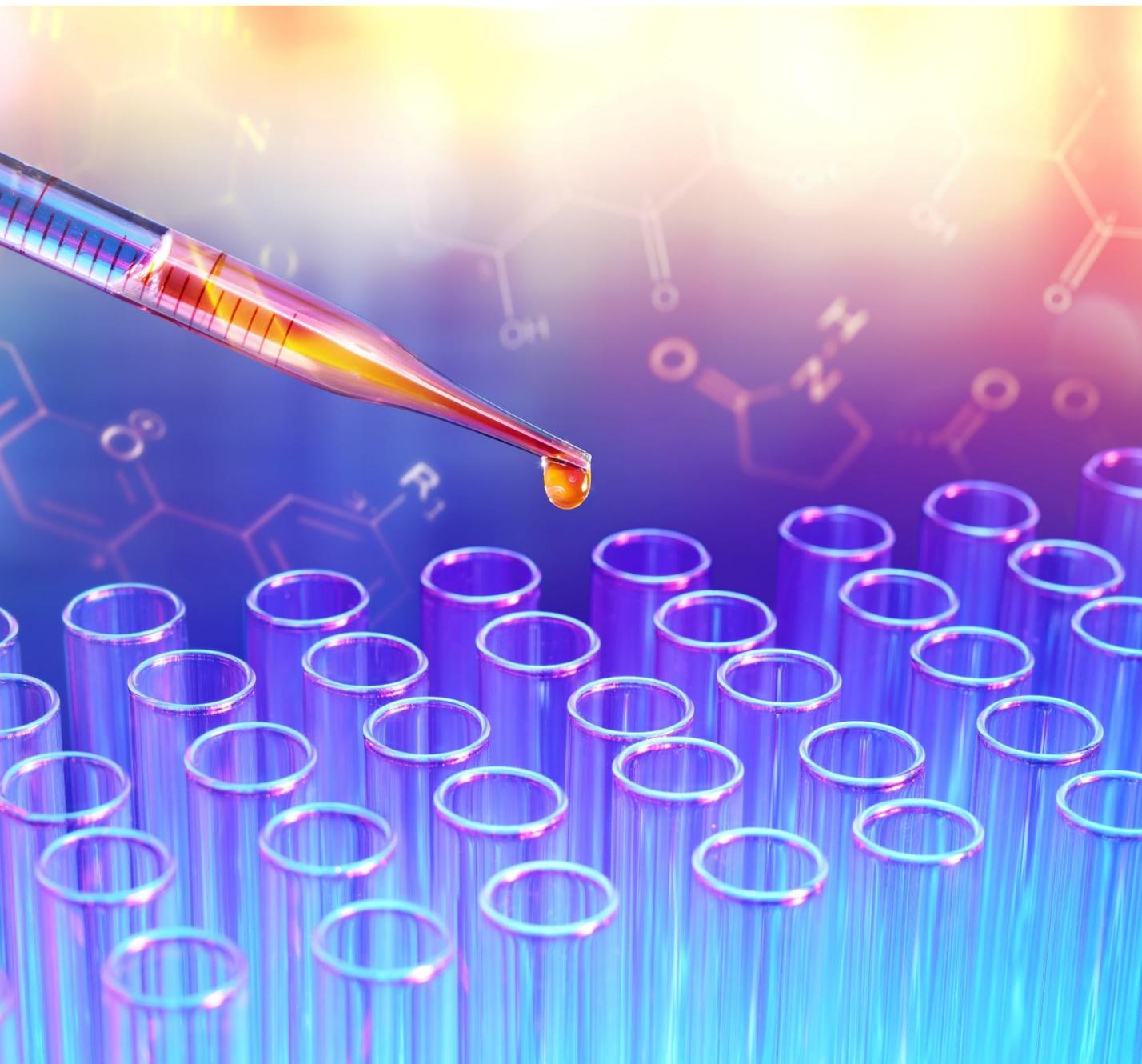




HOULIHAN LOKEY

CHEMICALS UPDATE

Winter 2019



Introduction

Dear Clients and Friends,

Houlihan Lokey is pleased to present its Chemicals Industry Update for winter 2019.

In this issue, we have included relevant news stories, recent M&A transaction announcements, a public markets overview, and other industry insights to help you stay ahead in this evolving industry. We hope you find this quarterly update to be informative and that it serves as a valuable resource to you in staying abreast of the market. If there is additional content you would find useful for future updates, please don't hesitate to call or email us with your suggestions. We look forward to staying in touch with you.

Regards,

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Houlihan Lokey is the trusted advisor to more top decision-makers than any other independent global investment bank.

Corporate Finance

2018 M&A Advisory Rankings All U.S. Transactions		
	Advisor	Deals
1	Houlihan Lokey	207
2	Goldman Sachs & Co	197
3	JP Morgan	154
4	Morgan Stanley	135
5	Jefferies LLC	117

Source: Thomson Reuters

No. 1 U.S. M&A Advisor

Top 10 Global M&A Advisor

Leading Capital Markets Advisor

Financial Restructuring

2018 Global Distressed Debt & Bankruptcy Restructuring Rankings		
	Advisor	Deals
1	Houlihan Lokey	63
2	PJT Partners Inc.	45
3*	Moelis & Co.	36
3*	Lazard	36
3*	Rothschild & Co.	36

Source: Thomson Reuters
* Denotes tie

No. 1 Global Restructuring Advisor

1,000+ Transactions Completed

Valued at More Than \$2.5 Trillion Collectively

Financial Advisory

1999 to 2018 Global M&A Fairness Advisory Rankings		
	Advisor	Deals
1	Houlihan Lokey	1,073
2	JP Morgan	971
3	Duff & Phelps	728
4	Bank of America Merrill Lynch	660
5	Morgan Stanley	659

Source: Thomson Reuters. Announced or completed transactions.

No. 1 Global M&A Fairness Opinion Advisor Over the Past 20 Years

1,000+ Annual Valuation Engagements

Selected Transactions

<p>has acquired</p> <p>Buy-side Advisor</p>	<p>a portfolio company of</p> <p>has been acquired by</p> <p>Sell-side Advisor</p>	<p>has completed the spin-off of</p> <p>Financial Opinion</p>	<p>has sold certain assets to</p> <p>Fairness Opinion</p>	<p>has merged with</p> <p>Fairness Opinion</p>
<p>has been acquired by</p> <p>Sell-side Advisor</p>	<p>a portfolio company of</p> <p>has been acquired by</p> <p>Sell-side Advisor</p>	<p>has been acquired by</p> <p>Financial Opinion</p>	<p>has acquired</p> <p>from</p> <p>Arsenal Capital Partners</p> <p>Buy-side Advisor</p>	<p>has completed a merger with the chemicals business of PPG in a Reverse Morris Trust transaction</p> <p>Financial Advisor</p>

Houlihan Lokey Media Mention – Q&A With Lee Harrs



Paint & Coatings Industry Magazine (PCI) Discusses M&A Activity with Global Advisor, Houlihan Lokey

“Houlihan Lokey is a global investment bank with expertise in mergers and acquisitions (M&A), capital markets, financial restructuring, valuation, and strategic consulting. The firm serves corporations, institutions and governments worldwide with offices in the United States, Europe, the Middle East and the Asia-Pacific region. Houlihan Lokey is ranked as the No. 1 M&A advisor for all U.S. transactions and all U.S. industrial transactions, the No. 1 global restructuring advisor, and the No. 1 global M&A fairness opinion advisor over the past 20 years, according to Thomson Reuters. The company is among the most active advisors in the global coatings sector, and recently advised on the sale of Dunn-Edwards to Nippon Paint, the sale of Helios to Kansai Paint, the sale of both MetoKote and Crown Paints to PPG Industries, and the acquisition of IGM Resins by Astorg private equity. Lee Harrs is head of Houlihan Lokey’s Chemicals practice. As a member of the firm’s Industrials Group, he is responsible for managing banking relationships with public and private clients in the global chemical and related sectors, and providing strategic ideas and advice related to M&A activity and capital raising. Harrs focuses on specialty chemicals and related sub-sectors, including formulated products, adhesives, sealants, coatings, and resins. He has more than 20 years of investment banking experience in the chemicals industry.

PCI recently asked Mr. Harrs some questions regarding the M&A climate in the coatings industry.

PCI: M&A activity in the coatings sector has been brisk recently. What do you see as the key drivers for this consolidation activity? What is motivating buyers and sellers?

Harrs: M&A activity in the coatings sector has been and remains brisk. The sector has seen significant consolidation in the past decade, with the top 10 players accounting for just over half of global sales of approximately \$130 billion. Nevertheless, it remains highly fragmented, with over 7,500 independent players globally. There are several drivers of consolidation. Large, strategic acquirers can often achieve significant cost synergies, which lowers the effective multiple (price paid) for an acquisition. Raw material purchasing synergies can be meaningful, with large buyers enjoying volume discounts for purchases of resin, titanium dioxide, etc. Also, typically there are opportunities to reduce headcount, including C-suite employees, and eliminate duplicative spending in areas like IT, compliance, and other support functions. In some cases, the savings can amount to as much as 50 percent of the target’s earnings before interest, taxes, depreciation, and amortization (EBITDA). This enables strategic acquirers to pay a premium to the price that a financial buyer (who lacks synergies) could afford. Large coatings players typically have lower unit production costs, which makes it difficult for smaller, independent players to compete on price and protect market share.

Houlihan Lokey Media Mention – Q&A With Lee Harrs (cont.)

Smaller companies who are at a structural cost disadvantage need to consider the long-term threat of the major players. Differentiation, specialization, product performance, and customer service are all key to survival. Aside from the benefits of scale, acquiring companies often are seeking growth and diversification of revenues by product, market, and geography.

PCI: Do you expect the pace of M&A activity to remain at a high level?

Harrs: We see no signs of a letup in activity or acquisition appetite among the majors. In fact, recently, we have seen the emergence of players outside the top three (PPG, Sherwin-Williams, and Akzo) as consolidators. These companies include Nippon Paint, Kansai, and more recently, Hempel. In an environment of modest organic growth, acquisitions are seen as the means of achieving above-market growth and shareholder value creation. From a selling perspective, smaller companies often sell for 'generational' issues, for example when the founders or family owners seek liquidity due to retirement or other financial planning purposes. We also see some sellers motivated by the prevailing high multiples. Large corporates and financial buyers are actively scouting the universe of smaller, private players, and are prepared to pay handsomely for the right company.

PCI: Can you discuss valuations and transaction multiples? What are the trends?

Harrs: Valuations and transaction multiples are at all-time highs. Across the board, we see at least two turns of EBITDA premium to levels of just a few years ago. So if a company sold for eight times EBITDA in 2015, that same company will likely trade for closer to 10 times EBITDA in today's market. This has given rise to the saying that '10 is the new eight times' in banker parlance. Premium valuations are supported by a robust economy and the ample availability of capital, including both inexpensive debt and abundant private equity. Particularly attractive assets, those that possess unique quality and scarcity, can sell for well in excess of 10 times EBITDA.

PCI: Can you share your observations on the role that private equity investors are playing in coatings sector M&A? What is driving their increased level of activity?

Harrs: The continued growth of private equity (PE) is underscored by a recent report that there is over \$1 trillion (with a 'T') in available, uninvested capital in the hands of private equity investors globally. PE funds represent formidable competition to strategic acquirers of coatings assets. They have demonstrated a willingness to 'stretch' their valuations to acquire platform companies in the coatings sector. They have often beaten strategics 'at their own game' through a combination of speed, certainty, and, of course, value. PE investors are attracted to the fundamental characteristics of the coatings sector: relatively low capital intensity and maintenance capital expenditures, high free cash flow, diversified customer base, and myriad consolidation or 'roll-up' opportunities among the 7,500 independent players globally.

PCI: What does your crystal ball say? What will the sector look like 10 years from now?

Harrs: I think the forces driving consolidation are compelling and not a flash in the pan. I have seen this trend play out over my 20-year career. Companies will always seek above-GDP growth and cost efficiencies. As long as there are willing sellers, there will be a bid for coatings companies. I think the big guys will continue to get bigger, and the 'tail' of thousands of smaller companies will remain long, as new entrants bring new services and technologies to what is a fundamentally attractive market."

<https://www.pcimag.com/articles/105482-pci-discusses-ma-activity-with-global-advisor-houlihan-lokey?v=preview>, December 5, 2018.

Houlihan Lokey Media Mentions (cont.)

Houlihan Lokey Continues Expansion of Its Global Industrials Group With Experienced Sector Banker Based in Frankfurt (*BusinessWire, November 5, 2018*)

“FRANKFURT, Germany--([BUSINESS WIRE](#))--Houlihan Lokey (NYSE:HLI), the global investment bank, today announced that Martin Bastian will join the firm in January 2019 as a Managing Director in the Industrials Group to lead the chemicals business in Europe, based in Frankfurt.

Mr. Bastian will join from Citigroup, where he was a Managing Director with senior coverage responsibilities in Germany and Switzerland, including chemicals sector clients as well as previously Head of EMEA Chemicals. Prior to Citigroup, he led the chemicals activities in Europe at Credit Suisse. Previous experience includes a similar role at Goldman Sachs in London and Frankfurt as well as investment banking positions at Merrill Lynch in New York.

‘Martin has more than 20 years of extensive international transaction experience, including M&A advisory, defense and strategic advisory, and capital raising across debt and equity products. During his career he has advised a wide variety of chemicals and industrials clients in Europe,’ said Ulrich Graebner, Head of Corporate Finance, Germany. ‘This expertise, combined with his local relationships and global experience, match perfectly with Houlihan Lokey’s culture and commitment to grow across Europe, its breadth of corporate and financial sponsor coverage, and its superior financing advisory capabilities, and I am excited that he will join us in Frankfurt,’ he added.

‘Over the course of my career, my approach to client service has been characterized by providing superior sector and execution expertise, strong relationships among both corporate and financial sponsor clients, and a passionate dedication to achieving exceptional results. I’m excited to join a firm that embodies this philosophy and to contribute to the growth of the global Chemicals practice in Europe,’ said Mr. Bastian. ‘Martin’s hire is representative of our efforts, and success, in adding outstanding bankers to our Industrials Group who will deliver excellent results to our clients. Further, this addition also underscores both the continued growth of the Industrials Group in Europe as well as our efforts to build a market-leading global chemicals practice in key markets around the world,’ said Bill Peluchowski, Global Head of the Industrials Group.

Mr. Bastian holds an M.B.A. from Duke University in the United States and a diploma in Business Administration from the Frankfurt School of Finance & Management. His hire follows the recent addition of David Brock to the Industrials Group to cover the building materials sector in London, announced in October.

With more than 90 bankers based in London, Frankfurt, New York, Chicago, Dallas, Washington, D.C., and Los Angeles, Houlihan Lokey’s Industrials Group is among the largest in financial services, providing superior service and achieving outstanding results in M&A advisory as well as capital-raising, restructuring, and financial advisory services. In 2017, Houlihan Lokey was ranked the No. 1 M&A advisor for all U.S. industrial transactions by Thomson Reuters.”

<https://www.businesswire.com/news/home/20181105005259/en/>, **November 5, 2018**

Selected Recent M&A News

Akzo Nobel Spinoff Nouryon Seeks Price Rises to Offset Higher Raw Material Costs (*The Wall Street Journal, December 24, 2018*)

“Dutch chemicals company Nouryon BV plans to continue raising prices, boost productivity, and increase production capacity in preparation for a potential stock-market listing.

Amsterdam-based Nouryon was spun out of coatings and paint maker Akzo Nobel NV and acquired by U.S. private-equity house Carlyle Group LP and Singapore’s GIC Private Ltd. this year, employing about 10,000 people worldwide.

Similar to peers including German chemicals firms BASF SE and Covestro AG, Nouryon has been suffering from rising raw material and energy costs over the course of the year. The chlorine manufacturer, which also produces performance chemicals used in athletic shoe soles and wall paint, is looking to further hike prices to offset those cost increases, Chief Financial Officer Renier Vree said in an interview with CFO Journal.

Nouryon has increased prices for its products on average by 7% since the beginning of the year, said Mr. Vree, adding that these increases don’t suffice to compensate for the rise in raw material costs. ‘I think there is room for more,’ he said. ‘I am the type of CFO that likes to get involved in these questions.’ Mr. Vree declined to comment on how much the company could raise prices in 2019.

In about 80% of product categories that it is competing in, Nouryon comes first or second in terms of sales, providing the company with leverage over its customers, said Markus Mayer, an analyst at Baader Bank AG in Munich.

‘Nouryon has a lot of pricing power, especially in areas like chlorine and caustic soda,’ he said. Caustic soda is used for manufacturing pulp, paper, soap and detergents, among other products. A potentially worsening of the global economic outlook—driven in part by the trade dispute between the U.S. and China and events such as Britain’s exit from the European Union—might make that task more challenging. Everyone in the industry is trying to raise prices now, Mr. Mayer said. ‘The move might be met with resistance from customers.’”

Bayer to Cut 12,000 Jobs, Sell Coppertone and Dr. Scholl’s Brands (*Axios.com, November 30, 2018*)

“Bayer announced plans on Thursday to sell multiple assets, including its animal health unit, sunscreen brand Coppertone, foot care brand Dr. Scholl’s, and its majority stake in German chemical park operator Currenta. It also will cut 10% of its workforce, representing around 12,000 jobs.

Why it matters: It’s an admission that Bayer bit off more than it could chew when it paid \$14 billion to buy Merck in 2014 and another \$63 billion to buy Monsanto earlier this year. And it’s yet another conglomerate eager to shrink its footprint.”

Selected Recent M&A News (cont.)

PPC Partners to Acquire Plaskolite, A Leading Provider of Transparent Thermoplastic Sheet Products (*Plaskolite Press Release, November 12, 2018*)

“PPC Partners today announced that it has signed a definitive agreement to acquire Plaskolite, LLC, North America’s largest provider of transparent thermoplastic sheet products, from an affiliate of Charlesbank Capital Partners. PPC Partners and other coinvestors are investing alongside the Dunn family, who founded the company, and Plaskolite’s management team, which will continue to lead the business. The transaction is expected to close in December 2018.

Founded in 1950 in Columbus, Ohio, by Donald G. Dunn, Plaskolite manufactures customized products for a wide variety of applications, including windows, doors, lighting, signs, point-of-purchase displays, and bath products. Plaskolite serves a diverse customer base including distributors, OEMs, and retailers.

‘We are delighted to partner with the Dunn family and management for the next phase of growth at Plaskolite. Plaskolite is a clear market leader with an outstanding team,’ said Tony Pritzker, Chairman and CEO of PPC Partners.

Michael Nelson, PPC Partners Investment Partner, noted, ‘Plaskolite’s customized product approach provides a distinct competitive advantage. The company has tremendous opportunities for growth, both through organic initiatives and accretive acquisitions.’

‘For over 65 years, Plaskolite has been a leader in innovation and customer service,’ Mitchell Grindley, Plaskolite CEO, stated. ‘We have enjoyed our partnership with Charlesbank and appreciate their valuable support and insight these past three years. We are now pleased to partner with PPC Partners, a firm that brings a philosophy of building great companies for the long-term and values our commitment to customers, employees, and the community.’”

Sika CEO Honors M&A Pledge with \$2.6 Billion French Mortar Deal (*Bloomberg News, January 8, 2019*)

“Eight months after Sika AG emerged from one of the more bitter takeover battles in European corporate history, Chief Executive Officer Paul Schuler is following through with a pledge to expand quickly through acquisitions.

The head of the Swiss construction materials maker on Tuesday unveiled the purchase of private equity-owned Parex Group for 2.5 billion Swiss francs (\$2.6 billion), the company’s largest takeover to date. The deal was made possible only after the ending of an exhausting four-year takeover attempt by Cie. de Saint Gobain SA, which stifled corporate activity and dominated management’s time. The capture of Parex from CVC Capital Partners will double the size of Sika’s mortars business, Schuler told reporters and analysts in Zurich, and will see the firm challenge Saint-Gobain in that market among the higher profit-margin segments in building materials. The combination is also expected to generate as much as 100 million francs (\$101 million) in savings and help Sika expand into Asia and Parex’s home market of France.

That said, Sika shares tumbled as much as 4.6%, the most since December 10, and traded 2.6% lower at 122.10 francs as of 3:58 p.m. in Zurich. Investors may view the acquisition as expensive at first glance, but expected synergies appear reasonable and will bring down the valuation over time, Baader Bank analyst Markus Mayer said in a note.”

Selected Recent M&A News (cont.)

PPG Weighs Splitting Building and Product-Coating Units (*The Wall Street Journal*, January 17, 2019)

“PPG Industries Inc. said it is conducting a review of its paint and coatings business that could result in a split of the company, following pressure from activist Trian Fund Management LP.

PPG’s shares fell 2% in premarket trading on Thursday as the company also said it saw softening global economic growth and declines in demand for its products in some countries.

Pittsburgh-based PPG makes coatings and paints of two kinds: for walls and rooms of buildings and homes; and for products such as cars and smartphones. The company said it would decide whether those architectural and industrial coatings businesses should be separated by the end of the second quarter.

PPG in recent years sold and spun off assets to focus on those two businesses. Trian has called for PPG to be broken up along those lines and for Chief Executive Michael McGarry to step down. *The Wall Street Journal* reported in October that Trian had taken a 2.9% stake in the company.

PPG said that month that its board unanimously supported Mr. McGarry. ‘We are very appreciative of the input and constructive dialogue that we have with all of our shareholders,’ Mr. McGarry said in a statement. The statement didn’t mention Trian by name. Trian declined to comment Thursday on PPG’s plans for a strategic review.

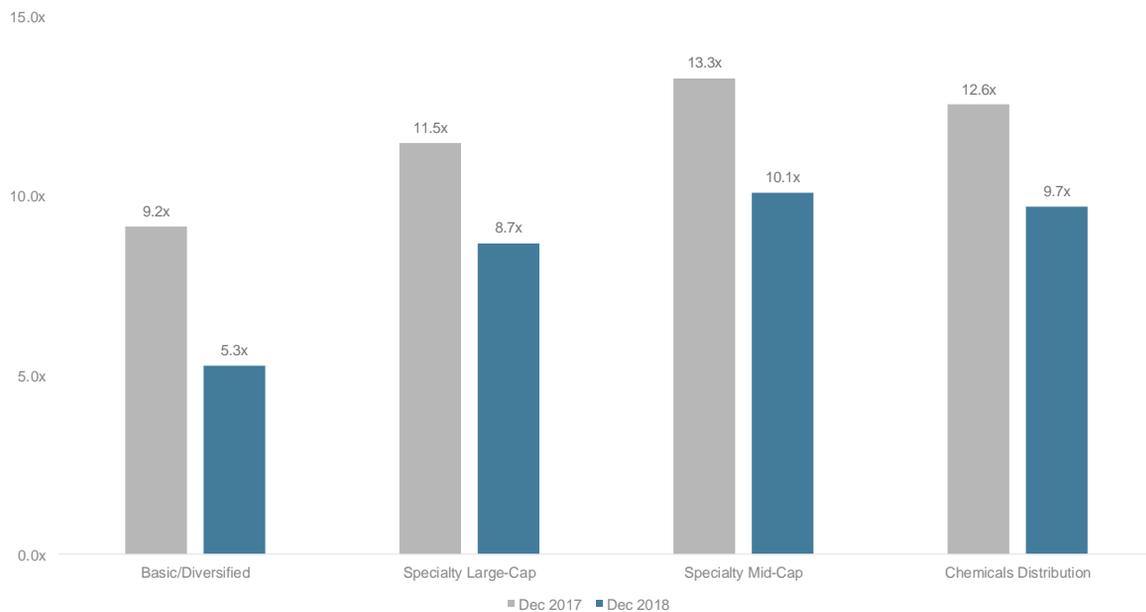
The company said in 2017 that about 40% of its revenue came from sales for architectural uses—home and building paints and coatings—and 60% from sales of its products for industrial uses.

PPG also set out sales and profit goals for the year, including constant-currency sales growth of 3% to 5% and adjusted earnings per share growth of 7% to 10%.

Rising costs continued to pressure PPG in 2018 as it paid more for the chemicals it uses to make paint and coatings, as well as for oil and shipping.”

Public Markets Overview

Median TEV/EBITDA Multiples



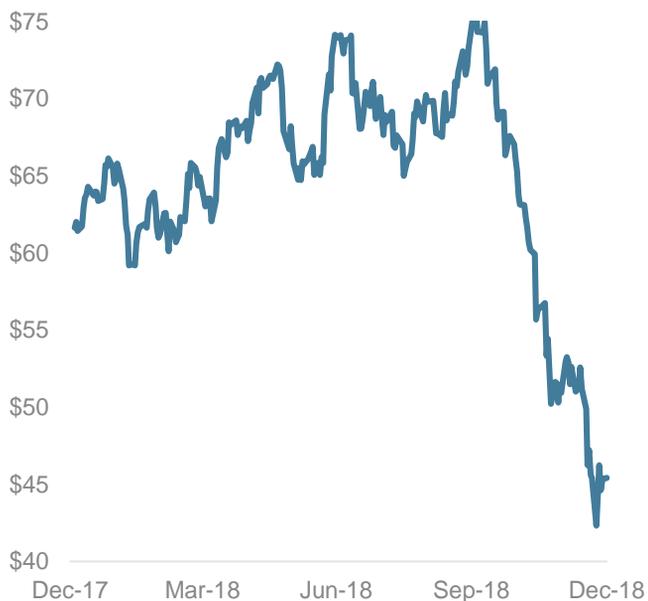
Stock Price Index



Selected Chemical Inputs (weekly index prices)

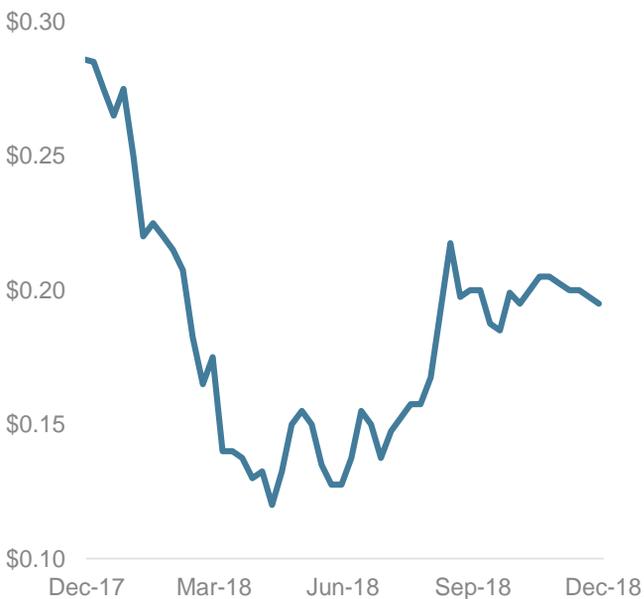
Crushing Crude Oil (WTI)

(\$ per barrel)



U.S. Gulf Ethylene (FD)

(\$ per pound)



U.S. Gulf Propylene (FD)

(\$ per pound)



U.S. Gulf Butadiene (CIF)

(\$ per pound)



Selected Chemical Inputs (weekly index prices, cont.)

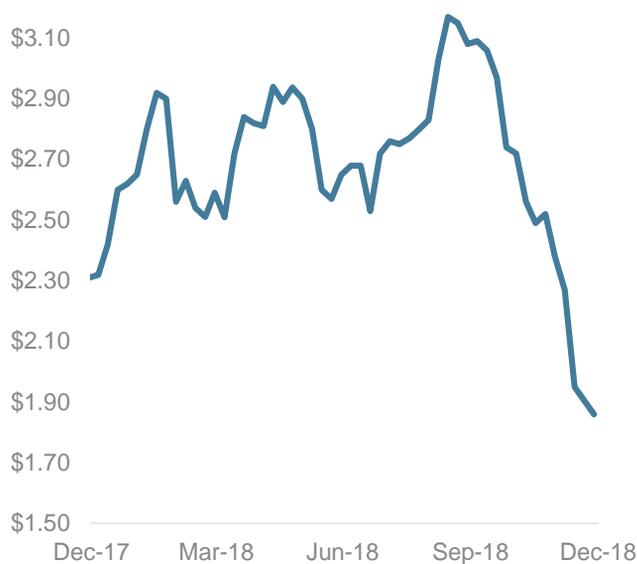
U.S. Gulf Benzene (FOB)

(\$ per gallon)



U.S. Mixed Xylene (FOB)

(\$ per gallon)



Natural Gas (Henry Hub)

(\$ per million Btu)



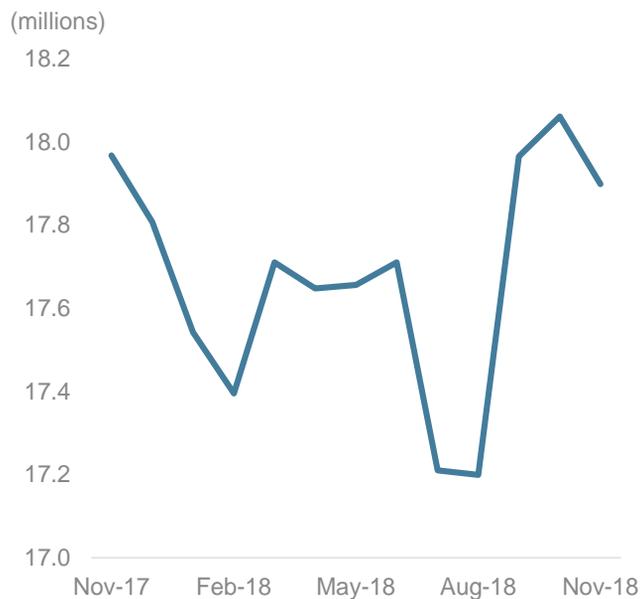
U.S. Toluene

(\$ per gallon)

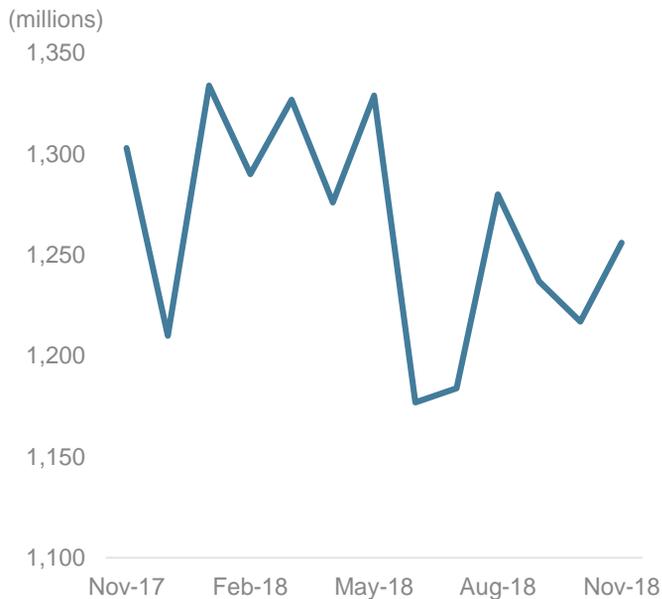


Selected Macroeconomic Data

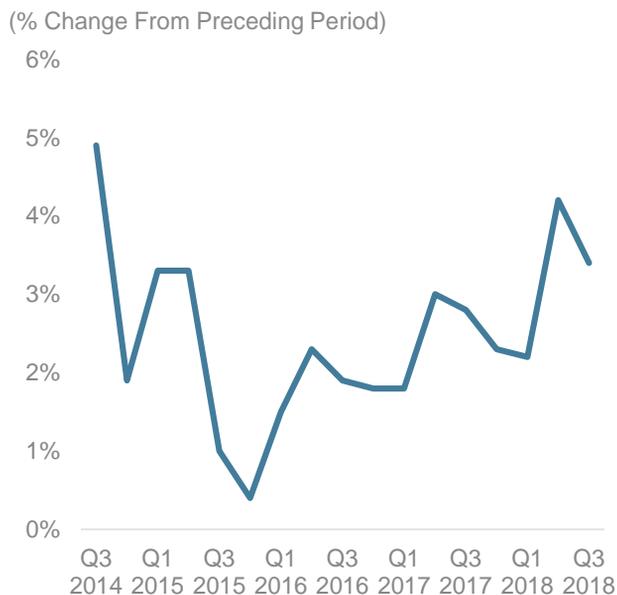
U.S. Total Monthly Automotive Sales



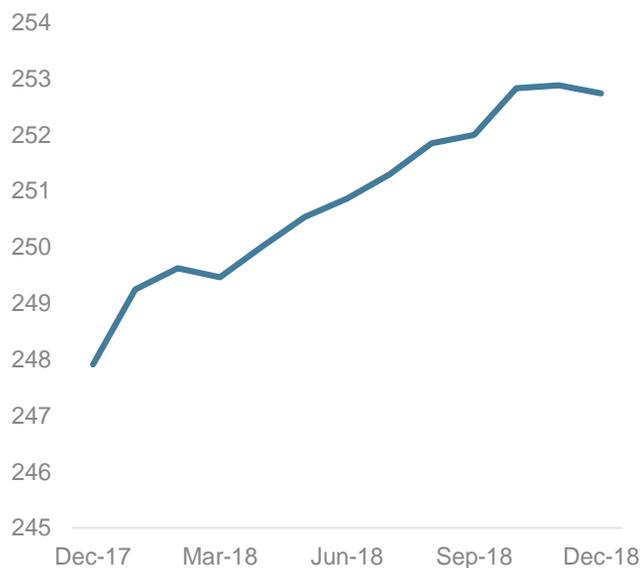
U.S. Privately Owned Housing Units Started



U.S. QoQ Real GDP Growth



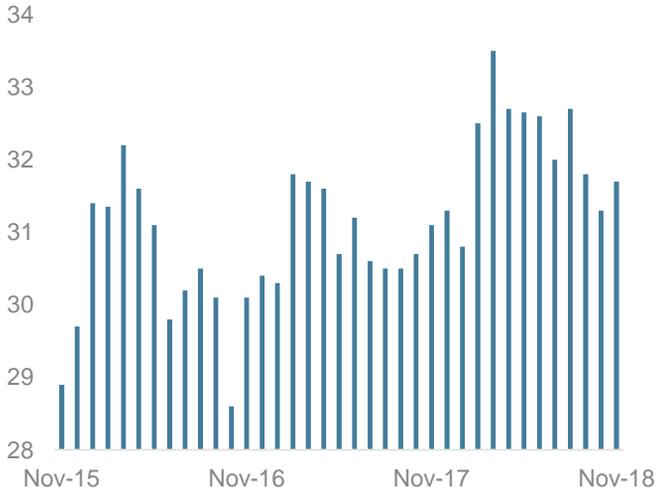
U.S. Consumer Price Index



Selected Macroeconomic Data (cont.)

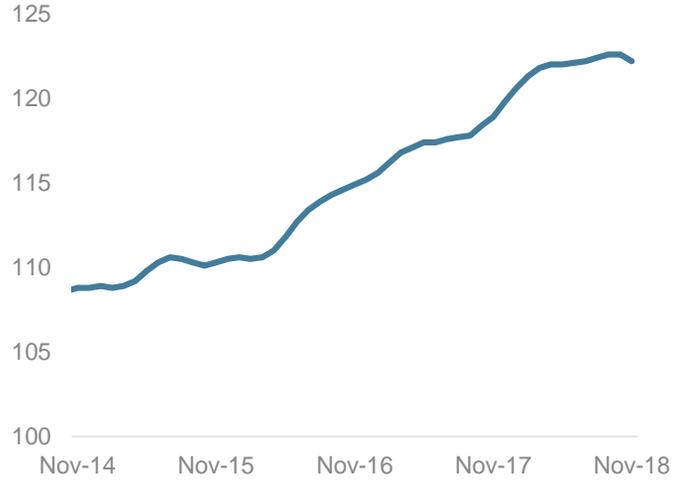
U.S. Average Weekly Chemical Railcar Loadings

(thousands)



Source: Association of American Railroads

U.S. Chemicals Activity Barometer Index



Source: American Chemistry Council, Bloomberg

Selected Public Comparables

Basic/Diversified

(as of 12/31/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 12/31/2018				Enterprise Value /	
			1 Month	3 Month	1 Year			Revenue	Margin	EBITDA	Margin	LTM	LTM
												Revenue	EBITDA
BASF SE	DB:BAS	\$69.08	-5.3%	-22.4%	-37.3%	\$63,464.8	\$85,204.0	\$76,184.5	30.5%	\$12,544.4	16.5%	1.12x	6.8x
Bayer Aktiengesellschaft	DB:BAYN	\$69.54	-5.4%	-20.4%	-44.2%	\$64,864.4	\$107,883.6	\$43,127.7	64.4%	\$10,330.0	24.0%	2.50x	10.4x
Celanese Corporation	NYSE:CE	\$89.97	-10.9%	-21.1%	-16.0%	\$12,034.2	\$15,154.2	\$7,059.0	27.9%	\$1,691.0	24.0%	2.15x	9.0x
Covestro AG	DB:1COV	\$49.37	-14.5%	-40.3%	-52.3%	\$9,036.9	\$9,494.8	\$17,272.0	35.5%	\$4,291.9	24.8%	0.55x	NMF
DowDuPont Inc.	NYSE:DWDP	\$53.48	-7.6%	-17.5%	-24.9%	\$122,696.2	\$152,344.2	\$85,944.0	26.1%	\$16,875.0	19.6%	1.77x	9.0x
Huntsman Corporation	NYSE:HUN	\$19.29	-4.6%	-29.0%	-42.1%	\$4,597.2	\$7,635.2	\$9,346.0	22.8%	\$1,479.0	15.8%	0.82x	5.2x
LANXESS Aktiengesellschaft	XTRA:lx	\$46.02	-16.1%	-37.6%	-42.2%	\$4,212.5	\$8,351.5	\$11,850.8	22.6%	\$1,755.5	14.8%	0.70x	4.8x
LyondellBasell Industries N.V.	NYSE:LYB	\$83.16	-10.9%	-20.1%	-24.6%	\$31,905.0	\$39,271.0	\$39,263.0	17.7%	\$6,957.0	17.7%	1.00x	5.6x
Methanex Corporation	TSX:MX	\$48.12	-13.0%	-39.9%	-20.8%	\$3,755.8	\$5,169.3	\$3,816.7	26.1%	\$995.0	26.1%	1.35x	5.2x
Olin Corporation	NYSE:OLN	\$20.11	-6.6%	-20.8%	-43.5%	\$3,355.1	\$6,575.9	\$6,931.0	15.3%	\$1,245.8	18.0%	0.95x	5.3x
The Chemours Company	NYSE:CC	\$28.22	-0.9%	-28.6%	-43.6%	\$4,828.0	\$7,558.0	\$6,749.0	30.6%	\$1,654.0	24.5%	1.12x	4.6x
Westlake Chemical Corporation	NYSE:WLK	\$66.17	-8.7%	-20.9%	-37.9%	\$8,546.9	\$10,911.9	\$8,650.0	24.7%	\$2,196.0	25.4%	1.26x	5.0x
Median								\$10,598.4	26.1%	\$1,975.8	21.8%	1.1x	5.3x
Mean								\$26,349.5	28.7%	\$5,167.9	20.9%	1.3x	6.4x

NMF refers to non-meaningful figure.

Specialty Large-Cap (>\$5 billion EV)

(as of 12/31/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 12/31/2018				Enterprise Value /	
			1 Month	3 Month	1 Year			Revenue	Margin	EBITDA	Margin	LTM	LTM
												Revenue	EBITDA
Albemarle Corporation	NYSE:ALB	\$77.07	-20.0%	-23.6%	-39.7%	\$8,185.3	\$9,399.3	\$3,311.0	36.8%	\$953.3	28.8%	2.84x	9.9x
Arkema S.A.	ENXTPA:AKE	\$85.83	-9.5%	-31.3%	-29.6%	\$6,522.1	\$7,913.2	\$9,952.4	22.9%	\$1,698.6	17.1%	0.80x	4.7x
Ashland Global Holdings Inc.	NYSE:ASH	\$70.96	-13.3%	-15.7%	-0.3%	\$4,434.1	\$6,669.1	\$3,743.0	28.8%	\$590.0	15.8%	1.78x	11.3x
Clariant AG	SWX:CLN	\$18.39	-7.1%	-29.0%	-34.2%	\$6,054.1	\$7,983.0	\$6,677.2	29.7%	\$918.9	13.8%	1.20x	8.7x
Eastman Chemical Company	NYSE:EMN	\$73.11	-7.2%	-24.5%	-21.1%	\$10,238.5	\$16,746.5	\$10,137.0	26.2%	\$2,331.0	23.0%	1.65x	7.2x
Ecolab Inc.	NYSE:ECL	\$147.35	-8.2%	-6.4%	9.8%	\$42,565.4	\$49,519.6	\$14,559.1	46.0%	\$3,065.1	21.1%	3.40x	16.2x
Evonik Industries AG	DB:EVK	\$25.13	-7.5%	-30.4%	-33.4%	\$11,700.2	\$15,288.5	\$17,371.9	31.4%	\$3,101.0	17.9%	0.88x	4.9x
FMC Corporation	NYSE:FMC	\$73.96	-10.6%	-15.7%	-21.9%	\$9,959.3	\$12,556.8	\$4,488.2	45.0%	\$1,214.3	27.1%	2.80x	10.3x
Johnson Matthey Plc	LSE:JMAT	\$35.67	-4.4%	-23.9%	-14.2%	\$6,848.4	\$8,176.5	\$19,244.9	6.4%	\$898.8	4.7%	0.42x	9.1x
Koninklijke DSM N.V.	ENXTAM:DSM	\$81.80	-7.7%	-23.4%	-14.5%	\$14,064.2	\$14,882.8	\$10,729.6	38.3%	\$1,882.2	17.5%	1.39x	7.9x
Solvay SA	ENXTBR:SOB	\$99.98	-7.6%	-26.0%	-28.2%	\$10,329.5	\$14,476.5	\$12,889.5	27.7%	\$2,266.8	17.6%	1.12x	6.4x
W. R. Grace & Co.	NYSE:GRA	\$64.91	1.7%	-10.3%	-7.4%	\$4,348.3	\$6,190.4	\$1,871.6	40.0%	\$398.1	21.3%	3.31x	15.5x
Wacker Chemie AG	XTRA:WCH	\$90.54	-5.9%	-29.3%	-53.5%	\$4,499.1	\$5,331.0	\$5,769.4	19.0%	\$1,015.8	17.6%	0.92x	5.2x
Median								\$9,952.4	29.7%	\$1,214.3	17.6%	1.4x	8.7x
Mean								\$9,288.1	30.6%	\$1,564.2	18.7%	1.7x	9.0x

EV refers to Enterprise Value.

Source: S&P Capital IQ

Selected Public Comparables (cont.)

Specialty Mid-Cap (<\$5 billion EV)

(as of 12/31/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 12/31/2018				Enterprise Value /	
			1 Month	3 Month	1 Year			Gross Revenue	Margin	EBITDA	Margin	LTM Revenue	LTM EBITDA
Balchem Corporation	NasdaqGS:BCPC	\$78.35	-9.6%	-29.3%	-2.8%	\$2,526.6	\$2,662.0	\$639.4	32.0%	\$155.1	24.3%	4.16x	17.2x
Elementis plc	LSE:ELM	\$2.32	-7.4%	-33.0%	-40.4%	\$1,345.0	\$1,595.8	\$820.6	38.1%	\$158.6	19.3%	1.94x	10.1x
Ferro Corporation	NYSE:FOE	\$15.68	-18.8%	-32.3%	-33.5%	\$1,305.5	\$2,122.2	\$1,594.5	28.6%	\$239.1	15.0%	1.33x	8.9x
Fuchs Petrolub SE	DB:FPE3	\$41.05	-1.1%	-27.5%	-23.3%	\$5,638.6	\$5,450.8	\$2,979.0	34.9%	\$496.1	16.7%	1.83x	11.0x
GCP Applied Technologies Inc.	NYSE:GCP	\$24.55	-10.1%	-6.0%	-23.0%	\$1,771.7	\$1,830.3	\$1,138.8	36.9%	\$148.8	13.1%	1.61x	12.3x
H.B. Fuller Company	NYSE:FUL	\$42.67	-11.5%	-18.9%	-20.8%	\$2,163.2	\$4,400.3	\$3,041.0	27.8%	\$435.5	14.3%	1.45x	10.1x
Ingevity Corporation	NYSE:NGVT	\$83.69	-14.6%	-18.9%	18.8%	\$3,512.4	\$4,203.3	\$1,084.5	36.5%	\$302.0	27.8%	3.88x	13.9x
Innophos Holdings, Inc.	NasdaqGS:IPHS	\$24.53	-11.6%	-43.3%	-47.5%	\$480.9	\$802.9	\$802.2	18.6%	\$104.3	13.0%	1.00x	7.7x
Innospec Inc.	NasdaqGS:IOSP	\$61.76	-16.2%	-17.3%	-12.5%	\$1,508.4	\$1,645.6	\$1,435.7	30.1%	\$186.1	13.0%	1.15x	8.8x
Koppers Holdings Inc.	NYSE:KOP	\$17.04	-8.6%	-45.2%	-66.5%	\$349.5	\$1,342.5	\$1,650.9	20.3%	\$182.7	11.1%	0.81x	7.3x
NewMarket Corporation	NYSE:NEU	\$412.09	-2.0%	2.8%	3.7%	\$4,699.5	\$5,370.0	\$2,311.3	25.7%	\$367.2	15.9%	2.32x	14.6x
OMNOVA Solutions Inc.	NYSE:OMN	\$7.33	-10.1%	-25.0%	-26.7%	\$329.0	\$574.4	\$764.8	25.2%	\$77.6	10.1%	0.75x	7.4x
PQ Group Holdings Inc.	NYSE:PQG	\$14.81	-3.5%	-16.5%	-10.0%	\$2,008.1	\$4,123.1	\$1,586.2	23.9%	\$358.1	22.6%	2.60x	11.5x
Quaker Chemical Corporation	NYSE:KWR	\$177.71	-13.8%	-12.4%	17.9%	\$2,369.6	\$2,323.6	\$867.1	35.9%	\$121.6	14.0%	2.68x	19.1x
Stepan Company	NYSE:SCL	\$74.00	-8.4%	-14.2%	-6.3%	\$1,666.2	\$1,679.2	\$2,001.0	17.2%	\$226.5	11.3%	0.84x	7.4x
Median								\$1,435.7	28.6%	\$186.1	14.3%	1.6x	10.1x
Mean								\$1,514.5	28.8%	\$237.3	16.1%	1.9x	11.2x

Chemicals Distribution

(as of 12/31/2018, \$ in millions, except per-share prices)

Company Name	Ticker	Stock Price	Stock Performance (% Change)			Equity Value	Enterprise Value	LTM 12/31/2018				Enterprise Value /	
			1 Month	3 Month	1 Year			Gross Revenue	Margin	EBITDA	Margin	LTM Revenue	LTM EBITDA
Brenntag AG	XTRA:BNR	\$43.15	-6.4%	-30.1%	-32.4%	\$6,668.9	\$8,905.7	\$14,276.9	20.7%	\$906.2	6.3%	0.62x	9.8x
Hawkins, Inc.	NasdaqGS:HWKN	\$41.01	2.8%	-1.1%	15.0%	\$439.0	\$520.7	\$540.2	17.0%	\$54.2	10.0%	0.96x	9.6x
IMCD N.V.	ENXTAM:IMCD	\$63.76	-3.4%	-18.2%	3.3%	\$3,359.6	\$3,939.2	\$2,486.5	22.9%	\$217.5	8.7%	1.58x	18.1x
Univar Inc.	NYSE:UNVR	\$17.59	-17.8%	-42.6%	-43.1%	\$2,512.6	\$5,025.9	\$8,620.5	22.0%	\$629.9	7.3%	0.58x	8.0x
Median								\$5,553.5	21.4%	\$423.7	8.0%	0.8x	9.7x
Mean								\$6,481.0	20.6%	\$452.0	8.1%	0.9x	11.4x

EV refers to Enterprise Value.

Source: S&P Capital IQ

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