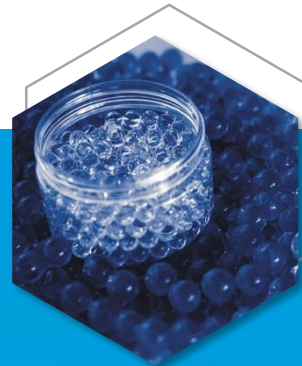




Second Quarter 2019

August 8, 2019 – 11:00 AM ET



INVESTOR PRESENTATION

LEGAL DISCLAIMER

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 results of operations, financial condition, liquidity, prospects, growth, strategies, product and service offerings and 2019 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, 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.

Certain supply share statistics included in this presentation, including our estimated supply share positions, are based on management estimates.

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, including transaction and restructuring related 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 our “Zeolyst Joint Venture”), are accounted for as an equity method investment in accordance with GAAP. The presentation of our Zeolyst Joint Venture’s sales in this presentation represents 50% of the sales of our Zeolyst Joint Venture. We do not record sales by our 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 our 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 our Zeolyst Joint Venture for the relevant periods in the denominator.

SECOND QUARTER 2019 HIGHLIGHTS

STRATEGIC BUSINESS HIGHLIGHTS

- ◆ **Continuing focus on safety goals**
- ◆ **Executing commercial strategies**
 - Achieved higher pricing in all business segments
 - Extended two significant contracts in Refining Services
 - New Silica Catalysts business wins in Europe and US with Korean tolling partnership
- ◆ **Advancing optimization strategy**
 - Completed sale of a portion of Performance Chemicals' sulfate salts product line for \$28 million (~ 10x 2018 Adjusted EBITDA)

FINANCIAL HIGHLIGHTS

- ◆ **Strong Q2 results**
 - Sales of ~\$432 million
 - Adjusted EBITDA of ~\$133 million
 - Adjusted EBITDA Margin expanded 150 bps to ~28%¹
- ◆ **On track for 2019 robust Adjusted Free Cash Flow from operations**
 - Reaffirming \$125 million to \$145 million, excluding product line sale proceeds
- ◆ **Prioritizing use of cash for debt reduction in 2H19**
 - Repaid \$100 million of term loan in August; target of at least \$150 million in 2019

SECOND QUARTER 2019 FINANCIAL RESULTS

Higher Margin Business Drives Adjusted EBITDA Growth

(\$ in millions)	Second Quarter 2019	Second Quarter 2018	\$ Change	% Change	% Constant Currency
Sales	431.7	434.7	(3.0)	(0.7%)	1.4%
Adjusted EBITDA	132.5	128.9	3.6	2.8%	4.6%
<i>Adjusted EBITDA Margin¹</i>	28.1%	26.6%		150 bps	

- Sales grew on a constant currency basis, led by strong pricing across the portfolio
- Adjusted EBITDA increase driven by outperformance in Catalysts and Refining Services
- Adjusted EBITDA margin improved on favorable pricing and mix



REFINING SERVICES

Continued Solid Performance

(\$ in millions)	Second Quarter 2019	Second Quarter 2018	\$ Change	% Change	% Constant Currency
Sales	117.3	112.1	5.2	4.6%	4.6%
Adjusted EBITDA	42.8	41.3	1.5	3.6%	3.6%
<i>Adjusted EBITDA Margin</i>	36.5%	36.8%		(30 bps)	

- Sales increased on higher average pricing from the roll-off of a below-market contract, more than offsetting volume decline from extended unplanned refinery customer outages
- Adjusted EBITDA improved on pricing and mix while Adjusted EBITDA margin remained in line

Q2 Change Factors	
Sales:	%
Volume	(4.0)
Price/Mix	8.6
Currency	-
Sales Change	4.6



CATALYSTS

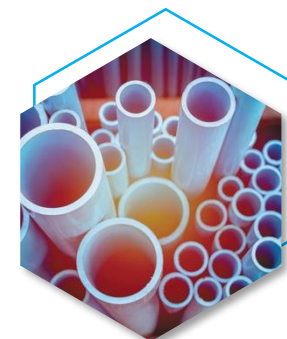
Accelerated Silica Catalyst Orders and Product Mix Drive Strong Results

(\$ in millions)	Second Quarter 2019	Second Quarter 2018	\$ Change	% Change	% Constant Currency
Sales					
Silica Catalysts	20.9	17.3	3.6	20.8%	23.5%
Zeolyst JV	39.1	49.5	(10.4)	(21.0%)	(21.0%)
Adjusted EBITDA	29.6	23.6	6.0	25.4%	26.7%
Adjusted EBITDA Margin ¹	49.4%	35.3%		N.M.	

- Silica Catalyst sales increased on order acceleration into 2Q
- Zeolyst JV sales lower, as anticipated, due to order timing for hydrocracking and specialty catalysts
- Adjusted EBITDA and margins favorable on mix, fixed cost absorption from inventory build for 3Q sales, and Zeolyst JV's gain on sale of its Rive investment

Q2 Change Factors

Sales:	%
Volume	23.1
Price/Mix	0.6
Currency	(2.9)
Sales Change	20.8



PERFORMANCE MATERIALS

Higher Pricing Drives Margin Improvement

(\$ in millions)	Second Quarter 2019	Second Quarter 2018	\$ Change	% Change	% Constant Currency
Sales	118.9	126.5	(7.6)	(6.0%)	(3.5%)
Adjusted EBITDA	29.2	28.6	0.6	2.1%	3.9%
<i>Adjusted EBITDA Margin</i>	24.6%	22.6%		200 bps	

- Sales down largely on lower highway safety volumes due to poor weather conditions and slowing demand in Europe for industrial applications, partially offset by price increases
- Adjusted EBITDA and margins increase on favorable price/mix and lower transportation costs

Q2 Change Factors	
Sales:	%
Volume	(9.6)
Price/Mix	6.1
Currency	(2.5)
Sales Change	(6.0)



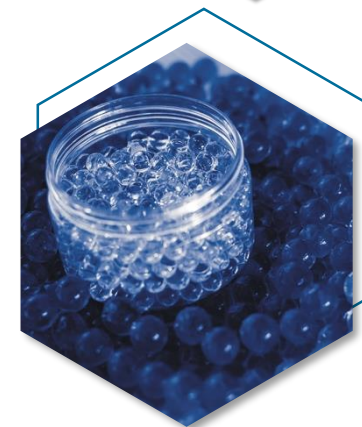
PERFORMANCE CHEMICALS

Softening Demand Impacts Results

(\$ in millions)	Second Quarter 2019	Second Quarter 2018	\$ Change	% Change	% Constant Currency
Sales	177.8	183.8	(6.0)	(3.3%)	(0.2%)
Adjusted EBITDA	41.2	44.8	(3.6)	(8.0%)	(4.8%)
<i>Adjusted EBITDA Margin</i>	23.1%	24.4%		(130 bps)	

- Sales in line on a constant currency basis led by higher pricing to cover rising raw material costs
- Adjusted EBITDA and margins down on lower Europe volumes, higher maintenance costs, and unfavorable FX (\$1.5 million)

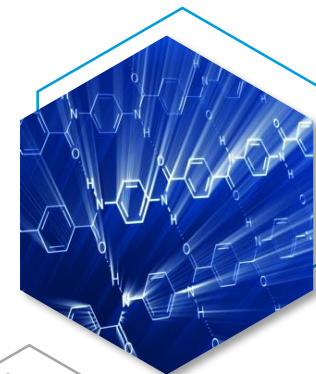
Q2 Change Factors	
Sales:	%
Volume	(3.3)
Price/Mix	3.0
Currency	(3.0)
Sales Change	(3.3)



2019 GUIDANCE UPDATE

Reaffirming Adjusted EBITDA and Adjusted Free Cash Flow Targets

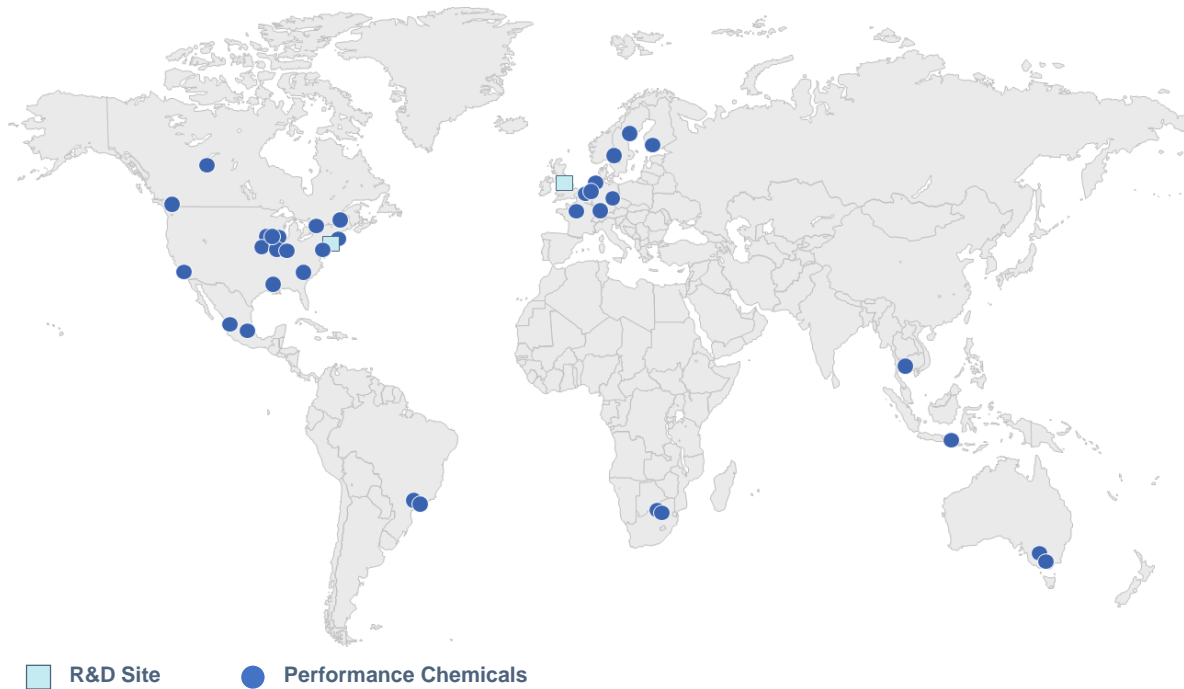
(\$ in millions except %)	2018 Actual	2019 Outlook
Sales	1,608.2	1,580 – 1,600 ¹
Adjusted EBITDA	464.0	470 – 485
Adjusted Free Cash Flow	134.2	125 – 145²
Adjusted Diluted EPS	\$0.87	\$0.77 - \$0.93 ³
Interest Expense	113.7	115 – 120
Depreciation & Amortization		
PQ	185.2	185 – 195 ⁴
Zeolyst JV	12.6	14 – 16
Capital Expenditures	131.7	140 - 150
Effective Tax Rate (ex tax reform)	23.5%	mid 20%



PERFORMANCE CHEMICALS

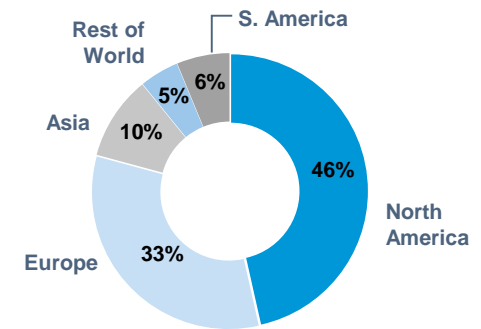
Stable Business Profile, Solid Margins and Strong Free Cash Flow Generation

GLOBAL FOOTPRINT

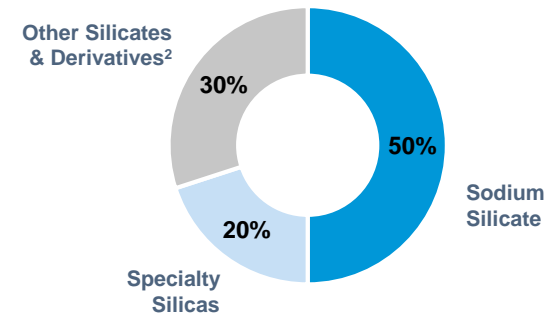


2018 SALES

By Geography¹



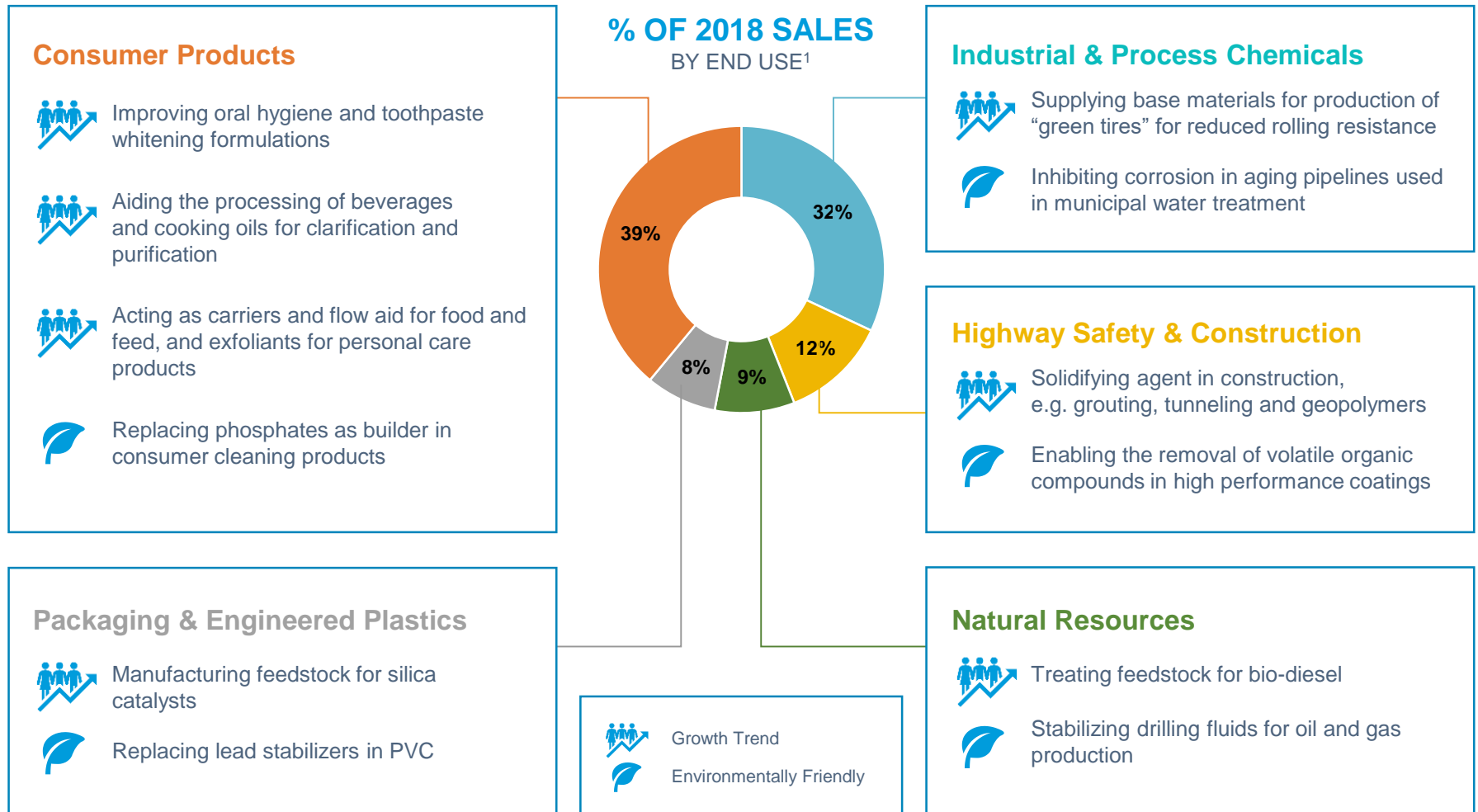
By Product Line



- ◆ ~ 200 years of material science expertise
- ◆ Global supplier with unparalleled network to serve customers locally
- ◆ 50+ years of innovation and partnership with leading global consumer product manufacturers

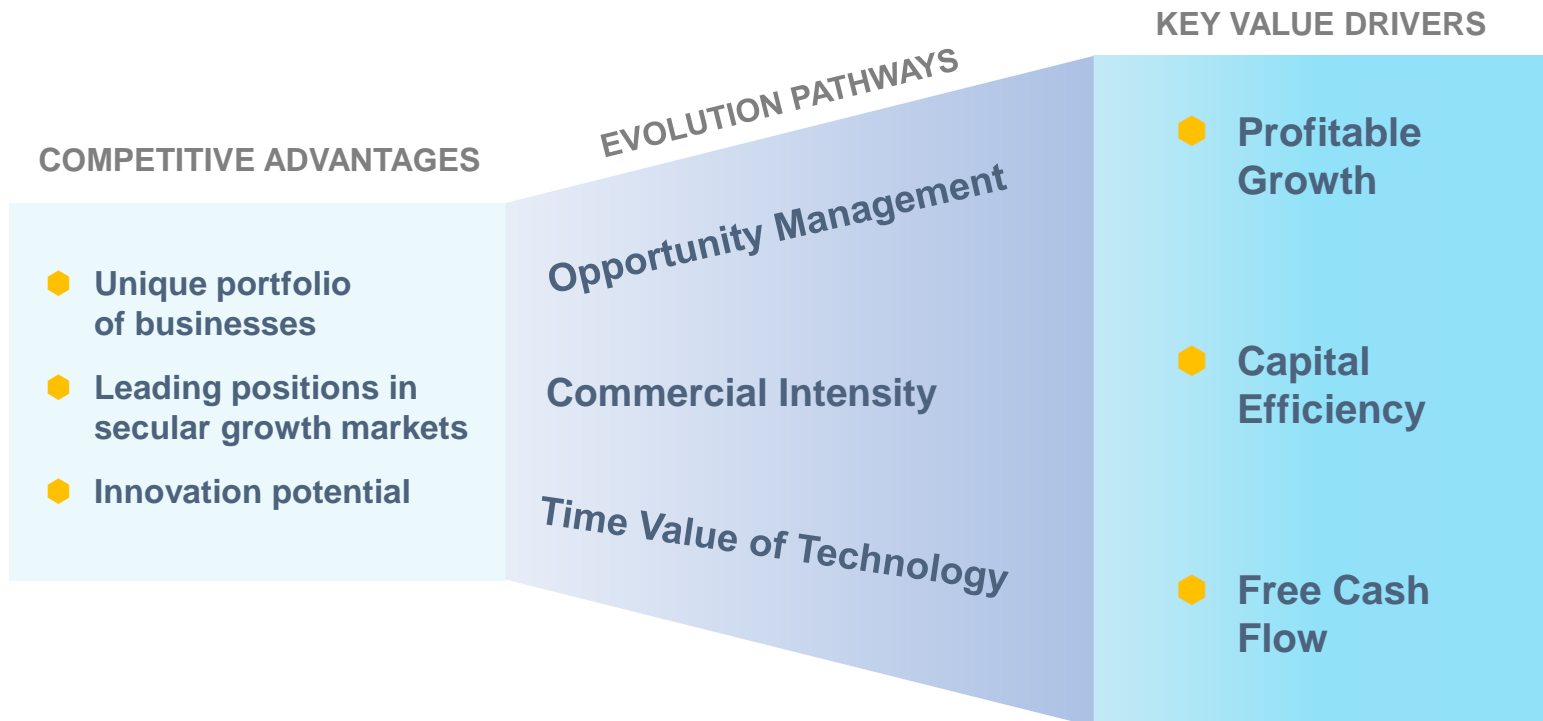
PERFORMANCE CHEMICALS

Environmentally Friendly and Diverse Applications Drive Sustainable Growth Trends



PORTFOLIO STRENGTHS AND PRIORITIES

Drive Shareholder Value



APPENDIX



ADJUSTED FREE CASH FLOW

Year-to-Date 2019 Versus 2018

(\$ in millions)	Six Months Ended June 30, 2019	Six Months Ended June 30, 2018
Cash Flow from Operations before interest and tax	127.3	121.4
Less:		
Cash paid for taxes	8.3	11.1
Cash paid for interest ¹	59.0	60.2
Cash Flow from Operations	60.0	50.1
Less: Purchases of property, plant and equipment ²	65.5	66.1
Free Cash Flow	(5.5)	(16.0)
Plus: Net interest proceeds on currency swaps	4.5	—
Adjusted Free Cash Flow	(1.0)	(16.0)



SUPPLEMENTAL INFORMATION

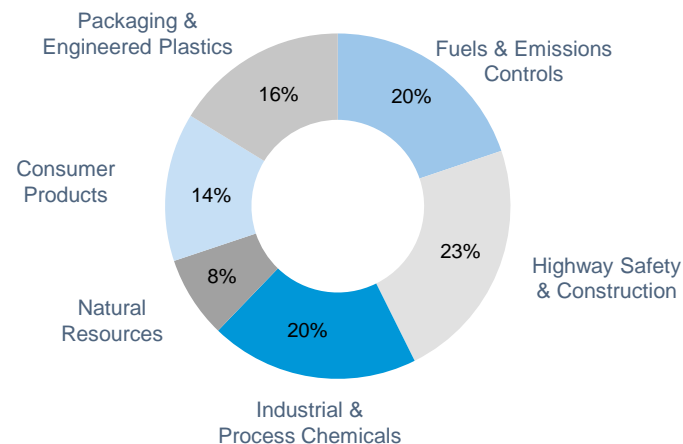
Second Quarter 2019 Capital Expenditures, Capitalization and Sales by End Use

CAPITAL EXPENDITURES ¹ (\$ in millions)	June 30, 2019	June 30, 2018
Maintenance ²	23.6	26.1
Growth ³	8.3	6.6
Total	31.9	32.7

% OF SALES GROWTH BY END USE ⁴	
Fuels & Emissions Controls	(2%)
Highway Safety & Construction	(3%)
Industrial & Process Chemicals	—
Natural Resources	(5%)
Consumer Products	—
Packaging & Engineered Plastics	(7%)

CAPITALIZATION	June 30, 2019
Debt:	(\$ in millions)
ABL Revolving Credit Facility	—
USD First Lien Term Loan	1,157.5
First Lien Secured Notes	625.0
Total First Lien Debt	1,782.5
Senior Unsecured Notes	295.0
Other debt	68.7
Total Debt	2,146.2
Cash	82.2
Net Debt	2,064.0
Net Debt/Adjusted EBITDA	4.5x

% OF SALES BY END USE⁴



- (1) Excludes the Company's proportionate share of capital expenditures from the Zeolyst Joint Venture
- (2) Includes the cash impact from changes in capital expenditures in accounts payable and capitalized interest
- (3) Growth capital includes capital used to reduce fixed costs
- (4) Sales includes proportionate 50% share of sales from Zeolyst Joint Venture

QUARTERLY SEGMENT SALES, ADJUSTED EBITDA AND MARGINS

First Half 2019 and Year 2018

(\$ in millions except %, unaudited)	Three Months Ended		Six Months Ended	Three Months Ended				Year Ended
	March 31, 2019	June 30, 2019	June 30, 2019	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	December 31, 2018
Sales:								
Refining Services	105.8	117.3	223.1	100.7	112.1	123.4	119.4	455.6
Silica Catalysts	15.9	20.9	36.7	16.5	17.3	16.3	22.0	72.1
Performance Materials	61.1	118.9	180.0	62.7	126.5	115.4	73.7	378.3
Performance Chemicals	180.5	177.8	358.3	190.0	183.8	174.7	168.8	717.3
Inter-company sales eliminations	(4.1)	(3.2)	(7.2)	(3.7)	(5.0)	(2.6)	(3.8)	(15.1)
Total sales	359.2	431.7	790.9	366.2	434.7	427.2	380.1	1,608.2
Zeolyst joint venture net sales	29.5	39.1	68.6	38.3	49.5	32.3	36.6	156.7
Adjusted EBITDA:								
Refining Services	39.7	42.8	82.6	35.5	41.3	49.6	50.1	176.5
Catalysts	18.1	29.6	47.7	22.9	23.6	15.7	18.9	81.1
Performance Materials	10.5	29.2	39.7	12.1	28.6	21.3	10.5	72.5
Performance Chemicals	42.7	41.2	83.8	45.1	44.8	41.8	39.2	170.9
Total Segment Adjusted EBITDA	111.0	142.8	253.8	115.6	138.3	128.4	118.7	501.0
Corporate	(10.0)	(10.3)	(20.3)	(7.7)	(9.4)	(10.3)	(9.6)	(37.0)
Total Adjusted EBITDA	101.0	132.5	233.5	107.9	128.9	118.1	109.1	464.0
Adjusted EBITDA Margin:								
Refining Services	37.5%	36.5%	37.0%	35.3%	36.8%	40.2%	42.0%	38.7%
Catalysts ¹	40.0%	49.4%	45.3%	41.8%	35.3%	32.3%	32.3%	35.4%
Performance Materials	17.2%	24.6%	22.1%	19.3%	22.6%	18.5%	14.2%	19.2%
Performance Chemicals	23.7%	23.1%	23.4%	23.7%	24.4%	23.9%	23.2%	23.8%
Total Adjusted EBITDA Margin¹	26.0%	28.1%	27.2%	26.7%	26.6%	25.7%	26.2%	26.3%

SALES AND ADJUSTED EBITDA MAJOR CHANGE FACTORS

First Half 2019

SALES

Sales (in \$ millions and %)	Three months ended June 30, 2019									
	PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals	
	\$	%	\$	%	\$	%	\$	%	\$	%
Sales:										
Volume	(16.9)	(3.9)	(4.4)	(4.0)	4.0	23.1	(12.2)	(9.6)	(6.1)	(3.3)
Price/Mix	23.2	5.3	9.6	8.6	0.1	0.6	7.8	6.1	5.7	3.0
Currency	(9.3)	(2.1)	-	-	(0.5)	(2.9)	(3.2)	(2.5)	(5.6)	(3.0)
Sales Change	(3.0)	(0.7)	5.2	4.6	3.6	20.8	(7.6)	(6.0)	(6.0)	(3.3)

	Six months ended June 30, 2019									
	PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals	
	\$	%	\$	%	\$	%	\$	%	\$	%
	(29.6)	(3.7)	(7.9)	(3.8)	3.1	9.2	(13.5)	(7.1)	(12.5)	(3.3)
	41.1	5.2	18.2	8.6	0.9	2.7	10.7	5.6	11.3	3.0
	(21.5)	(2.7)	-	-	(1.1)	(3.3)	(6.5)	(3.4)	(14.2)	(3.8)
	(10.0)	(1.2)	10.3	4.8	2.9	8.6	(9.3)	(4.9)	(15.4)	(4.1)

ADJUSTED EBITDA

Adjusted EBITDA (in \$ millions and %)	Three months ended June 30, 2019									
	PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals	
	\$	%	\$	%	\$	%	\$	%	\$	%
Adjusted EBITDA:										
Volume/Mix	(15.7)	(12.2)	(3.4)	(8.2)	(3.2)	(13.6)	(7.3)	(25.5)	(1.7)	(3.8)
Price	24.0	18.6	9.7	23.5	0.7	3.0	7.8	27.3	5.7	12.7
Variable Cost	(7.0)	(5.4)	(2.1)	(5.1)	0.9	3.8	(0.1)	(0.3)	(5.7)	(12.7)
Currency	(2.3)	(1.8)	-	-	(0.3)	(1.3)	(0.5)	(1.7)	(1.5)	(3.3)
Other	(4.6)	3.6	(2.7)	(6.6)	7.9	33.5	0.7	2.3	(0.4)	(0.9)
Adjusted EBITDA Change	3.6	2.8	1.5	3.6	6.0	25.4	0.6	2.1	(3.6)	(8.0)

	Six months ended June 30, 2019									
	PQ Group Holdings Inc.		Refining Services		Catalysts		Performance Materials		Performance Chemicals	
	\$	%	\$	%	\$	%	\$	%	\$	%
	(28.1)	(11.9)	(5.8)	(7.6)	(13.4)	(28.8)	(7.3)	(18.0)	(1.6)	(1.8)
	42.2	17.8	18.3	23.8	1.9	4.1	10.7	26.4	11.3	12.6
	(12.8)	(5.4)	(3.3)	(4.3)	1.8	3.9	(1.5)	(3.7)	(9.8)	(10.9)
	(5.2)	(2.2)	-	-	(0.7)	(1.5)	(0.8)	(2.0)	(3.7)	(4.1)
	0.6	0.3	(3.4)	(4.3)	11.6	24.9	(2.0)	(4.9)	(2.3)	(2.6)
	(3.3)	(1.4)	5.8	7.6	1.2	2.6	(0.9)	(2.2)	(6.1)	(6.8)

RECONCILIATION OF NET INCOME TO SEGMENT ADJUSTED EBITDA

First Half 2019 and Year 2018

(\$ in millions)	Three Months Ended		Six Months Ended	Three Months Ended				Year Ended
	March 31, 2019	June 30, 2019	June 30, 2019	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	December 31, 2018
Reconciliation of net income attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA								
Net income attributable to PQ Group Holdings Inc.	3.2	30.6	33.7	0.2	15.8	14.2	28.1	58.3
Provision for (benefit from) income taxes	2.4	20.3	22.8	(0.5)	13.6	8.5	7.4	29.0
Interest expense	28.6	28.5	57.2	29.2	27.2	28.2	29.1	113.7
Depreciation and amortization	45.9	45.1	91.0	48.5	47.0	43.8	45.9	185.2
EBITDA	80.1	124.5	204.7	77.4	103.6	94.7	110.5	386.2
Joint venture depreciation, amortization and interest ^a	3.8	3.7	7.5	3.3	2.6	3.3	3.4	12.6
Amortization of investment in affiliate step-up ^b	2.6	1.7	4.2	1.7	1.7	1.7	1.5	6.6
Amortization of inventory step-up ^c	—	—	—	1.6	—	—	—	1.6
Debt extinguishment costs	—	—	—	5.9	—	0.9	1.0	7.8
Net loss (gain) on asset disposals ^d	0.8	(9.7)	(8.8)	1.2	4.8	5.2	(4.6)	6.6
Foreign currency exchange (gain) loss ^e	(2.7)	3.6	0.9	5.1	6.8	3.5	(1.6)	13.8
LIFO expense ^f	10.2	0.1	10.3	4.9	0.1	0.9	2.5	8.4
Transaction and other related costs ^g	0.1	1.0	1.1	0.4	0.3	0.2	—	0.9
Equity-based and other non-cash compensation	3.4	5.4	8.8	3.8	3.8	4.3	7.6	19.5
Restructuring, integration and business optimization expenses ^h	0.7	—	0.7	1.1	2.4	2.2	8.3	14.0
Defined benefit plan pension cost (benefit) ⁱ	1.0	0.6	1.5	0.6	(0.4)	0.1	(1.1)	(0.8)
Gain on contract termination ^j	—	—	—	—	—	—	(20.6)	(20.6)
Other ^k	1.0	1.6	2.6	0.9	3.2	1.1	2.2	7.4
Adjusted EBITDA	101.0	132.5	233.5	107.9	128.9	118.1	109.1	464.0
Unallocated corporate costs	10.0	10.3	20.3	7.7	9.4	10.3	9.6	37.0
Total Segment Adjusted EBITDA¹	111.0	142.8	253.8	115.6	138.3	128.4	118.7	501.0

EBITDA Adjustments by Line Item								
EBITDA	80.1	124.5	204.7	77.4	103.6	94.7	110.5	386.2
Cost of goods sold	10.8	0.4	11.2	7.3	2.6	2.1	4.3	16.3
Selling, general and administrative expenses	4.4	5.9	10.3	4.9	4.8	5.4	7.9	23.0
Other operating expense (income), net	1.8	(7.3)	(5.5)	2.4	7.2	7.3	(17.8)	(0.9)
Equity in net (income) from affiliated companies	2.6	1.7	4.2	1.7	1.7	1.7	1.5	6.6
Other expense (income), net ²	(2.5)	3.6	1.1	10.9	6.4	3.6	(0.7)	20.2
Joint venture depreciation, amortization and interest(a)	3.8	3.7	7.5	3.3	2.6	3.3	3.4	12.6
Adjusted EBITDA	101.0	132.5	233.5	107.9	128.9	118.1	109.1	464.0

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

First Half 2019 and Year 2018

(\$ in millions except per share data)	Three Months Ended		Six Month Ended	Three Months Ended				Year Ended
	March 31, 2019	June 30, 2019	June 30, 2019	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	December 31, 2018
Net Income	3.5	30.7	34.1	0.5	16.2	14.4	28.5	59.6
Less: Net income attributable to the non-controlling interest	0.3	0.1	0.4	0.3	0.4	0.2	0.3	1.3
Net Income attributable to PQ Group Holdings, Inc. ¹	3.2	30.6	33.7	0.2	15.8	14.2	28.2	58.3
Diluted net income per share:	0.02	0.23	0.25	0.00	0.12	0.11	0.21	0.43
Net Income attributable to PQ Group Holdings, Inc. ¹	3.2	30.6	33.7	0.2	15.8	14.2	28.2	58.3
Amortization of investment in affiliate step-up ^b	1.6	1.0	2.7	1.2	1.0	0.9	1.1	4.2
Amortization of inventory step-up ^c	—	—	—	1.1	—	—	—	1.0
Debt extinguishment costs	—	—	—	4.1	—	0.2	0.5	4.9
Net loss (gain) on asset disposal ^d	0.5	(7.4)	(6.9)	0.8	3.1	2.9	(2.7)	4.1
Foreign currency exchange (gain) loss ^e	(2.0)	4.1	2.1	2.9	5.2	4.0	(3.9)	8.2
LIFO expense ^f	6.5	0.2	6.6	3.4	—	0.3	1.6	5.3
Transaction and other related costs ^g	0.1	0.6	0.7	0.3	0.2	0.1	—	0.6
Equity-based and other non-cash compensation	2.2	3.5	5.6	2.6	2.5	2.2	7.6	14.9
Restructuring, integration and business optimization expenses ^h	0.5	—	0.5	0.7	1.6	1.2	5.3	8.8
Defined benefit pension plan cost (benefit) ^l	0.6	0.4	1.0	0.4	(0.3)	0.1	(0.7)	(0.5)
Gain on contract termination ⁱ	—	—	—	—	—	—	(13.0)	(13.0)
Other ^k	0.6	1.0	1.7	0.7	2.0	0.4	1.4	4.6
Adjusted net income, including tax reform and non-cash GILTI tax	13.8	34.0	47.7	18.4	31.1	26.5	25.4	101.4
Impact of non-cash GILTI tax ²	3.7	7.5	11.2	2.5	5.0	11.4	2.2	21.2
Impact of tax reform ³	—	—	—	—	1.1	(2.5)	(4.5)	(6.0)
Adjusted net income	17.5	41.5	58.9	20.9	37.2	35.4	23.1	116.6
Adjusted diluted net income per share:	0.13	0.31	0.44	0.16	0.28	0.26	0.17	0.87
Diluted Weighted Average shares outstanding	134.9	135.3	135.1	133.9	134.2	134.6	135.0	134.7

(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 provisional benefit (loss) for the impact of the U.S. Tax Cuts and Jobs Act of 2017 and the Dutch Tax Plan 2019 recorded in Net Income

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

Descriptions to PQ Non-GAAP Reconciliations

- a) We use Adjusted EBITDA as a performance measure to evaluate our financial results. Because our Catalysts segment includes our 50% interest in our Zeolyst Joint Venture, we include an adjustment for our 50% proportionate share of depreciation, amortization and interest expense of our Zeolyst Joint Venture.
- b) Represents the amortization of the fair value adjustments associated with the equity affiliate investment in our 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 our 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) 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. During the three and six months ended June 30, 2019, net loss (gain) on asset disposals reflects the gain related to the sale of a non-core product line.
- e) Reflects the exclusion of the foreign currency transaction gains and losses in the statements of income primarily related to the Euro denominated term loan (which was settled as part of the February 2018 term loan refinancing) and 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) Relates to certain transaction costs including debt financing, due diligence and other costs related to several transactions that are completed, pending or abandoned and that we believe are not representative of our ongoing business operations.
- h) Includes the impact of restructuring, integration and business optimization expenses which are incremental costs that are not representative of our ongoing business operations.
- i) Represents adjustments for defined benefit pension plan 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 expenses as core to our ongoing business operations.
- j) 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.
- k) 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

Second Quarter 2019 Versus 2018

(\$ in millions except %, unaudited)	Three Months Ended June 30, 2019			Three Months Ended June 30, 2018	Constant Currency % Change
	As Reported	FX Impact	Constant Currency	As Reported	
Sales:	\$	\$	\$	\$	%
Refining Services	117.3	—	117.3	112.1	4.6
Silica Catalysts	20.9	0.5	21.4	17.3	23.5
Performance Materials	118.9	3.2	122.1	126.5	(3.5)
Performance Chemicals	177.8	5.6	183.4	183.8	(0.2)
Inter-company sales eliminations	(3.2)	—	(3.2)	(5.0)	(36.6)
Total sales	431.7	9.3	441.0	434.7	1.4
Zeolyst joint venture net sales	39.1	—	39.1	49.5	(21.0)
Adjusted EBITDA:		\$	\$	\$	%
Refining Services	42.8	—	42.8	41.3	3.7
Catalysts ¹	29.6	0.3	29.9	23.6	26.7
Performance Materials	29.2	0.5	29.7	28.6	3.9
Performance Chemicals	41.2	1.5	42.7	44.8	(4.8)
Total Segment Adjusted EBITDA	142.8	2.3	145.1	138.3	4.9
Corporate	(10.3)	—	(10.3)	(9.4)	9.2
Total Adjusted EBITDA	132.5	2.3	134.8	128.9	4.6



PQ Corporation

