

APPENDIX



Management Bios



Belgacem Chariag

Chairman, President and Chief Executive Officer

Mr. Chariag joined PQ Corporation in August 2018. Prior to joining PQ, he served as Chief Global Operations Officer at Baker Hughes, a GE Company, where he headed the operations of the global entity after Baker Hughes' merger with GE Oil & Gas, until January 2018. Prior to that, Mr. Chariag served as President, Global Operations as well as President, Global Products and Services for Baker Hughes. He also previously served as President of Baker Hughes Eastern Hemisphere Operations.

Prior to joining Baker Hughes in 2009, and for 20 years, Mr. Chariag held a variety of leadership and management roles for Schlumberger, including serving as President of Well Services Business Unit and Vice President of Global Health, Safety, Environment and Security. He earned a Bachelor of Science degree in Petroleum Engineering from the University of Texas and a Master of Business Administration degree in Global Energy from the University of Calgary Haskayne School of Business.



Mike Crews

Executive Vice President and Chief Financial Officer

Mr. Crews joined PQ Corporation in August 2015. Prior to joining PQ, he was Executive Vice President and Chief Financial Officer at Peabody Energy Corporation from 2008 to 2015. From 1998 to 2008, Mr. Crews held various executive and management positions at Peabody Energy Corporation in Operations Planning, Treasury and Financial Planning and Analysis. Mr. Crews began his career in KPMG's audit function. He earned a Bachelor of Science degree in Accounting from the University of Missouri-Columbia and a Master of Business Administration degree from Washington University in St. Louis.

Management Bios



Mike Feehan

Vice President of Finance and Treasurer

Mr. Feehan first joined PQ Corporation in December 2006 and has served as Vice President of Finance and Treasurer since May 2016. From 2008 to 2016 he served as Corporate Controller. Prior to joining PQ, Mr. Feehan served as Director of Finance and Corporate Controller for Radnor Holdings Corporation, and began his career in public accounting with Arthur Andersen and KPMG.

He holds a Bachelor of Business Administration degree in Accounting and Computer Applications from the University of Notre Dame and a Master of Business Administration degree from Villanova University.



Tom Schneberger

President of the Catalysts Group

Mr. Schneberger was named President, Catalyst Technologies in March 2021. He joined PQ Corporation in December 2019 to lead strategy and business development efforts. He played a key role in transforming PQ into a high-growth catalyst and related services company. Prior to PQ, Mr. Schneberger served as the Chief Operating Officer for FMC, Lithium, which publicly listed as Livent, and the Global Business Director for FMC, Alkali Chemicals. During his tenure at FMC, he also led the creation and implementation of FMC's award-winning sustainability program.

Prior to joining FMC, he held various leadership and management roles at Rhône Poulenc, Rhodia, Safety Compliance Management and General Chemical. He earned a Master of Business Administration from the University of California at Berkeley, a Bachelor of Science in Chemical Engineering from Lehigh University and currently sits on the Board for Habitat for Humanity Philadelphia.

Management Bios



Dr. Ray Kolberg
Vice President, Technology
& Business Development

Dr. Kolberg joined PQ Corporation in 2016 and is responsible for leading PQ's innovation and business development efforts. He had previously held the position of Group President of the Catalysts business, which includes the Zeolyst International joint venture with Shell Catalysts and Technologies. Prior to joining PQ, Dr. Kolberg held leadership positions at GE and Momentive Performance Materials Inc. Dr. Kolberg is a graduate of Baldwin Wallace College in Berea, Ohio, where he earned a Bachelor of Arts in Business Administration. He also holds a Bachelor of Science in Mechanical Engineering from Case Western Reserve University in Cleveland; a Master of Science degree in Mechanical Engineering from Rensselaer Polytechnic Institute in Troy, New York; and a Ph.D. in Mechanical Engineering from the University of Michigan in Ann Arbor.



Kurt Bitting
President, Refining Services

Mr. Bitting joined Eco Services in 2006, serving as Vice President, Business Director, and Sulfur Products Manager. Prior to joining PQ, Mr. Bitting held management positions at Kinder Morgan, Inc. and Sprint Corporation. As a Captain in the U.S. Army, Mr. Bitting served as a Company Commander in the 10th Mountain Division. He was the recipient of an Army ROTC scholarship and graduated from Villanova University with a Bachelor of Science in Business Administration and holds a Master of Business Administration degree from Rider University.

Management Bios



Nahla A. Azmy

**Vice President, Investor Relations and
Financial Communications**

Ms. Azmy joined PQ Corporation in January 2018. She has nearly 20 years of experience as a senior investor relations officer and equity analyst. Prior to joining PQ, Ms. Azmy was Head of Investor Relations for Versum Materials, which was spun out of Air Products in October 2016. At Versum she developed and executed an investor relations program for the company. Her previous roles included leading investor relations programs for Alcoa, Rockwood Holdings, and NRG Energy. Before joining NRG, Ms. Azmy was an equity analyst for eight years with a top-ranked Utilities and Power Research team. Ms. Azmy holds a Bachelor of Arts from Colgate University, a Master of Business Administration degree from NYU Stern School of Finance and was awarded the NIRI IRC credential.



Chris Hall

Corporate Controller

Mr. Hall joined PQ Corporation as Corporate Controller in August 2016. Prior to joining PQ, Mr. Hall spent seven years at Airgas, Inc., a leading manufacturer and distributor of industrial, medical and specialty gases, most recently as the Director of Financial Reporting. Mr. Hall began his career in public accounting with PricewaterhouseCoopers, spending nine years in the audit practice working with companies in the utilities, energy and manufacturing sectors. He graduated with a Bachelor of Science in Accounting and International Business from Pennsylvania State University and earned a Master of Business Administration degree from Villanova University.

Management Bios



Elaine T. Simpson

Vice President, Health, Safety, Environment & Sustainability

Ms. Simpson assumed the role of Vice President, Health, Safety, Environment & Sustainability in March 2021, having joined PQ Corporation in 2002. For the past few years, she has focused on improving PQ's environmental performance while also leading efforts to develop and implement a robust sustainability program. Ms. Simpson previously served as Vice President of Health, Safety and Environment (HSE) for 14 years. Prior to joining PQ, Ms. Simpson held numerous HSE leadership roles throughout her career, which began in BP Oil Company's downstream refining business and progressed to Tremco Inc. and The Mead Corporation. She holds a Bachelor of Science in Chemical Engineering from Washington University in St. Louis, and both a Master of Science and Master of Business Administration degree from Case Western Reserve University.



Joseph S. Koscinski

Vice President, Secretary and General Counsel

Mr. Koscinski became Vice President, Secretary and General Counsel in November 2015. From August 1995 to October 2015, Mr. Koscinski was an attorney in the Business Services Group of Babst, Calland, Clements and Zomnir, P.C., a law firm in Pittsburgh, Pennsylvania, where he was named a shareholder in 2003, and where his corporate practice included mergers and acquisitions, real estate matters and commercial contracts. While in private practice, Mr. Koscinski served as outside corporate counsel to PQ Corporation since 2005. He holds a Bachelor of Arts in Journalism and Communication from Point Park University in Pittsburgh and a Juris Doctor from Duquesne University School of Law.

GAAP Reconciliations 2017-2020

RECONCILIATION OF NET INCOME (LOSS) TO SEGMENT ADJUSTED EBITDA

(\$ in millions)	Continuing Operation		Legacy PQ	
	Year Ended	Year Ended	Year Ended	Year Ended
	December 31,	December 31,	December 31,	December 31,
	2020	2019	2018	2017
Reconciliation of net income (loss) attributable to PQ Group Holdings Inc. to Segment Adjusted EBITDA				
Net (loss) income attributable to PQ Group Holdings Inc.	(176.3)	65.1	58.3	57.6
Provision for (benefit from) income taxes	(48.1)	39.7	29.0	(119.2)
Interest expense	67.0	87.1	113.7	179.0
Depreciation and amortization	151.8	151.8	185.2	177.1
EBITDA	(5.6)	343.7	386.2	294.5
Joint venture depreciation, amortization and interest ^a	14.7	14.7	12.6	11.1
Amortization of investment in affiliate step-up ^b	6.6	7.5	6.6	8.6
Amortization of inventory step-up ^c	—	—	1.6	0.9
Impairment of fixed assets, intangibles and goodwill	260.0	—	—	—
Debt extinguishment costs	25.0	3.4	7.8	61.9
Net (gain) loss on asset disposals ^d	(0.1)	(13.2)	6.6	5.8
Foreign currency exchange (gain) loss ^e	(4.2)	2.4	13.8	25.8
LIFO expense ^f	(5.2)	9.7	8.4	3.7
Management advisory fees ^g	—	—	—	3.8
Transaction and other related costs ^h	8.6	0.4	0.9	7.4
Equity-based and other non-cash compensation	21.5	16.2	19.5	8.8
Restructuring, integration and business optimization expenses ⁱ	15.6	3.6	14.0	13.2
Defined benefit plan pension cost (benefit) ^j	—	3.0	(0.8)	2.9
Gain on contract termination ^k	—	—	(20.6)	—
Other ^l	1.1	2.5	7.4	4.9
Adjusted EBITDA	338.0	393.9	464.0	453.3
Unallocated corporate costs	36.1	41.0	37.0	30.5
Total Segment Adjusted EBITDA ¹	374.1	434.9	501.0	483.8

1. For additional information with respect to each adjustment, see "Descriptions for Reconciliation of Non-GAAP Financial Measures"

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

GAAP Reconciliations 2017-2020

SEGMENT SALES, ADJUSTED EBITDA AND MARGINS

	Continuing Operation		Legacy PQ	
	Year Ended	Year Ended	Year Ended	Year Ended
	December 31,	December 31,	December 31,	December 31,
(\$ in millions except %)	2020	2019	2018	2017
PQ Group Holdings Inc. Sales:				
Refining Services	401.9	447.1	455.6	398.4
Silica Catalysts	94.0	85.7	72.1	75.3
Performance Materials	—	—	378.3	324.2
Performance Chemicals	614.7	670.5	717.3	687.6
Eliminations	(3.2)	(3.4)	(15.1)	(13.4)
Total PQ Group Holdings Inc. sales	1,107.4	1,199.9	1,608.2	1,472.1
Zeolyst joint venture sales	128.6	170.3	156.7	143.8
ecovyst Sales:				
Refining Services	401.9	447.1	455.6	398.4
Silica Catalysts	94.0	85.7	72.1	75.3
Total ecovyst sales	495.9	532.8	527.7	473.7
Zeolyst joint venture sales	128.6	170.3	156.7	143.8
PQ Group Holdings Inc. Adjusted EBITDA:				
Refining Services	157.2	175.6	176.5	154.2
Catalysts	74.5	107.8	81.1	89.4
Performance Materials	—	—	72.5	69.7
Performance Chemicals	142.4	151.5	170.9	170.5
Total PQ Group Holdings Inc. Segment Adjusted EBITDA	374.1	434.9	501.0	483.8
Corporate	(36.1)	(41.0)	(37.0)	(30.5)
Total PQ Group Holdings Inc. Adjusted EBITDA	338.0	393.9	464.0	453.3
ecovyst Adjusted EBITDA:				
Refining Services	157.2	175.6	176.5	154.2
Catalysts	74.5	107.8	81.1	89.4
Total ecovyst Segment Adjusted EBITDA	231.7	283.4	257.6	243.6
Corporate	(36.1)	(41.0)	(37.0)	(30.5)
Total ecovyst Adjusted EBITDA	195.6	242.4	220.6	213.1
ecovyst Adjusted EBITDA Margin:				
Refining Services	39.1%	39.3%	38.7%	38.7%
Catalysts ¹	33.5%	42.1%	35.4%	40.8%
Total ecovyst Adjusted EBITDA Margin ¹	31.3%	34.5%	32.2%	34.5%

GAAP Reconciliations 2017-2020

DESCRIPTIONS FOR RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

- a) We use Adjusted EBITDA as a performance measure to evaluate our financial results. Because our Catalysts segment includes our 50% interest in the Zeolyst Joint Venture, we include an adjustment for our 50% proportionate share of depreciation, amortization and interest expense of the Zeolyst Joint Venture.
- b) Represents the amortization of the fair value adjustments associated with the equity affiliate investment in the Zeolyst Joint Venture as a result of the combination of the businesses of PQ Holdings Inc. and Eco Services Operations LLC ("Eco") 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 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 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 year ended December 31, 2019, the net gain on asset disposals includes the gains related to the sale of a non-core product line and sale of property.
- e) Reflects the exclusion of the foreign currency transaction gains and losses in the statements of income primarily related to the non-permanent intercompany debt denominated in local currency translated to U.S. dollars.
- f) Represents non-cash adjustments to the Company's LIFO reserves for certain inventories in the U.S. that are valued using the LIFO method, which we believe provides a means of comparison to other companies that may not use the same basis of accounting for inventories.
- g) Reflects consulting fees paid to CCMP and affiliates of INEOS for consulting services that include certain financial advisory and management services. These consulting agreements were terminated upon completion of our IPO on October 3, 2017
- h) Represents the 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 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.
- k) Represents a non-cash gain on the write-off of the remaining liability under a contractual supply arrangement. As part of the acquisition by Eco Services Operations LLC of substantially all of the assets of Solvay USA Inc.'s sulfuric acid refining business unit on December 1, 2014, we recognized a liability as part of business combination accounting related to our obligation to serve a customer under a pre-existing unfavorable supply agreement. In December 2018, the customer who was party to the agreement closed its facility, and as a result, we were relieved from our obligation to continue to supply the customer on the below market contract. Because the fair value of the unfavorable contract liability was recognized as part of the application of business combination accounting, and since the write-off of the remaining liability was non-cash in nature, we believe this gain is a special item that is not representative of our ongoing business operations.
- l) Other costs consist of certain expenses that are not core to our ongoing business operations, including environmental remediation-related costs associated with the legacy operations of our business prior to the Business Combination, capital and franchise taxes, and non-cash asset retirement obligation accretion. Included in this line-item are rounding discrepancies that may arise from rounding from dollars (in thousands) to dollars (in millions).