes declined across multiple applications
- Global silica sales in line on a constant currency basis on steady demand for personal care
- Adjusted EBITDA margin expanded 70 bps

Q2 Change Factors	
<b>Sales:</b>	%
Volume	(17.5)
Price/Mix	2.1
Currency	(4.4)
<b>Sales Change</b>	<b>(19.8)</b>

# ENHANCED FINANCIAL FLEXIBILITY WITH ADDITIONAL REFINANCINGS

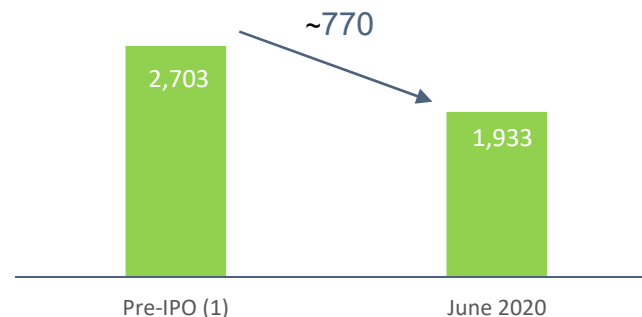
## 2020 Refinancing Actions

- Term Loan – 25 bps reduction
- ABL – 25 bps reduction, \$50 million upside
- Senior Secured Notes – New \$650 million Term Loan, 275 bps reduction
- Combined interest savings ~\$19 million per year

## Improvement Since IPO

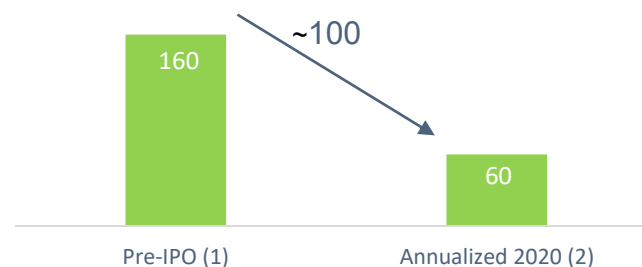
### Debt Reduction

(\$ in millions)



### Cash Interest Savings

(\$ in millions)

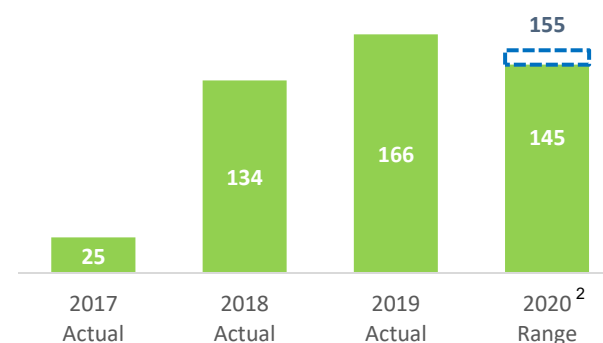


**~\$770 million of total debt reduction and  
~\$100 million lower annualized cash interest since IPO**

# REINITIATING 2020 FINANCIAL GUIDANCE AND RAISING ADJUSTED FREE CASH FLOW OUTLOOK

(\$ in millions, except per share)	2019 Actual	2020 Outlook
Sales	1,567.1	1,430 – 1,460 <sup>1</sup>
Adjusted EBITDA	474.3	410 – 425
Adjusted Free Cash Flow	166.2	145 – 155 <sup>2</sup>
Adjusted Diluted EPS	0.92	0.67 – 0.86
Interest Expense	111.5	80 – 85
Depreciation & Amortization		
PQ	182.1	175 – 185
Zeolyst JV	14.7	14 – 16
Capital Expenditures	127.6	95 – 105
Effective Tax Rate (ex tax reform)	24.6%	Mid 20%

Adjusted Free Cash Flow<sup>3</sup>  
(\$ in millions)



- Reduced capital ~\$35 million from original guidance
- Additional cash savings from operational and SG&A initiatives
- Expected year-end leverage of ~4x

**2020 Adjusted EBITDA margin ~27%**

(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) Excludes \$18 million in cash proceeds from the close of a non-core product line sale on July 1, 2020 in Performance Chemicals









(3) 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

# CONTINUING TO ACTIVELY REPOSITION PQ'S PORTFOLIO FOR HIGHER VALUE

## Key Portfolio Priorities

- Reshape for higher growth while maintaining strong margins
- Reduce non-core assets; Use cash to lower leverage to target range

~\$30 million<sup>1</sup> of cash generated from actions in 1H 2020:

	Cash Generation / Capital Avoidance	Resource Reallocation for Future Growth
<b>PERFORMANCE MATERIALS</b>  <ul style="list-style-type: none"> <li>Swap of ThermoDrop® product line for glass bead production and long-term supply agreement</li> <li>Sale of idle property</li> </ul>		
<b>PERFORMANCE CHEMICALS</b>  <ul style="list-style-type: none"> <li>Sale of small product line</li> <li>JV Exit in South Africa</li> <li>Sale of idle property</li> </ul>		
<b>REFINING SERVICES</b>  <ul style="list-style-type: none"> <li>Sale of idle property</li> </ul>		

# FOCUSED ON EXECUTING 2H PRIORITIES

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- ◆ Continue to deliver top-quartile safety performance
- ◆ Navigate successfully through COVID-19 challenges protecting our people, customers and communities, while ensuring business continuity
- ◆ Maintain robust Adjusted EBITDA margin
- ◆ Deliver targeted \$145 to \$155 million of annual Adjusted free cash flow<sup>1</sup>
- ◆ Drive additional cost management and capital discipline while maintaining flexibility to capture growth
- ◆ Execute opportunities in our portfolio optimization pipeline

# APPENDIX



# QUARTERLY SEGMENT SALES, ADJUSTED EBITDA AND MARGINS

First Half 2020 and Year 2019

(\$ in millions except %, unaudited)	Three Months Ended		Six Months Ended	Three Months Ended				Year Ended
	March 31, 2020	June 30, 2020	June 30, 2020	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
<b>Sales:</b>								
Refining Services	100.7	90.4	191.1	105.8	117.3	118.3	105.7	447.1
Silica Catalysts	24.9	25.2	50.1	15.9	20.9	25.6	23.3	85.7
Performance Materials	65.5	104.3	169.8	61.1	118.9	115.1	67.9	363.0
Performance Chemicals	174.3	142.6	316.9	180.5	177.8	167.9	158.9	685.1
Eliminations	(3.8)	(3.0)	(6.8)	(4.1)	(3.2)	(3.1)	(3.4)	(13.8)
<b>Total sales</b>	<b>361.6</b>	<b>359.5</b>	<b>721.1</b>	<b>359.2</b>	<b>431.7</b>	<b>423.8</b>	<b>352.4</b>	<b>1,567.1</b>
Zeolyst joint venture sales	32.3	41.0	73.0	29.5	39.1	54.4	47.3	170.3
<b>Adjusted EBITDA:</b>								
Refining Services	37.2	35.0	72.2	39.7	42.8	51.2	41.9	175.6
Catalysts	22.7	25.3	48.0	18.1	29.6	31.6	28.5	107.8
Performance Materials	13.5	27.3	40.8	10.5	29.2	25.8	11.2	76.7
Performance Chemicals	40.5	34.0	74.5	42.7	41.2	36.8	33.6	154.3
<b>Total Segment Adjusted EBITDA</b>	<b>113.8</b>	<b>121.6</b>	<b>235.5</b>	<b>111.0</b>	<b>142.8</b>	<b>145.4</b>	<b>115.2</b>	<b>514.4</b>
Corporate	(10.7)	(8.6)	(19.3)	(10.0)	(10.3)	(7.7)	(12.1)	(40.1)
<b>Total Adjusted EBITDA</b>	<b>103.1</b>	<b>113.0</b>	<b>216.2</b>	<b>101.0</b>	<b>132.5</b>	<b>137.7</b>	<b>103.1</b>	<b>474.3</b>
<b>Adjusted EBITDA Margin:</b>								
Refining Services	36.9%	38.7%	37.8%	37.5%	36.5%	43.3%	39.6%	39.3%
Catalysts <sup>1</sup>	39.7%	38.2%	39.0%	40.0%	49.4%	39.5%	40.4%	42.1%
Performance Materials	20.6%	26.2%	24.0%	17.2%	24.6%	22.4%	16.5%	21.1%
Performance Chemicals	23.2%	23.8%	23.5%	23.7%	23.1%	21.9%	21.1%	22.5%
<b>Total Adjusted EBITDA Margin<sup>1</sup></b>	<b>26.2%</b>	<b>28.2%</b>	<b>27.2%</b>	<b>26.0%</b>	<b>28.1%</b>	<b>28.8%</b>	<b>25.8%</b>	<b>27.3%</b>

# SALES AND ADJUSTED EBITDA MAJOR CHANGE FACTORS

Quarter and Year-to-Date 2020

## SALES

Sales (in \$ millions and %)	Three months ended June 30, 2020										Six Months Ended June 30, 2020											
	PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals		PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals			
	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%		
<b>Sales:</b>																						
Volume	(62.8)	(14.5)	(21.4)	(18.2)	5.5	26.3	(15.9)	(13.4)	(31.1)	(17.5)	(51.0)	(6.4)	(19.2)	(8.6)	14.5	39.5	(11.1)	(6.2)	(35.4)	(9.9)		
Price/Mix	0.6	0.1	(5.5)	(4.7)	(0.5)	(2.4)	2.8	2.4	3.8	2.1	(3.1)	(0.4)	(12.8)	(5.7)	(0.2)	(0.5)	3.8	2.1	6.1	1.7		
Currency	(10.0)	(2.3)	—	—	(0.7)	(3.3)	(1.5)	(1.3)	(7.9)	(4.4)	(15.7)	(2.0)	—	—	(0.9)	(2.5)	(2.9)	(1.6)	(12.1)	(3.4)		
<b>Sales Change</b>	<b>(72.2)</b>	<b>(16.7)</b>	<b>(26.9)</b>	<b>(22.9)</b>	<b>4.3</b>	<b>20.6</b>	<b>(14.6)</b>	<b>(12.3)</b>	<b>(35.2)</b>	<b>(19.8)</b>	<b>(69.8)</b>	<b>(8.8)</b>	<b>(32.0)</b>	<b>(14.3)</b>	<b>13.4</b>	<b>36.5</b>	<b>(10.2)</b>	<b>(5.7)</b>	<b>(41.4)</b>	<b>(11.6)</b>		

## ADJUSTED EBITDA

Adjusted EBITDA (in \$ millions and %)	Three months ended June 30, 2020										Six Months Ended June 30, 2020											
	PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals		PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals			
	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%		
<b>Adjusted EBITDA:</b>																						
Volume/Mix	(32.4)	(24.5)	(14.4)	(33.6)	4.2	14.2	(8.0)	(27.4)	(14.2)	(34.5)	(18.4)	(7.9)	(13.7)	(16.6)	18.1	37.9	(6.1)	(15.4)	(16.7)	(19.9)		
Price	0.5	0.4	(5.5)	(12.9)	(0.7)	(2.4)	2.8	9.6	3.8	9.2	(3.1)	(1.3)	(12.8)	(15.5)	(0.3)	(0.6)	3.8	9.6	6.1	7.3		
Variable Cost	6.3	4.8	6.0	14.0	(1.3)	(4.4)	0.7	2.4	0.8	1.9	9.0	3.9	11.5	13.9	(4.1)	(8.6)	1.9	4.8	(0.3)	(0.4)		
Currency	(2.8)	(2.1)	—	—	(0.3)	(1.0)	(0.4)	(1.4)	(2.1)	(5.1)	(4.0)	(1.7)	—	—	(0.5)	(1.0)	(0.5)	(1.3)	(3.1)	(3.7)		
Other	8.9	6.8	6.1	14.3	(6.2)	(20.9)	3.0	10.3	4.5	11.0	(0.8)	(0.4)	4.6	5.6	(13.0)	(27.1)	2.0	5.1	4.7	5.6		
<b>Adjusted EBITDA Change</b>	<b>(19.5)</b>	<b>(14.6)</b>	<b>(7.8)</b>	<b>(18.2)</b>	<b>(4.3)</b>	<b>(14.5)</b>	<b>(1.9)</b>	<b>(6.5)</b>	<b>(7.2)</b>	<b>(17.5)</b>	<b>(17.3)</b>	<b>(7.4)</b>	<b>(10.4)</b>	<b>(12.6)</b>	<b>0.3</b>	<b>0.6</b>	<b>1.1</b>	<b>2.8</b>	<b>(9.3)</b>	<b>(11.1)</b>		



# RECONCILIATION OF NET INCOME TO SEGMENT ADJUSTED EBITDA

First Half 2020 and Year 2019

(\$ in millions)	Three Months Ended		Six Months Ended	Three Months Ended				Year Ended
	March 31, 2020	June 30, 2020	June 30, 2020	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
<b>Reconciliation of net income attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA</b>								
Net income attributable to PQ Group Holdings Inc.	0.2	15.9	16.2	3.2	30.6	26.7	19.1	79.5
Provision for income taxes	1.4	16.3	17.7	2.4	20.3	16.7	1.2	40.7
Interest expense, net	24.5	22.3	46.7	28.6	28.5	27.7	26.7	111.5
Depreciation and amortization	45.7	44.8	90.5	45.9	45.1	44.2	46.9	182.1
<b>EBITDA</b>	<b>71.8</b>	<b>99.3</b>	<b>171.1</b>	<b>80.1</b>	<b>124.5</b>	<b>115.3</b>	<b>93.9</b>	<b>413.8</b>
Joint venture depreciation, amortization and interest <sup>a</sup>	3.8	3.7	7.5	3.8	3.7	3.7	3.5	14.7
Amortization of investment in affiliate step-up <sup>b</sup>	1.7	1.7	3.3	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	—	2.5	—	—	1.8	1.6	3.4
Net loss (gain) on asset disposals <sup>c</sup>	9.4	(1.0)	8.4	0.8	(9.7)	1.1	(5.3)	(13.1)
Foreign currency exchange loss (gain) <sup>d</sup>	3.3	(0.9)	2.5	(2.7)	3.6	4.5	(2.6)	2.8
LIFO (benefit) expense <sup>e</sup>	(0.3)	(1.5)	(1.8)	10.2	0.1	0.5	0.3	11.1
Transaction and other related costs <sup>f</sup>	2.1	0.7	2.8	0.1	1.0	0.7	1.8	3.6
Equity-based and other non-cash compensation	5.9	6.4	12.3	3.4	5.4	4.8	4.6	18.2
Restructuring, integration and business optimization expenses <sup>g</sup>	2.0	3.6	5.6	0.7	—	0.7	2.7	4.1
Defined benefit pension plan (benefit) cost <sup>h</sup>	(0.2)	(0.3)	(0.5)	1.0	0.6	0.8	0.7	3.1
Other <sup>i</sup>	1.1	1.3	2.5	1.0	1.6	2.1	(1.4)	3.5
<b>Adjusted EBITDA</b>	<b>103.1</b>	<b>113.0</b>	<b>216.2</b>	<b>101.0</b>	<b>132.5</b>	<b>137.7</b>	<b>103.1</b>	<b>474.3</b>
Unallocated corporate costs	10.7	8.6	19.3	10.0	10.3	7.7	12.1	40.1
<b>Total Segment Adjusted EBITDA<sup>1</sup></b>	<b>113.8</b>	<b>121.6</b>	<b>235.5</b>	<b>111.0</b>	<b>142.8</b>	<b>145.4</b>	<b>115.2</b>	<b>514.4</b>

EBITDA Adjustments by Line Item								
<b>EBITDA</b>	<b>71.8</b>	<b>99.3</b>	<b>171.1</b>	<b>80.1</b>	<b>124.5</b>	<b>115.3</b>	<b>93.9</b>	<b>413.8</b>
Cost of goods sold	0.4	(0.4)	0.1	10.8	0.4	0.9	0.9	13.0
Selling, general and administrative expenses	6.5	7.0	13.6	4.4	5.9	5.7	5.6	21.6
Other operating expense (income), net	13.4	3.5	16.9	1.8	(7.3)	6.5	(1.0)	—
Equity in net (income) from affiliated companies	1.7	1.7	3.3	2.6	1.7	1.7	1.7	7.7
Other expense (income), net <sup>2</sup>	5.5	(1.8)	3.7	(2.5)	3.6	3.9	(1.5)	3.5
Joint venture depreciation, amortization and interest <sup>a</sup>	3.8	3.7	7.5	3.8	3.7	3.7	3.5	14.7
<b>Adjusted EBITDA</b>	<b>103.1</b>	<b>113.0</b>	<b>216.2</b>	<b>101.0</b>	<b>132.5</b>	<b>137.7</b>	<b>103.1</b>	<b>474.3</b>

(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

First Half 2020 and Year 2019

(\$ in millions except share and per share data)	Three Months Ended		Six Months Ended	Three Months Ended				Year Ended
	March 31, 2020	June 30, 2020	June 30, 2020	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	December 31, 2019
<b>Net Income</b>	0.5	16.2	16.8	3.5	30.7	26.8	19.4	80.3
Less: Net income attributable to the non-controlling interest	0.3	0.3	0.6	0.3	0.1	0.1	0.3	0.8
<b>Net Income attributable to PQ Group Holdings, Inc. <sup>1</sup></b>	0.2	15.9	16.2	3.2	30.6	26.7	19.1	79.5
Diluted net income per share:	—	0.12	0.12	0.02	0.23	0.20	0.14	0.59
<b>Net Income attributable to PQ Group Holdings, Inc. <sup>1</sup></b>	0.2	15.9	16.2	3.2	30.6	26.7	19.1	79.5
Amortization of investment in affiliate step-up <sup>b</sup>	1.1	1.0	2.0	1.6	1.0	1.1	1.2	5.0
Impairment of long-lived assets	—	—	—	—	—	—	1.1	1.1
Debt extinguishment costs	1.6	—	1.5	—	—	1.2	1.1	2.3
Net loss (gain) on asset disposals <sup>c</sup>	7.1	(1.1)	6.0	0.5	(7.4)	0.8	(3.5)	(9.7)
Foreign currency exchange loss (gain) <sup>d</sup>	1.0	0.5	1.5	(2.0)	4.1	3.9	(1.7)	4.3
LIFO (benefit) expense <sup>e</sup>	(0.2)	(0.9)	(1.1)	6.5	0.2	0.4	0.4	7.4
Transaction and other related costs <sup>f</sup>	1.3	0.3	1.7	0.1	0.6	0.4	1.3	2.4
Equity-based and other non-cash compensation	3.8	3.7	7.5	2.2	3.5	3.2	3.3	12.1
Restructuring, integration and business optimization expenses <sup>g</sup>	1.3	2.1	3.4	0.5	—	0.5	1.8	2.7
Defined benefit pension plan (benefit) cost <sup>h</sup>	(0.1)	(0.2)	(0.3)	0.6	0.4	0.5	0.5	2.1
Other <sup>i</sup>	0.7	0.8	1.5	0.6	1.0	1.4	(1.0)	2.2
<b>Adjusted net income, including tax reform and non-cash GILTI tax</b>	17.8	22.1	39.9	13.8	34.0	40.1	23.6	111.4
Impact of non-cash GILTI tax <sup>2</sup>	3.9	7.9	11.8	3.7	7.5	8.2	(5.6)	13.8
<b>Adjusted net income</b>	21.7	30.0	51.7	17.5	41.5	48.3	18.0	125.2
<b>Adjusted diluted net income per share:</b>	0.16	0.22	0.38	0.13	0.31	0.36	0.13	0.92
<b>Diluted Weighted Average shares outstanding</b>	136.1	135.7	136.1	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.



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

# RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

## Descriptions to PQ Non-GAAP Reconciliations

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- 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) 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. 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.
- 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 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).

# CONSTANT CURRENCY SALES AND ADJUSTED EBITDA

Quarter and Year-to-Date 2020 Versus 2019

(\$ in millions except %, unaudited)	Three Months Ended June 30, 2020			Three Months Ended June 30, 2019	Constant Currency % Change	Six Months Ended June 30, 2020			Six Months Ended June 30, 2019	Constant Currency % Change
	As Reported	FX Impact	Constant Currency	As Reported		As Reported	FX Impact	Constant Currency	As Reported	
<b>Sales:</b>	\$	\$	\$	\$	%	\$	\$	\$	\$	%
Refining Services	90.4	—	90.4	117.3	(22.9)	191.1	—	191.1	223.1	(14.3)
Silica Catalysts	25.2	0.7	25.9	20.9	23.9	50.1	0.9	51.0	36.7	39.0
Performance Materials	104.3	1.5	105.8	118.9	(11.0)	169.8	2.9	172.7	180.0	(4.1)
Performance Chemicals	142.6	7.9	150.5	177.8	(15.4)	316.9	12.1	329.0	358.3	(8.2)
Eliminations	(3.0)	(0.1)	(3.1)	(3.2)	3.1	(6.8)	(0.2)	(7.0)	(7.2)	2.8
<b>Total sales</b>	<b>359.5</b>	<b>10.0</b>	<b>369.5</b>	<b>431.7</b>	<b>(14.4)</b>	<b>721.1</b>	<b>15.7</b>	<b>736.8</b>	<b>790.9</b>	<b>(6.8)</b>
Zeolyst joint venture sales	41.0	—	41.0	39.1	4.9	73.0	—	73.0	68.6	6.4
<b>Adjusted EBITDA:</b>	\$	\$	\$	\$	%	\$	\$	\$	\$	%
Refining Services	35.0	—	35.0	42.8	(18.2)	72.2	—	72.2	82.6	(12.6)
Catalysts	25.3	0.3	25.6	29.6	(13.5)	48.0	0.4	48.4	47.7	1.5
Performance Materials	27.3	0.4	27.7	29.2	(5.1)	40.8	0.5	41.3	39.7	4.0
Performance Chemicals	34.0	2.1	36.1	41.2	(12.4)	74.5	3.1	77.6	83.8	(7.4)
<b>Total Segment Adjusted EBITDA</b>	<b>121.6</b>	<b>2.8</b>	<b>124.4</b>	<b>142.8</b>	<b>(12.9)</b>	<b>235.5</b>	<b>4.0</b>	<b>239.5</b>	<b>253.8</b>	<b>(5.6)</b>
Corporate	(8.6)	—	(8.6)	(10.3)	16.5	(19.3)	—	(19.3)	(20.3)	4.9
<b>Total Adjusted EBITDA</b>	<b>113.0</b>	<b>2.8</b>	<b>115.8</b>	<b>132.5</b>	<b>(12.6)</b>	<b>216.2</b>	<b>4.0</b>	<b>220.2</b>	<b>233.5</b>	<b>(5.7)</b>

# ADJUSTED FREE CASH FLOW

Full Year 2017, 2018 and 2019

(\$ in millions)	Full Year 2019	Full Year 2018	Full Year 2017
<b>Cash Flow from Operations before interest and tax</b>	<b>401.9</b>	<b>377.5</b>	<b>364.5</b>
Less:			
Cash paid for taxes	17.4	23.8	29.2
Cash paid for interest <sup>1</sup>	116.8	105.1	170.1
<b>Cash Flow from Operations</b>	<b>267.7</b>	<b>248.6</b>	<b>165.2</b>
Less: Purchases of property, plant and equipment <sup>2</sup>	127.6	131.7	140.5
<b>Free Cash Flow</b>	<b>140.1</b>	<b>116.9</b>	<b>24.7</b>
Plus: Proceeds from sale of assets	17.6	12.4	-
Plus: Net interest proceeds on currency swaps	8.5	4.9	-
<b>Adjusted Free Cash Flow</b>	<b>166.2</b>	<b>134.2</b>	<b>24.7</b>

# ADJUSTED FREE CASH FLOW

Quarter and Year-to-Date 2020 and 2019

(\$ in millions)	Q2 2020	Q2 2019	1H 2020	1H 2019
<b>Cash Flow from Operations before interest and tax</b>	<b>95.9</b>	<b>72.4</b>	<b>130.7</b>	<b>127.3</b>
Less:				
Cash paid for taxes	4.1	3.9	14.4	8.3
Cash paid for interest <sup>1</sup>	34.2	35.3	54.2	59.0
<b>Cash Flow from Operations</b>	<b>57.6</b>	<b>33.2</b>	<b>62.1</b>	<b>60.0</b>
Less: Purchases of property, plant and equipment <sup>2</sup>	22.4	31.9	50.5	65.5
<b>Free Cash Flow</b>	<b>35.2</b>	<b>1.3</b>	<b>11.6</b>	<b>(5.5)</b>
Plus: Proceeds from sale of assets	7.9	-	10.3	-
Plus: Net interest proceeds on currency swaps	0.4	0.6	2.2	4.5
<b>Adjusted Free Cash Flow</b>	<b>43.5</b>	<b>1.9</b>	<b>24.1</b>	<b>(1.0)</b>

