INVESTOR PRESENTATION

Morgan Stanley Global Chemicals and Agriculture Conference – November 2018

sustainable growth

PQ Corporation

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Forward-Looking Statements

Some of the information contained in this presentation, 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 2018 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, adjusted net income, adjusted EPS, 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.

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, 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.

Non-GAAP Financial Measures – Business Combination

On May 4, 2016, we consummated a series of transactions (the "Business Combination") to reorganize and combine the businesses of PQ Holdings Inc. and Eco Services Operations LLC under a new holding company, PQ Group Holdings Inc. In this presentation, we present pro forma information for the years ended December 31, 2016 and 2015, which gives effect to the Business Combination and the related financing transactions as if they occurred on January 1, 2015. Such information is illustrative and not intended to represent what our results of operations would have been had the Business Combination and related financing transactions occurred at any time prior to May 4, 2016 or to project our results of operations for any future period. Such information may not be comparable to, or indicative of, future performance.

Zeolyst Joint Venture

Our zeolite catalysts product group operates through Zeolyst International and Zeolyst C.V. (our 50% owned joint ventures that we refer to collectively as our “Zeolyst Joint Venture”), which we account for as an equity method investment in accordance with GAAP. The presentation of our Zeolyst Joint Venture’s total net sales in this presentation represents 50% of the total net 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 operations 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 total net sales of our Zeolyst Joint Venture for the relevant periods in the denominator.

PQ INVESTMENT HIGHLIGHTS

Leading Global Producer of Specialty Catalysts, Materials, Chemicals & Services

ENVIRONMENTAL CATALYSTS & SERVICES (EC&S)

37%[1]

Adjusted EBITDA margin

PERFORMANCE MATERIALS & CHEMICALS (PM&C)

23%[1]

Adjusted EBITDA margin

REFINING SERVICES

SILICA CATALYST

ZEOLYST JV

PERFORMANCE CHEMICALS

PERFORMANCE MATERIALS

Silicate & Zeolite Chemistry / Catalyst Innovation / Furnace Technology

Leading Operational Network / Tailored Product Sizing and Coating

Mid-to-high Single Digit Top Line Growth	High Adjusted EBITDA Margins	Proven Performance in all Macro Economic Cycles	Robust Free Cash Flow to Delever and Grow

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(1) Adjusted EBITDA margin on LTM Q3 2018 basis and calculated as Adjusted EBITDA/Sales and includes proportionate 50% share of net sales from Zeolyst joint venture

PRODUCT GROUP GROWTH DRIVERS

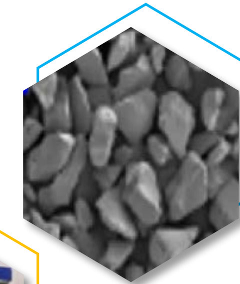
Diverse product portfolio with environmental and safety demand drivers

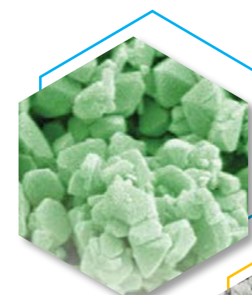
Environmental Catalysts & Services (EC&S):

- **Refining Services** – expanding sulfuric acid alkylation to meet higher octane demand
- **Silica Catalysts** – growing global polyethylene demand for plastics
- **Zeolyst International** – expanding regulation for lower sulfur transportation fuels and NOX emission controls in diesel engines

Performance Materials & Chemicals (PM&C):

- **Performance Chemicals** – preference for environmentally friendly consumer and industrial applications
- **Performance Materials** – highway safety solutions for transportation safety





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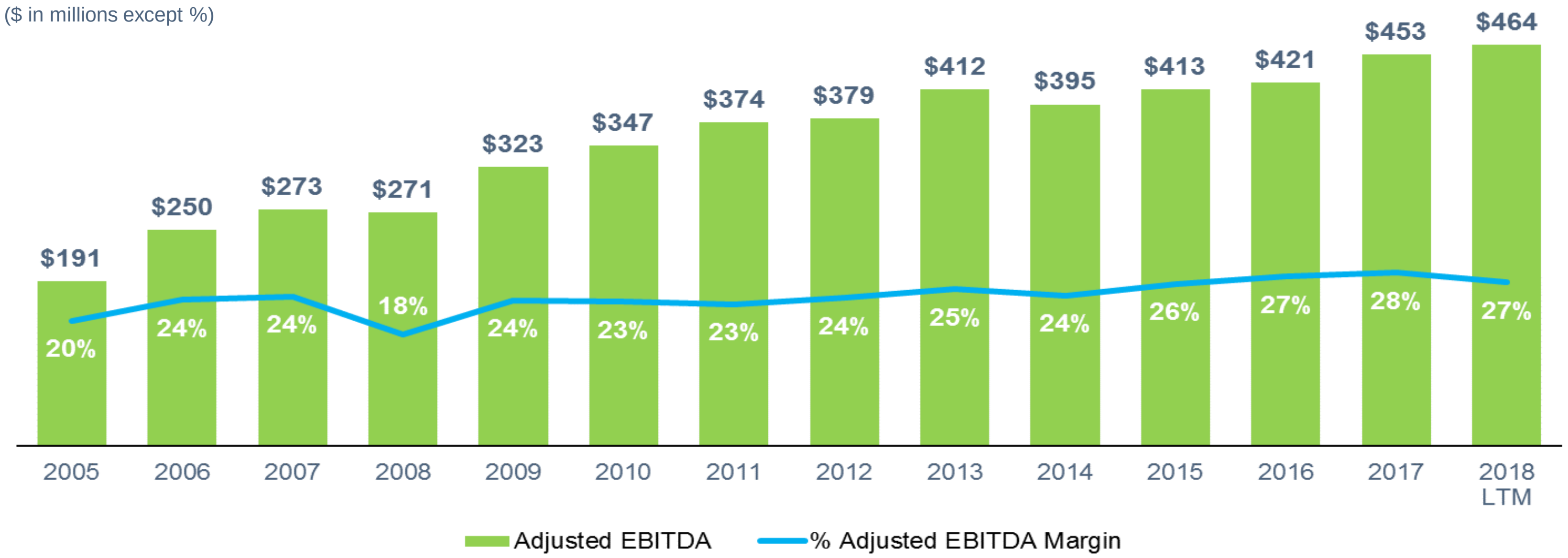
Notes: Additional product group business details in supplementary section

DEMONSTRATED SUSTAINABLE FINANCIAL PERFORMANCE ACROSS MACROECONOMIC CYCLES

Stability through cycles

Adjusted EBITDA and Adjusted EBITDA Margin (%)[1,2,3]



- Historical Adjusted EBITDA CAGR of ~ 7%
- Attractive, stable margins

(1) Adjusted EBITDA for the period from 2005 to 2014 represents Legacy Eco Adjusted EBITDA and Legacy PQ Adjusted EBITDA prior to the Business Combination. Adjusted EBITDA for 2015 and 2016 is presented on a pro forma basis to give effect to the Business Combination as further described in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017

(2) See Reconciliations included within this appendix for additional information regarding Adjusted EBITDA, including a reconciliation of the amounts to net income (loss) for each of the periods presented as well as information regarding the Legacy Eco and Legacy PQ financial information included in such amounts

(3) Adjusted EBITDA margin calculation includes proportionate 50% share of total net sales from Zeolyst joint venture

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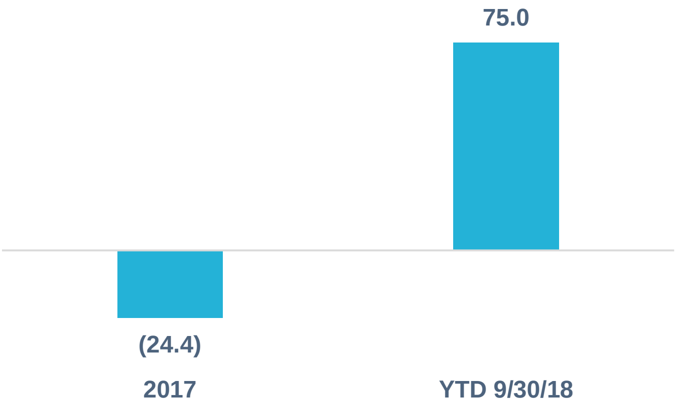
ADJUSTED FREE CASH FLOW DRIVES DELEVERING PROGRESS

Secular market growth trends, leading positions drive healthy margins and adjusted free cash flow performance

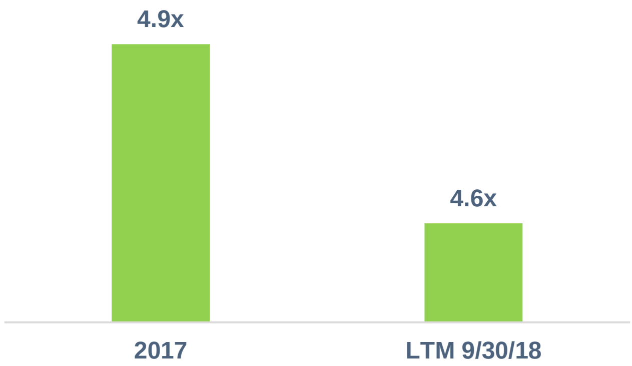
ADJUSTED FREE CASH FLOW ($mm)

$80 million YTD debt repaid; additional anticipated in Q4



NET DEBT/ADJUSTED EBITDA RATIO

Leverage target of 3.0 – 3.5x



- **Weighted average cost of debt of ~5%**
- **No near-term maturities; no pre-pay penalty on term loan**
- **Interest rate hedges in place through July 2022**

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KEY PRIORITIES AND FOCUS

Create Shareholder Value

    

COMPETITIVE ADVANTAGES	KEY VALUE DRIVERS
o Unique portfolio of businesses	o Profitable Growth
o Leading positions in growing markets	o Capital efficiency
o Innovation potential	o Free cash flow

SUPPLEMENTARY INFORMATION

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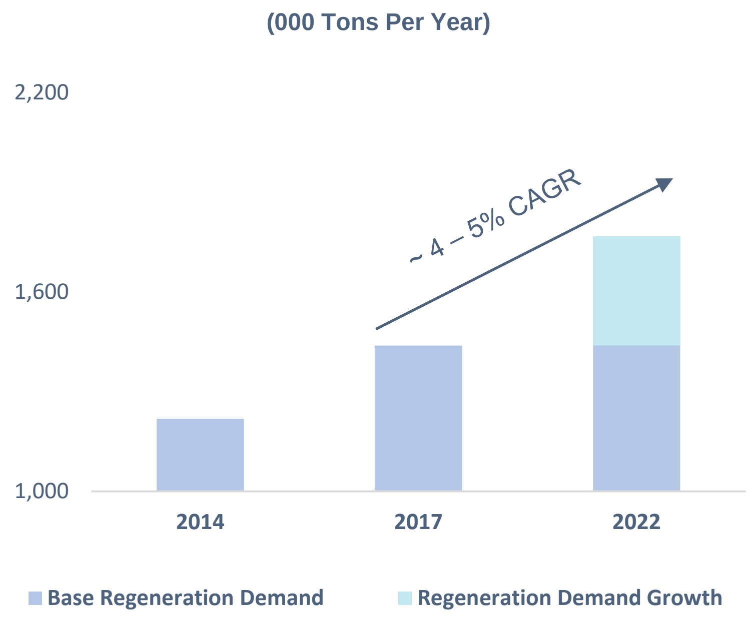
REFINING SERVICES

#1 U.S. Supplier

PQ well positioned to serve new capacity expansions in Gulf

Gulf Coast Sulfuric Acid Regeneration Demand



- Planned alkylation expansions, all Gulf Coast, Sulfuric-based
- Expansions driven by:
  - Growth in premium share of total gasoline pool (turbocharged engines)
  - Shale oil growth
  - Rising gasoline exports
- PQ debottlenecking expected to accelerate growth rate at high margins

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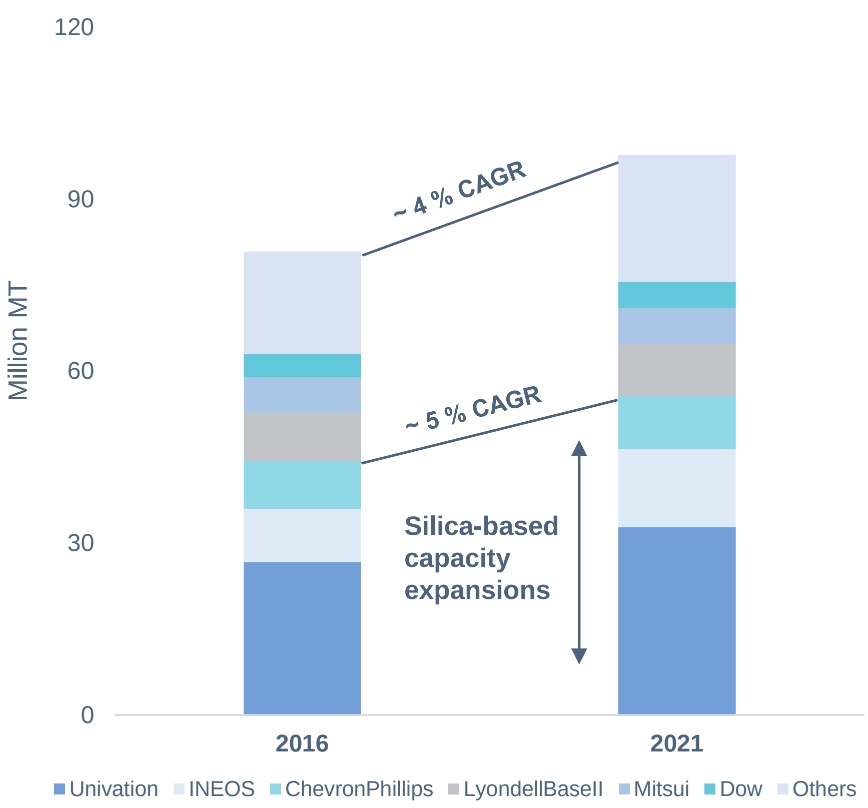
Sources: AFPM (American Fuel Petrochemical Manufacturing), EIA and PQ estimates
Note: Total global addressable market expected to grow to ~$900 million by 2021/22 with North America representing ~2/3 of the total market

SILICA CATALYSTS

#2 primary global supplier

PQ is aligned with key licensors for new silica-based capacity

PE Capacity by Licensor



- **~50% of the current capacity uses silica catalyst**
- **~30 announcements of new global capacity expected to come on line between 2018–2021**
    - ~80% of new capacity will use silica catalysts; expected to drive 5% share increase vs alternative technologies
- **Aligned with key silica licensors**

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Sources: 2017 Industry Consultant Market Report and PQ estimates
Note: Total current addressable global market of ~$700 million

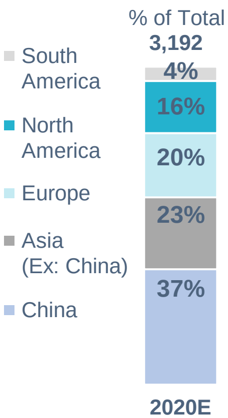
ZEOLYST INTERNATIONAL –
FUEL AND EMISSION CONTROL CATALYSTS

Growth from increased fuel and emissions regulations

#1 global supplier of emission catalysts

Removing NOx from Vehicle Emissions:

Global Mix (000) and Catalyst Consumption for HDD Vehicles

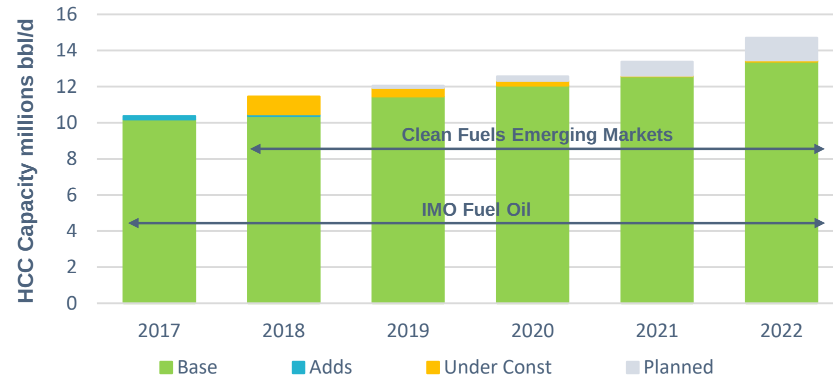


Region	Current Consumption per Vehicle	Estimated Future Standards (2020)	Total 2020E Catalyst Consumption (mm lbs)
U.S.	10 lbs post-2010	10 lbs	~ 4
Europe	10 lbs post-2013	10 lbs	~ 5
China*	0 lbs	10 lbs	~ 12

- **Global environmental standards for Heavy Duty Diesel (HDD) progressively tightening**
  - Increased demand and share for emission control catalysts in emerging markets
  - Adoption by China and others expected to accelerate demand
  - China VI implementation in 2020 is projected to double catalyst consumption

Removing Sulfur from Fuels:

Hydrocracking Projected Capacity Expansions



- **Demand growth for low-sulfur fuels drives global planned capacity investments**
  - Increasing compliance by other countries (China, India, Brazil among others) to remove sulfur from on-road vehicles
  - IMO 2020 applies low-sulfur limits to shipping industry
  - Continued growth from lower sulfur fuels in Europe and US

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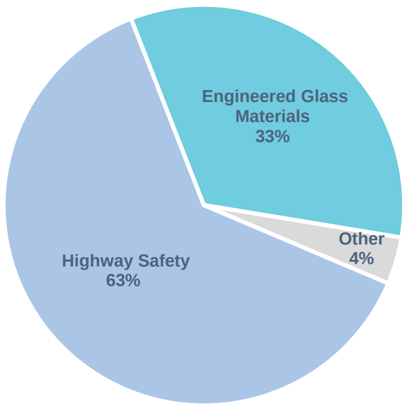
Sources: September 2018 LMC Automotive and PQ Estimates
* China is planning on implementation of European Union equivalent emissions standards effective 2020

PERFORMANCE MATERIALS

#1 global provider of engineered safety beads

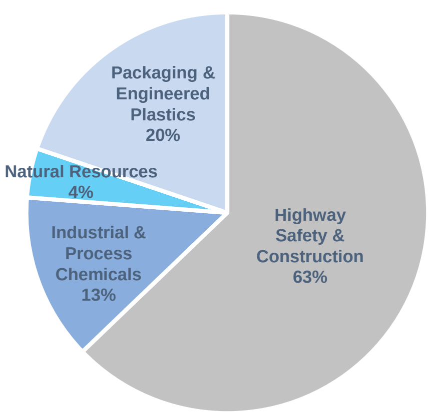
Increased standards for transportation safety drive demand

Product Line



- **Lead road marking bead supplier in North America, Europe and Latin America**
- **Broad global network with 28 production facilities**
- **Leading glass technology — 100+ years of innovation and customer solutions for safety and industrial applications**

End Use Demand



- **Upgrades of existing infrastructure for tighter standards for road and worker safety**
- **Reinforces plastics for light weighting products; displaces materials in electronics & other consumables**
- **Substitutes as environmentally friendly for metal finishing abrasives; ingredients for cosmetics**
- **Uses in cementing for oil & gas drill casing**

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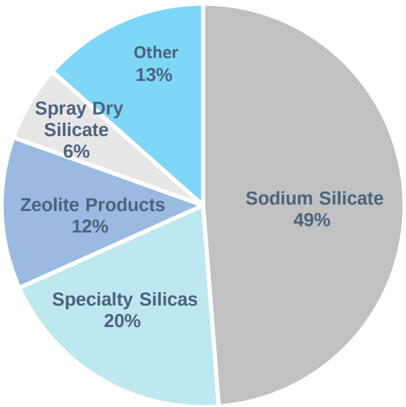
Notes: % calculated based on Q32018 LTM Revenues of ~$305 million

PERFORMANCE CHEMICALS

#1 North America & Europe silicates supplier

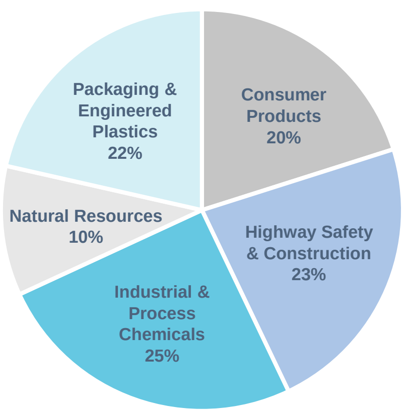
Growing trends for environmentally friendly and sustainable products

Product Line



- > 2x sodium silicate supply share of nearest competitor
- ~ 70% contracted sales with 1 – 3 year term; ~ 45% raw material contract pass-through
- Leading global network to meet key 50+ year multi-national customer demand

End Use Demand



- Feedstock for silica catalysts; polymers/plastics for packaging, consumer products
- Substitutes as environmentally friendly additives (i.e., detergent, cleaning applications), oral hygiene & facial products
- Uses in specialty coatings
- Replaces other materials as environmentally friendly in tires for rolling resistance and reducing release of lead from aging water pipe lines
- Provides environmentally safer use for drilling fluids in oil & gas production

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Notes: % calculated based on Q32018 LTM Revenues of ~$548 million

PQ INVESTMENT HIGHLIGHTS

Leading Global Producer of Specialty Catalysts, Materials, Chemicals & Services

ENVIRONMENTAL CATALYSTS & SERVICES (EC&S)

37%[1] Adjusted EBITDA margin

REFINING SERVICES

SILICA CATALYST

ZEOLYST JV

Specialty catalysts for refinery, emissions control and petrochemical industries

- **Silica** – Provide finished catalysts/catalyst supports for key polyethylene (HDPE/LLDPE) customers
- **Zeolite** – Supply advanced catalyst technologies for removing sulfur from fuels and NOx from emissions
- **Refining** – Recycle the critical alkylation catalyst used to produce and boost octane levels in gasoline

PERFORMANCE MATERIALS & CHEMICALS (PM&C)

23%[1] Adjusted EBITDA margin

PERFORMANCE CHEMICALS

PERFORMANCE MATERIALS

Performance products for transportation safety and a broad number of sustainable environmentally-friendly personal and industrial uses

- **Materials** – Supply global transportation safety materials combined with our new ThermoDrop® road striping product
- **Chemicals** – Leading global supplier of silicates serving environmentally and sustainable product demand in consumer personal care and industrial products, green tires and surface coatings

Mid-to-high Single Digit Top Line Growth

High Adjusted EBITDA Margins

Proven Performance in all Macro Economic Cycles

Robust Free Cash Flow to Delever and Grow

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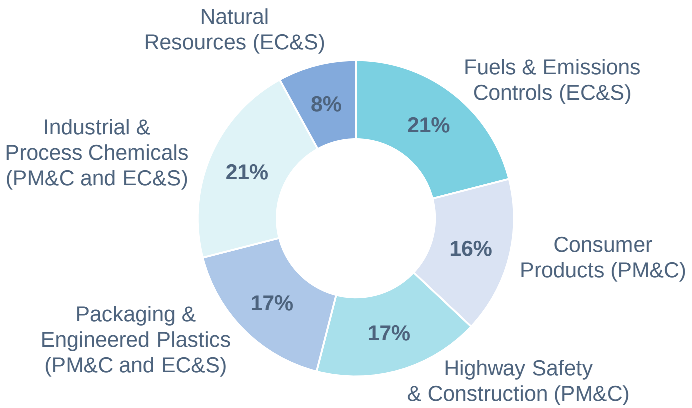
(1) Adjusted EBITDA margin on LTM Q3 2018 basis and calculated as Adjusted EBITDA/Sales and includes proportionate 50% share of net sales from Zeolyst joint venture

DIVERSE AND STABLE PORTFOLIO

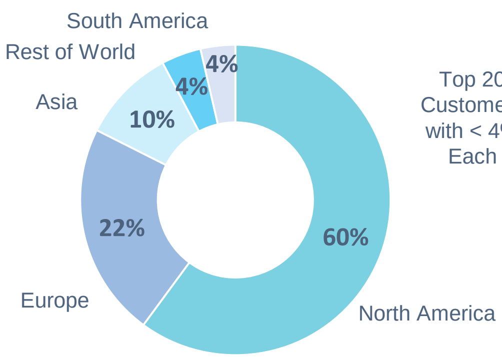
Secular growth trends and #1 and #2 leading positions in most product groups

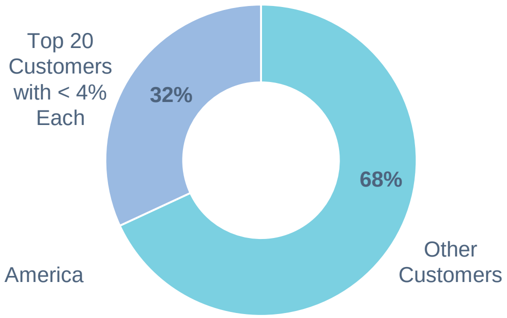
2017 SALES AND ZEOLYST JV TOTAL NET SALES: BY END USE[1]



2017 SALES GROWTH BY END USE[1]	
Fuels & Emissions Controls	+ 10%
Highway Safety & Construction	+ 8%
Industrial & Process Chemicals	+ 4%
Natural Resources	+ 3%
Consumer Products	+ 1%
Packaging & Engineered Plastics	+ 4%

2017 SALES AND ZEOLYST JV TOTAL NET SALES: BY REGION AND CUSTOMER[1]





- **End Market Robust Growth**
- **Key Customer Positions**
- **Solid Geographic Mix**

(1) Sales includes proportionate 50% share of total net sales from Zeolyst joint venture

2018 GUIDANCE

Adjusted free cash flow range of $125 million to $140 million

($ in millions except %)	2017 Actual	2018 Outlook
Sales	1,472.1	1,580 – 1,600
Adjusted EBITDA	453.3	460 – 465
Adjusted Free Cash Flow	**(24.4)**	**125 – 140**
Interest Expense	179.0	115 – 120
Depreciation & Amortization		
PQ	177.1	185 – 190
Zeolyst JV	11.1	12 – 14
Capital Expenditures	140.5	140 - 145
Effective Tax Rate (ex tax reform)	NM	~ 25 - 30%

- Sales higher on year-to-date pass-through of increased sulfur costs
- Adjusted EBITDA reflects Q3 results and continued PM&C cost pressures in Q4
- Margins expected to be in line with 1H18

(1) Prior free cash flow guidance included expected net interest proceeds on currency swaps, notwithstanding that such proceeds are reflected in net cash used in investing activities rather than net cash provided by operating activities.

ADJUSTED FREE CASH FLOW

Third Quarter and YTD 2018

($ in millions)	Three months ended September 30, 2018	Three months ended September 30, 2017	Nine months ended September 30, 2018	Nine months ended September 30, 2017	Year ended December 31, 2017
Net cash provided by operating activities	115.9	88.0	166.0	109.8	116.1
Less: Purchases of property, plant and equipment[1]	(29.2)	(29.6)	(95.3)	(90.2)	(140.5)
Free cash flow	86.7	58.4	70.7	19.6	(24.4)
Adjustments to free cash flow					
Plus: Net interest proceeds on currency swaps	4.3	—	4.3	—	—
Adjusted free cash flow[2]	91.0	58.4	75.0	19.6	(24.4)
Net cash used in investing activities[3]	(29.5)	(33.6)	(95.8)	(146.5)	(182.7)
Net cash (used in) provided by financing activities	(82.5)	(37.6)	(77.8)	29.2	68.9

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

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

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

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

Third Quarter 2018, YTD 2018 and Year 2017

	Three Months Ended			Nine Months Ended	LTM Ended	Three Months Ended				Year Ended
($ in millions except per share data)	March 31, 2018	June 30, 2018	September 30, 2018	September 30, 2018	September 30, 2018	March 31, 2017	June 30, 2017	September 30, 2017	December 31, 2017	December 31, 2017
Reconciliation of Sales to Adjusted Net Income (loss)										
Sales	366.2	434.7	427.2	1,228.1	1,586.2	332.9	389.3	391.8	358.1	1,472.1
Cost of goods sold	288.1	326.3	319.7	934.1	1,208.1	250.2	281.8	289.3	274.0	1,095.3
Gross Profit	78.1	108.4	107.5	294.0	378.1	82.7	107.5	102.5	84.1	376.8
Selling, general and administrative expenses	40.6	43.5	42.1	126.2	166.5	34.7	35.3	36.3	40.3	146.7
Other operating expense, net	9.3	15.9	16.5	41.7	58.7	10.3	17.0	19.8	17.0	64.2
Operating Income	28.2	49.0	48.9	126.1	152.9	37.7	55.2	46.4	26.8	165.9
Equity in net (income) from affiliated companies	(11.9)	(13.7)	(5.6)	(31.1)	(45.1)	(5.9)	(8.7)	(10.3)	(13.9)	(38.8)
Interest expense, net	29.2	27.2	28.2	84.6	119.6	46.8	48.2	49.1	35.0	179.0
Debt extinguishment costs	5.9	—	0.9	6.7	68.2	—	—	0.5	61.4	61.9
Other expense, net	5.0	5.7	2.5	13.1	16.4	2.0	14.4	5.0	3.2	24.4
Income (loss) before income taxes and non-controlling interest	—	29.8	22.9	52.8	(6.2)	(5.2)	1.3	2.1	(58.9)	(60.6)
(Benefit) provision for income taxes	(0.5)	13.6	8.5	21.6	(102.9)	(2.9)	3.0	5.2	(124.5)	(119.2)
Effective tax rate	*NM*	*45.8 %*	*37.0 %*	*40.9 %*	*NM*	*55.8 %*	*224.9 %*	*239.9 %*	*211.4 %*	*196.7 %*
Net Income (loss)	0.5	16.2	14.4	31.2	96.7	(2.3)	(1.7)	(3.1)	65.6	58.6
Less: Net income (loss) attributable to the non-controlling interest	0.3	0.4	0.2	1.0	1.5	0.2	(0.1)	0.3	0.6	1.0
Net Income (loss) attributable to PQ Group Holdings, Inc. [1]	0.2	15.8	14.2	30.2	95.2	(2.5)	(1.6)	(3.4)	65.0	57.6
Amortization of investment in affiliate step-up [b]	1.2	1.0	0.9	3.1	5.6	2.1	0.9	1.0	2.5	6.5
Amortization of inventory step-up [c]	1.1	—	—	1.0	1.2	0.5	—	—	0.1	0.6
Debt extinguishment costs	4.1	—	0.2	4.3	50.4	—	—	0.3	46.1	46.4
Net loss on asset disposal [d]	0.8	3.1	2.9	6.9	7.0	0.2	1.4	2.1	0.2	3.9
Foreign currency exchange loss [e]	2.9	5.2	4.0	12.0	13.3	0.2	9.5	5.2	1.2	16.1
LIFO expense [f]	3.4	—	0.3	3.6	4.6	1.4	—	0.5	0.9	2.8
Management advisory fees [g]	—	—	—	—	0.6	0.7	0.7	0.8	0.6	2.8
Transaction and other related costs [h]	0.3	0.2	0.1	0.6	3.1	0.8	1.7	0.6	2.5	5.6
Equity-based and other non-cash compensation	2.6	2.5	2.2	7.3	11.7	0.9	0.6	0.7	4.4	6.6
Restructuring, integration and business optimization expenses [i]	0.7	1.6	1.2	3.5	6.5	1.0	0.7	2.9	3.0	7.6
Defined benefit pension plan cost [j]	0.4	(0.3)	0.1	0.2	0.9	0.4	0.4	0.5	0.7	2.0
Other [k]	0.7	2.0	0.4	3.3	7.8	0.3	1.0	—	4.7	5.9
Adjusted net income, including tax reform and non-cash GILTI tax	18.4	31.1	26.5	76.0	207.9	6.0	15.3	11.2	131.9	164.4
Impact of tax reform [2]	—	1.1	(2.5)	(1.5)	(107.9)	—	—	—	(106.5)	(106.5)
Impact of non-cash GILTI tax [3]	2.5	5.0	11.4	19.0	18.9	—	—	—	—	—
Adjusted net income	20.9	37.2	35.4	93.5	118.9	6.0	15.3	11.2	25.4	57.9
Diluted net income (loss) per share:	0.00	0.12	0.11	0.22	NM	(0.02)	(0.02)	(0.03)	0.49	0.52
Adjusted diluted net income per share:	0.16	0.28	0.26	0.70	NM	0.06	0.15	0.11	0.19	0.52
Diluted Weighted Average shares outstanding	133.9	134.2	134.6	134.2	NM	103.9	104.0	104.1	133.9	111.7

(1) For additional information with respect to each adjustment, see “Reconciliations of Non-GAAP Financial Measures” within this appendix.
(2) Represents the provisional benefit of $89.5 million for the impact of the U.S. Tax Cuts and Jobs Act of 2017 recorded in Net Income and an additional $17.0mm related to the tax reform impact on the adjustments to Net Income.
(3) Represents the impact associated with Tax Cuts and Jobs Act of 2017 Global Intangible Low Taxed Income (“GILTI”). The Company is required to record a non-cash provision on GILTI as a result of having a U.S. Net Operating Loss (“NOL”) which precludes us from using foreign tax credits (“FTCs”) to offset the GILTI until the NOL is fully utilized. As this provision does not impact our cash taxes and we will be able to utilize FTCs to offset GILTI once the NOLs are utilized, we do not view this as core to our ongoing business operations.

PQ Corporation

NET INCOME (LOSS) TO SEGMENT ADJUSTED EBITDA

Third Quarter 2018, YTD 2018 and Year 2017

($ in millions)	Three Months Ended			Nine Months Ended	LTM Ended	Three Months Ended				Year Ended
	March 31, 2018	June 30, 2018	September 30, 2018	September 30, 2018	September 30, 2018	March 31, 2017	June 30, 2017	September 30, 2017	December 31, 2017	December 31, 2017
Reconciliation of net income (loss) attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA										
Net income (loss) attributable to PQ Group Holdings Inc.	0.2	15.8	14.2	30.2	95.2	(2.5)	(1.6)	(3.4)	65.0	57.6
Provision for (benefit from) income taxes	(0.5)	13.6	8.5	21.6	(102.9)	(2.9)	3.0	5.2	(124.5)	(119.2)
Interest expense	29.2	27.2	28.2	84.6	119.6	46.8	48.2	49.1	35.0	179.0
Depreciation and amortization	48.5	47.0	43.8	139.3	187.3	40.6	42.6	45.9	48.0	177.1
EBITDA	**77.4**	**103.6**	**94.7**	**275.7**	**299.2**	**82.0**	**92.2**	**96.8**	**23.5**	**294.5**
Joint venture depreciation, amortization and interest [a]	3.3	2.6	3.3	9.2	12.2	2.6	2.9	2.6	3.0	11.1
Amortization of investment in affiliate step-up [b]	1.7	1.7	1.7	5.0	6.8	3.5	1.7	1.7	1.7	8.6
Amortization of inventory step-up [c]	1.6	—	—	1.6	1.6	0.9	—	—	—	0.9
Debt extinguishment costs	5.9	—	0.9	6.7	68.2	—	—	0.5	61.4	61.9
Net loss on asset disposals [d]	1.2	4.8	5.2	11.1	10.6	0.3	2.6	3.5	(0.6)	5.8
Foreign currency exchange loss [e]	5.1	6.8	3.5	15.3	19.6	2.0	14.4	5.3	4.2	25.8
LIFO expense [f]	4.9	0.1	0.9	5.9	6.4	2.4	—	0.8	0.5	3.7
Management advisory fees [g]	—	—	—	—	—	1.3	1.3	1.3	—	3.8
Transaction related costs [h]	0.4	0.3	0.2	0.9	3.0	1.4	3.0	1.0	2.1	7.4
Equity-based and other non-cash compensation	3.8	3.8	4.3	11.9	16.8	1.7	1.2	1.0	4.9	8.8
Restructuring, integration and business optimization expenses [i]	1.1	2.4	2.2	5.7	10.9	1.7	1.4	5.0	5.2	13.2
Defined benefit plan pension cost [j]	0.6	(0.4)	0.1	0.3	1.0	0.7	0.7	0.8	0.7	2.9
Other [k]	0.9	3.2	1.1	5.6	8.0	0.7	1.4	(0.4)	2.8	4.9
Adjusted EBITDA	**107.9**	**128.9**	**118.1**	**354.9**	**464.3**	**101.2**	**122.8**	**119.9**	**109.4**	**453.3**
Unallocated corporate costs	7.7	9.4	10.3	27.3	34.4	7.7	7.9	7.9	7.0	30.5
Total Segment Adjusted EBITDA	**115.6**	**138.3**	**128.4**	**382.2**	**498.7**	**108.9**	**130.7**	**127.8**	**116.4**	**483.8**
EBITDA Adjustments by Line Item										
EBITDA	**77.4**	**103.6**	**94.7**	**275.7**	**299.2**	**82.0**	**92.2**	**96.8**	**23.5**	**294.5**
Cost of goods sold	7.3	2.6	2.1	12.0	13.0	4.0	0.7	2.3	1.0	7.9
Selling, general and administrative expenses	4.9	4.8	5.4	15.1	21.9	2.3	2.1	2.0	6.8	13.2
Other operating expense, net	2.4	7.2	7.3	16.9	25.6	4.7	9.0	9.1	8.7	31.5
Equity in net (income) loss from affiliated companies	1.7	1.7	1.7	5.0	6.8	3.5	1.7	1.6	1.7	8.6
Other expense (income), net[1]	10.9	6.4	3.6	21.0	85.6	2.1	14.2	5.5	64.7	86.5
Joint venture depreciation, amortization and interest(a)	3.3	2.6	3.3	9.2	12.2	2.6	2.9	2.6	3.0	11.1
Adjusted EBITDA	**107.9**	**128.9**	**118.1**	**354.9**	**464.3**	**101.2**	**122.8**	**119.9**	**109.4**	**453.3**

PQ Corporation

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

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

Descriptions to PQ Non-GAAP Reconciliations

Descriptions to PQ Non-GAAP Reconciliations

a) We use Adjusted EBITDA as a performance measure to evaluate our financial results. Because our Environmental Catalysts and Services 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 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 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 statement of operations.

d) We do not have a history of significant asset disposals. However, 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 negative or positive transaction gains and losses of foreign currency in the income statement 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) Reflects consulting fees paid to CCMP and affiliates of INEOS for consulting services that include certain financial advisory and management services. These payments ceased as of the closing of our initial public offering.

h) Relates to certain transaction costs described in our condensed consolidated financial statements as well as other costs related to several transactions that are completed, pending or abandoned and 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 costs in our statement of operations. 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.

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).

QUARTERLY SEGMENT SALES AND ADJUSTED EBITDA

Third Quarter 2018, YTD 2018 and Year 2017

($ in millions except %)	Three Months Ended March 31, 2018	Three Months Ended June 30, 2018	Three Months Ended September 30, 2018	Nine months Ended September 30, 2018	LTM Ended September 30, 2018	Three Months Ended March 31, 2017	Three Months Ended June 30, 2017	Three Months Ended September 30, 2017	Three Months Ended December 31, 2017	Year Ended December 31, 2017
Sales:										
Silica Catalysts	16.5	17.3	16.3	50.2	73.1	17.1	20.1	15.1	23.0	75.3
Refining Services	100.7	112.1	123.4	336.2	436.1	94.2	103.9	100.4	99.9	398.4
Environmental Catalysts & Services	**117.2**	**129.4**	**139.7**	**386.4**	**509.2**	**111.3**	**124.0**	**115.5**	**122.9**	**473.7**
Performance Materials	62.7	126.5	115.4	304.7	371.1	53.8	99.5	104.4	66.5	324.2
Performance Chemicals	190.0	183.8	174.7	548.4	720.6	170.9	169.0	175.5	172.1	687.6
Eliminations	(2.9)	(4.1)	(1.8)	(8.8)	(11.5)	(2.1)	(2.4)	(2.8)	(2.7)	(10.0)
Performance Materials & Chemicals	**249.8**	**306.2**	**288.3**	**844.3**	**1,080.2**	**222.6**	**266.1**	**277.1**	**235.9**	**1,001.8**
Inter-segment sales eliminations	(0.8)	(0.9)	(0.8)	(2.6)	(3.2)	(1.0)	(0.8)	(0.8)	(0.7)	(3.4)
Total sales	**366.2**	**434.7**	**427.2**	**1,228.1**	**1,586.2**	**332.9**	**389.3**	**391.8**	**358.1**	**1,472.1**
Zeolyst joint venture net sales	38.3	49.5	32.3	120.2	162.9	32.7	30.7	37.6	42.8	143.8
Adjusted EBITDA:										
Environmental Catalysts & Services	58.4	64.9	65.3	188.6	249.6	56.4	64.3	61.9	61.0	243.6
Performance Materials & Chemicals	57.2	73.4	63.1	193.6	249.1	52.5	66.4	65.9	55.4	240.2
Total Segment Adjusted EBITDA	**115.6**	**138.3**	**128.4**	**382.2**	**498.7**	**108.9**	**130.7**	**127.8**	**116.4**	**483.8**
Corporate	(7.7)	(9.4)	(10.3)	(27.3)	(34.4)	(7.7)	(7.9)	(7.9)	(7.0)	(30.5)
Total Adjusted EBITDA	**107.9**	**128.9**	**118.1**	**354.9**	**464.3**	**101.2**	**122.8**	**119.9**	**109.4**	**453.3**
Zeolyst Joint Venture Adjusted EBITDA[1]	16.8	17.9	10.5	45.2	63.7	12.1	13.2	14.4	18.5	58.2
Adjusted EBITDA Margin:										
Environmental Catalysts & Services[2]	37.6%	36.3%	38.0%	37.2%	37.1%	39.2%	41.6%	40.4%	36.8%	39.4%
Performance Materials & Chemicals	22.9%	24.0%	21.9%	22.9%	23.1%	23.6%	25.0%	23.8%	23.5%	24.0%
Total Adjusted EBITDA Margin[2]	**26.7%**	**26.6%**	**25.7%**	**26.3%**	**26.5%**	**27.7%**	**29.2%**	**27.9%**	**27.3%**	**28.1%**

PQ Corporation

(1) Zeolyst joint venture adjusted EBITDA, included in Environmental Catalysts & Services, includes equity in net income plus proportionate 50% share of joint venture depreciation, amortization and interest

(2) Adjusted EBITDA margin calculation includes proportionate 50% share of net sales from Zeolyst joint venture.

2005 – 2017 RECONCILIATIONS

Legacy Business – Sales & Adjusted EBITDA, Leverage Ratio

($ in millions)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015 Pro forma [3]	2016 Pro forma [3]	2017
	Year Ended December 31,												
Reconciliation of sales and adjusted EBITDA													
Legacy PQ Sales [1]	635.3	708.6	775.0	977.0	1,009.9	1,087.9	1,115.0	1,084.8	1,085.0	1,114.9			
Legacy Eco Services Sales [2,5]	260.2	288.7	289.4	449.4	293.9	331.0	415.4	410.4	390.8	397.4			
Total Legacy Sales	**895.5**	**997.3**	**1,064.4**	**1,426.4**	**1,303.8**	**1,418.9**	**1,530.4**	**1,495.2**	**1,475.8**	**1,512.3**	**1,413.2**	**1,403.0**	**1,472.1**
Zeolyst Joint Venture total net sales	**45.6**	**60.4**	**63.8**	**69.4**	**63.2**	**69.9**	**99.0**	**87.3**	**148.5**	**106.7**	**159.8**	**131.3**	**143.8**
Legacy PQ Adjusted EBITDA[1]	119.6	151.2	177.3	164.3	225.4	253.8	274.6	268.7	306.8	288.1			
Legacy Eco Services Adjusted EBITDA [2,5]	71.5	99.0	96.0	106.4	97.5	93.6	99.8	110.8	105.5	107.2			
Total Adjusted EBITDA	**191.1**	**250.2**	**273.3**	**270.7**	**322.9**	**347.4**	**374.4**	**379.5**	**412.3**	**395.3**	**413.1**	**420.8**	**453.3**
% Adjusted EBITDA Margin[4]	**20.3%**	**23.7%**	**24.2%**	**18.1%**	**23.6%**	**23.3%**	**23.0%**	**24.0%**	**25.4%**	**24.4%**	**26.3%**	**27.4%**	**28.1%**

(1) Legacy PQ is the results of PQ Holdings Inc. prior to the Business Combination in May 2016
(2) Legacy Eco Services is the results of Eco Services which prior to December 1, 2014 was part of Solvay / Rhodia. Information for 2005 through 2010 is derived from financial information obtained in connection with the acquisition of Legacy Eco and is unaudited and, in some cases, is based upon management estimates
(3) Reflects unaudited pro forma results which gives effect to the Business Combination
(4) Adjusted EBITDA margin calculation includes proportionate 50% share of sales from Zeolyst joint venture
(5) Balances presented for Legacy Eco Services in 2014 includes $361.8 and $35.5 of sales and $98.1 and $9.1 of Adjusted EBITDA, for the predecessor and successor periods, respectively. Refer to additional reconciliations for details.

PQ Corporation

2005 – 2014 RECONCILIATIONS FOR ADJUSTED EBITDA AND MARGINS

Legacy PQ[1] – Net Income (Loss) to Adjusted EBITDA Reconciliation

	Year Ended December 31,									
($ in millions)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Reconciliation of net income (loss) attributable to Legacy PQ to Adjusted EBITDA										
Net income (loss) attributable to PQ Group Holdings Inc.	(41.9)	14.2	(64.7)	(168.2)	(10.6)	11.5	(65.4)	5.2	26.7	(3.6)
Provision for (benefit from) income taxes	(2.2)	14.0	(29.5)	(28.7)	(12.1)	(4.7)	(0.4)	18.9	10.6	7.5
Interest expense	38.3	51.9	79.5	119.2	117.8	112.9	121.2	111.2	120.3	111.6
Depreciation and amortization	44.6	46.8	57.1	88.6	99.6	96.1	98.0	93.4	89.4	91.3
EBITDA	**38.8**	**126.9**	**42.4**	**10.9**	**194.7**	**215.8**	**153.4**	**228.7**	**247.0**	**206.8**
Joint venture depreciation, amortization and interest	2.4	2.1	2.1	2.3	2.1	2.5	3.2	3.3	6.1	6.9
Amortization of investment in affiliate step-up	6.1	1.2	24.7	4.0	2.7	2.7	2.7	2.6	2.4	2.4
Amortization of inventory step-up	32.7	14.0	22.2	28.3	—	—	—	—	—	—
Impairment of long-lived and intangible assets	—	—	—	—	0.3	4.2	67.0	—	0.9	—
Debt extinguishment costs	—	—	32.6	—	—	—	2.3	20.1	20.3	2.5
Net loss on asset disposals	0.3	0.2	0.7	0.1	1.0	(1.1)	2.2	0.8	0.7	0.7
Foreign currency exchange loss	—	—	1.2	77.0	(26.9)	13.9	5.6	(1.9)	4.4	23.4
Non-cash revaluation of inventory, including LIFO	(0.8)	—	1.7	1.1	7.6	(1.5)	1.5	0.3	1.2	0.8
Management advisory fees	—	2.0	2.0	3.5	5.0	5.0	7.0	7.5	5.0	5.0
Transaction related costs	29.9	0.5	35.8	11.5	0.5	5.5	7.9	0.5	5.6	24.4
Equity-based and other non-cash compensation	0.1	0.1	0.3	0.7	0.2	1.0	0.3	—	1.0	—
Restructuring, integration and business optimization expenses	12.6	4.4	7.3	7.3	11.7	2.6	5.9	5.6	5.4	4.6
Defined benefit plan pension cost	—	—	—	0.6	(0.1)	—	—	0.5	3.6	1.8
Other	(2.5)	(0.2)	4.3	17.0	26.6	3.2	15.6	0.7	3.2	8.8
Adjusted EBITDA	**119.6**	**151.2**	**177.3**	**164.3**	**225.4**	**253.8**	**274.6**	**268.7**	**306.8**	**288.1**

PQ Corporation

(1) Legacy PQ is the results of PQ Holdings Inc. prior to the Business Combination in May 2016

2005 – 2014 RECONCILIATIONS FOR ADJUSTED EBITDA AND MARGINS

Legacy Eco Services[1] - Net Income (Loss) to Adjusted EBITDA Reconciliation

($ in millions)	Year Ended December 31, 2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 Successor	2014 Predecessor
Reconciliation of net income (loss) attributable to Legacy Eco Services to Adjusted EBITDA											
Net income (loss) attributable to PQ Group Holdings Inc.	45.4	73.0	73.8	86.0	73.4	65.4	35.8	48.5	39.3	(22.1)	30.5
Provision for (benefit from) income taxes	—	—	—	—	—	—	20.5	26.3	21.4	—	14.6
Interest expense	—	—	—	—	—	—	0.2	0.2	0.1	8.5	0.1
Depreciation and amortization	26.1	26.0	22.2	20.4	24.1	27.5	30.7	38.8	43.5	3.0	42.5
EBITDA	**71.5**	**99.0**	**96.0**	**106.4**	**97.5**	**92.9**	**87.2**	**113.8**	**104.3**	**(10.6)**	**87.7**
Amortization of inventory step-up	—	—	—	—	—	—	2.1	—	—	3.5	—
Net loss on asset disposals	—	—	—	—	—	—	—	—	—	—	—
Management advisory fees	—	—	—	—	—	—	—	—	—	—	—
Transaction related costs	—	—	—	—	—	—	—	—	—	15.5	—
Equity-based and other non-cash compensation	—	—	—	—	—	—	0.4	0.6	0.7	—	0.5
Restructuring, integration and business optimization expenses	—	—	—	—	—	—	—	—	—	0.2	—
Defined benefit plan pension cost	—	—	—	—	—	—	—	—	—	—	—
Transition services	—	—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	0.7	10.1	(3.6)	0.5	0.5	9.9
Adjusted EBITDA	**71.5**	**99.0**	**96.0**	**106.4**	**97.5**	**93.6**	**99.8**	**110.8**	**105.5**	**9.1**	**98.1**

PQ Corporation

(1) Legacy Eco Services is the results of Eco Services which prior to December 1, 2014 was part of Solvay / Rhodia. Information for 2005 through 2010 is derived from financial information obtained in connection with the acquisition of Legacy Eco and is unaudited and, in some cases, is based upon management estimates.

2015 – 2017 RECONCILIATIONS FOR ADJUSTED EBITDA AND MARGINS

Post-Business Combination PQ – Net Income (Loss) to Adjusted EBITDA Reconciliation

($ in millions)	Year Ended December 31, 2015 Pro forma [1]	2016 Pro forma [1]	2017
Reconciliation of net income (loss) attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA			
Net income (loss) attributable to PQ Group Holdings Inc.	(26.9)	(59.0)	57.6
Provision for (benefit from) income taxes	1.2	58.0	(119.2)
Interest expense	199.6	187.9	179.0
Depreciation and amortization	152.2	165.8	177.1
EBITDA	**326.1**	**352.7**	**294.5**
Joint venture depreciation, amortization and interest	7.9	10.3	11.1
Amortization of investment in affiliate step-up	6.6	5.8	8.6
Amortization of inventory step-up	—	4.9	0.9
Impairment of long-lived and intangible assets	0.4	6.9	—
Debt extinguishment costs	—	1.8	61.9
Net loss on asset disposals	5.5	4.8	5.8
Foreign currency exchange loss	21.1	(9.0)	25.8
Non-cash revaluation of inventory, including LIFO	(2.1)	1.3	3.7
Management advisory fees	5.6	5.3	3.8
Transaction related costs	13.2	2.6	7.4
Equity-based and other non-cash compensation	4.2	6.5	8.8
Restructuring, integration and business optimization expenses	8.6	17.9	13.2
Defined benefit plan pension cost	6.1	2.8	2.9
Transition services	4.9	—	—
Other	5.1	6.2	4.9
Adjusted EBITDA	**413.2**	**420.8**	**453.3**

PQ Corporation

(1) Reflects unaudited pro forma results which gives effect to the Business Combination as further described in the company's annual report on Form 10-K for the year ended December 31, 2017

friendlier products
for a cleaner,
safer world

sustainable
growth

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