

CHEMICALS & MATERIALS

# Quarterly Review



Q2 2023



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## LINCOLN INTERNATIONAL STATEMENT

Among the universe of consumable chemical solutions, the oilfield chemicals sector lends itself to the attractive combination of reasonable values, long-term demand drivers and meaningful consolidation opportunity. While awaiting a clear end-consolidator for this sector, there is opportunity for specialized, middle market-sized providers, focused on specific sub-sectors within the types of oilfield production chemicals with further differentiation based on a high degree of customer service and responsiveness to customer problems (as opposed to a one-size-fits-all approach that may be deployed by the majors). Long-term demand drivers are frequently underplayed – at the least on the headline level – which provides opportunity for investors who are willing to back the increasing demands, particularly the petrochemical uses. There is a natural path to adding in additional solutions to complete core retarders, accelerators, corrosion inhibitors, biocides and flocculants that can help further deepen revenue opportunities within existing customers. With the increasing global focus on environmental, social and governance (ESG)-friendly solutions, there is likely a meaningful value opportunity lying within the realm of oilfield chemicals.

## Oilfield Chemicals

by Lincoln International's Global Chemicals & Materials Team

With prices of Brent crude oil recovered from the April 2020 lows of nearly \$20 per barrel, there is a renewed focus on assessing the strategic fit of oilfield chemical divisions and companies. Despite mostly favorable long-term tailwinds, these processes continue to lean towards more value-oriented price points. Oilfield chemicals play a critical role in facilitating all facets of oil and gas from drilling to production. There are significant efficiencies delivered by the use of the proper chemicals which can increase efficiency, extend well life and minimize environmental impact. As oil and natural gas are non-renewable resources formed via geologic heat and pressure of millions of years, it is important that their extraction be handled in a way to maximize output. Despite secular power generation trends away from petrochemicals, oil and natural gas and their downstream derivatives will remain a critical feedstock to the chemicals and materials sector, serving everything from healthcare to heavy industry, well into the foreseeable future.

Favorable long-term tailwinds include increasing power generation requirements, strong underlying transportation demand (even after mitigating a portion of the energy transition), heating applications (in the face of continued extreme weather events) and the diverse set of petrochemical uses. Petrochemicals are an integral part of developed society, while often overlooked, they contribute to an almost endless array of everything items, including clothing, tires, packaging, plastics, paints and coatings, cleaning chemicals, personal care and many others. Even from a renewable energy perspective, petrochemicals are needed for production of batteries, electric vehicles, solar panels and wind turbines. Petrochemicals are expected to account for a third of the growth in global oil demand by 2030 and to comprise nearly half of the growth by 2050.

The oilfield chemicals market has several major players, as well as a diverse number of smaller solution providers focused on specific sub-segments of the value chain. The chemical manufacturer majors include BASF, ChampionX, Chevron Phillips Chemical, Clariant, Innospec, Kemira, Nouryon and Solvay; while Schlumberger, Baker Hughes, CES, Halliburton and Weatherford International are typically considered service companies. With Solvay's oil and gas segment marketed over the course of the past year and Kemira's oilfield chemicals segment currently in market, there has been no shortage of activity. The middle market has also been active with, among others, Imperative Chemical Partners combining with RSI Chemicals earlier this year.



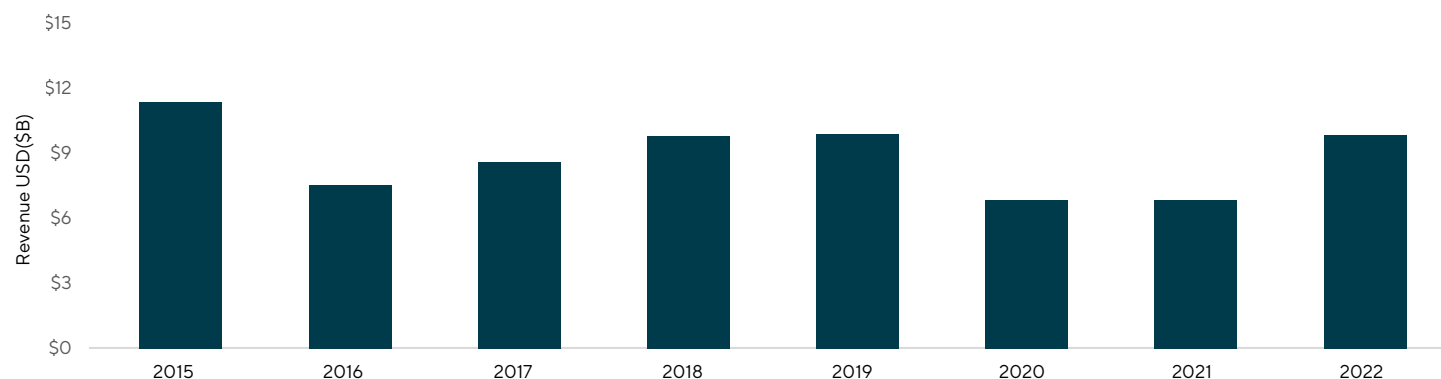
**Drilling chemicals** help to tap into additional reservoirs, spurred in recent years by the rise of horizontal well drilling, as opposed to the classical vertical well drilling. Chemical drilling fluids are of greater importance when drilling horizontal wells and typically comprise between 5% - 10% of the total well cost for a horizontal well, as opposed to 2% - 5% for a vertical well. Drilling fluids support cooling and lubrication of drilling equipment as well as helping to maintain optimal pressure and stabilize the drilling area. Varying environments (e.g., topography, temperature, humidity) require bespoke chemical formulations to optimize output.

## Oilfield Chemicals (continued)

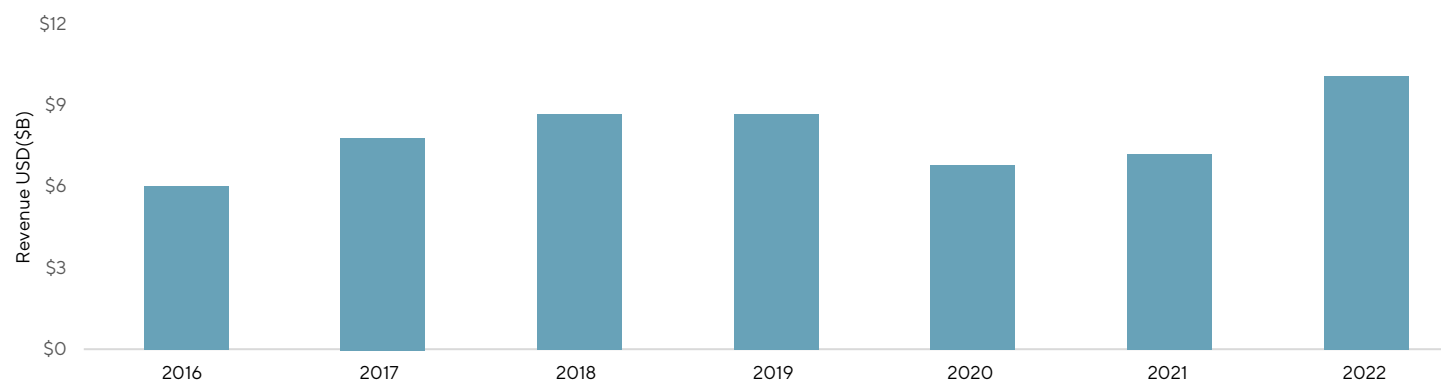
**Production chemicals** help to ensure the flow of hydrocarbons, separate oil and gas from water and protect assets from corrosion. These chemicals optimize ROI via increased hydrocarbon production and reduced maintenance and treatment expenses. Production chemicals growth is accelerating due to the growing use of offshore wells and increasing production from older wells, which have a higher proportion of water output. Production chemical solutions cover additives (e.g., fluid loss, suspension), surfactants and retardants. Benefits include lengthening pumping time, reducing leaks and stabilizing solids in cement slurry.

**Stimulation chemicals** serve to enhance oil production and improve the flow of hydrocarbons. This segment sees particular tailwinds from the increase in deep well drilling. These chemicals help to reduce friction (e.g., to minimize pumping pressure), improved proppant transport through enhanced viscosity, protect from corrosion and facilitate fracturing activity after treatment. One of the primary benefits is in helping to reduce capital expenditure requirements with their usage. Existing, completed wells in operation drive demand for stimulation chemicals as well. Horizontal drilling is leading to a higher number of frac stages, and accordingly, there is more extensive use of oilfield chemicals per completed well.

### GLOBAL OIL & GAS DRILLING AND COMPLETION FLUIDS MARKET SIZE



### GLOBAL OIL & GAS PRODUCTION AND SPECIALTY CHEMICALS MARKET SIZE



North America has eight major shale regions: Eagle Ford Shale, Permian Basin, Haynesville Shale, Midcontinent Region (covering primarily Nebraska and Oklahoma), Marcellus & Utica Shale, Rockies, U.S. Bakken and the Western Canadian Sedimentary Basin. Ease of extraction varies across the regions, dependent on the type of rock and sand surrounding the hydrocarbon deposits. Across the shale regions, there are different geological attributes, which can impact the production of gas and the chemicals / support fluids needed.

Customer service and extensive research and development (R&D) capabilities are of significant importance in the oilfield chemicals sector. Players in this space are frequently viewed as a solutions provider for customers in analyzing and solving their client's needs. From identifying, recommending and customizing formulations to produce the optimal solution to monitoring effectiveness and ultimately delivering the solution to specific well sites, there is a meaningful role for oilfield chemical companies to play. The iterative cycle between monitoring effectiveness, studying the data in R&D labs and formulating and reformulating solutions can often lead to de facto recurring revenue for oilfield chemical providers.

## Market Update

Equities rallied in Q2 2023, with the S&P 500 gaining 16.9% year-to-date through June, driven primarily by artificial intelligence (AI)-fueled enthusiasm for large-cap technology stocks. The chemicals sector has been comparatively stagnant; Lincoln's Chemicals Index inched up 0.2% in the second quarter and 7% year-to-date through June. Investors entered the quarter on high alert for an approaching recession, but those concerns have since diminished as headline inflation came in at just 3% in June—the smallest annual increase since March 2021 – and a cooling labor market which renewed hope for a soft landing from the Federal Reserve's interest rate hike campaign. The impending deadline to raise the \$31.4 trillion government debt ceiling drove a temporary bout of volatility in May, however, lawmakers approved legislation in early June – that suspended the debt ceiling until January 2025, averting widespread repercussions across global financial markets.

Continued momentum in the financial markets contradicts mixed signals from underlying economic indicators, which also serve as barometers for assessing the health of the chemicals sector. The ISM Manufacturing PMI signaled contraction for an eight consecutive month, falling 0.9 points to 46.0, its lowest reading in three years. Production, new orders, export orders, imports, order backlogs and inventory contracted month-over-month in June. Concurrent with lower inflation trends, chemical producer prices eased down 4.6% year-over-year in June driven by declines in synthetic rubber, resins and organic chemical prices, however, ongoing softness in chemical production, that surfaced in the latter half of 2022, has persisted through Q2 2023. Although challenging chemicals supply chain conditions in Q1, which resulted in higher producer inventory levels, have largely been resolved, customer restocking has yet to materialize as companies prudently manage their inventories. Chemical inventories were down 1.7% year-over-year while shipments were down 2.4%.

Positioned upstream within the supply chain, the chemicals sector is expected to witness a rebound in activity ahead of broader improvements in underlying macroeconomic conditions. With over 85% of basic and specialty chemicals consumed by the industrial sector, strong fundamentals driving long-term growth in the sector, particularly in automotive, energy and electronics, will continue to depend on the chemicals sector for critical innovations and inputs.



Sources: American Chemistry Council, Bloomberg, Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Board

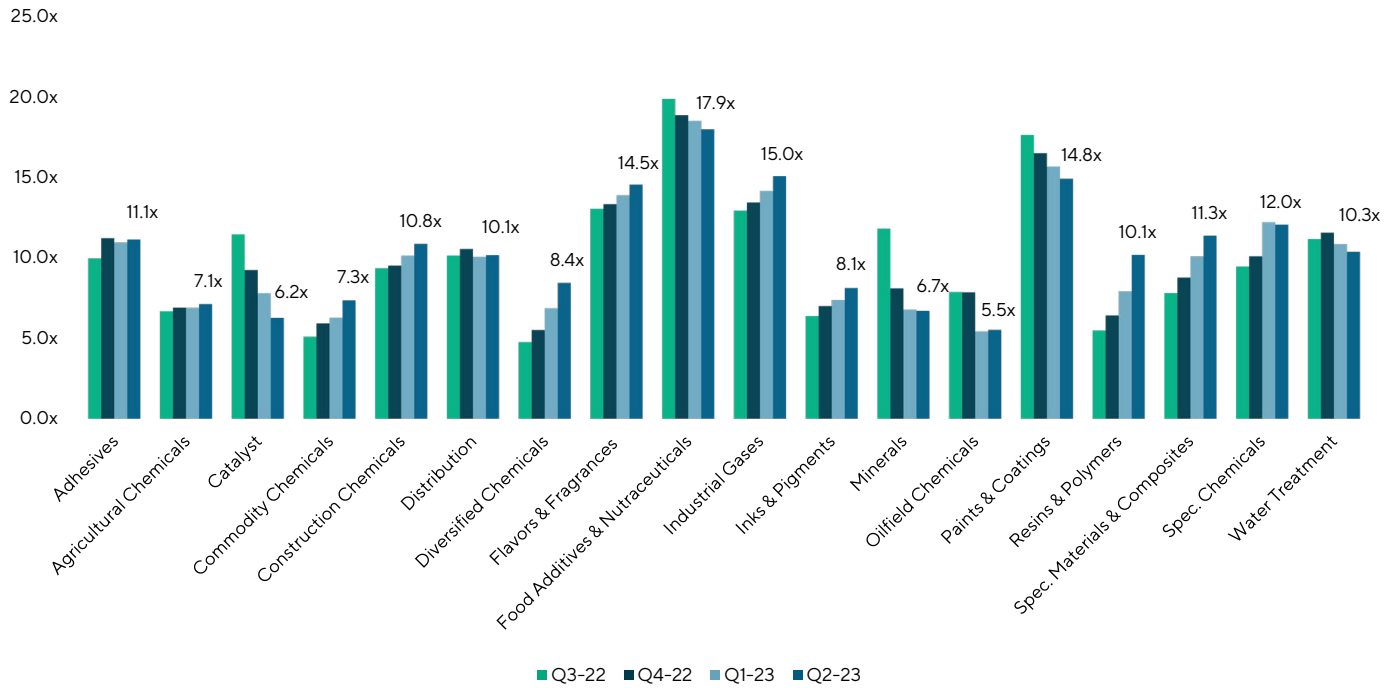
## PUBLIC COMPANY VALUATION STATISTICS AS OF 6/30/23

Sector	Number of Companies	Quarterly Stock Performance	% of 52 Week High	EV / LTM		P / E Multiple	Net Debt / LTM EBITDA	Q3 2022 LTM Growth		Q3 2022 LTM Margin	
				Revenue	EBITDA			Revenue	EBITDA	Gross	EBITDA
Adhesives	4	(0.5%)	82.6%	1.74x	11.1x	20.3x	2.2x	4.5%	9.6%	34.5%	15.1%
Agricultural Chemicals	13	(11.4%)	71.8%	1.51x	7.1x	11.2x	1.8x	4.4%	6.6%	30.6%	23.2%
Catalyst	3	(8.8%)	69.3%	1.26x	6.2x	10.0x	1.1x	4.2%	2.8%	19.3%	16.7%
Commodity Chemicals	18	(3.4%)	80.5%	0.96x	7.3x	15.9x	3.0x	3.9%	21.9%	19.7%	14.0%
Construction Chemicals	12	8.1%	92.3%	2.08x	10.8x	16.4x	1.9x	4.4%	6.8%	30.7%	17.1%
Distribution	6	2.9%	89.0%	1.09x	10.1x	16.2x	2.1x	3.7%	3.9%	20.5%	9.5%
Diversified Chemicals	15	(4.3%)	83.3%	1.01x	8.4x	12.2x	2.6x	4.5%	19.4%	24.2%	14.6%
Flavors & Fragrances	10	(3.2%)	80.2%	2.70x	14.5x	23.5x	1.0x	6.3%	12.5%	39.7%	17.6%
Food Additives & Nutraceuticals	5	(5.0%)	81.2%	5.15x	17.9x	27.5x	1.8x	6.3%	10.2%	47.9%	27.9%
Industrial Gases	6	10.2%	96.1%	3.98x	15.0x	22.9x	1.8x	10.3%	9.5%	36.3%	23.3%
Inks & Pigments	5	(0.9%)	93.0%	0.60x	8.1x	17.4x	1.6x	2.8%	4.4%	17.8%	7.1%
Minerals	10	(3.5%)	65.3%	2.42x	6.7x	8.8x	1.2x	5.0%	14.8%	41.6%	39.0%
Oilfield Chemicals	3	21.1%	81.0%	0.77x	5.5x	5.8x	2.2x	6.2%	10.9%	21.2%	9.9%
Paints & Coatings	9	7.2%	95.0%	2.79x	14.8x	26.3x	2.4x	4.5%	12.1%	34.6%	12.6%
Resins & Polymers	9	(2.8%)	81.1%	1.04x	10.1x	14.3x	6.8x	5.9%	26.6%	17.1%	10.7%
Spec. Materials & Composites	10	2.0%	84.5%	1.67x	11.3x	17.5x	5.4x	6.2%	14.4%	24.4%	13.8%
Spec. Chemicals	12	(9.0%)	78.2%	2.09x	12.0x	15.0x	2.2x	7.8%	14.3%	28.6%	17.2%
Water Treatment	4	(2.7%)	90.5%	1.99x	10.3x	21.6x	2.1x	2.1%	2.0%	26.6%	17.1%
<b>Mean</b>		<b>(1.4%)</b>	<b>81.9%</b>	<b>1.82x</b>	<b>10.1x</b>	<b>16.1x</b>	<b>2.5x</b>	<b>5.1%</b>	<b>13.1%</b>	<b>28.2%</b>	<b>17.3%</b>

Source: Capital IQ, ThomsonONE, American Chemistry Council, Wall Street research and company data

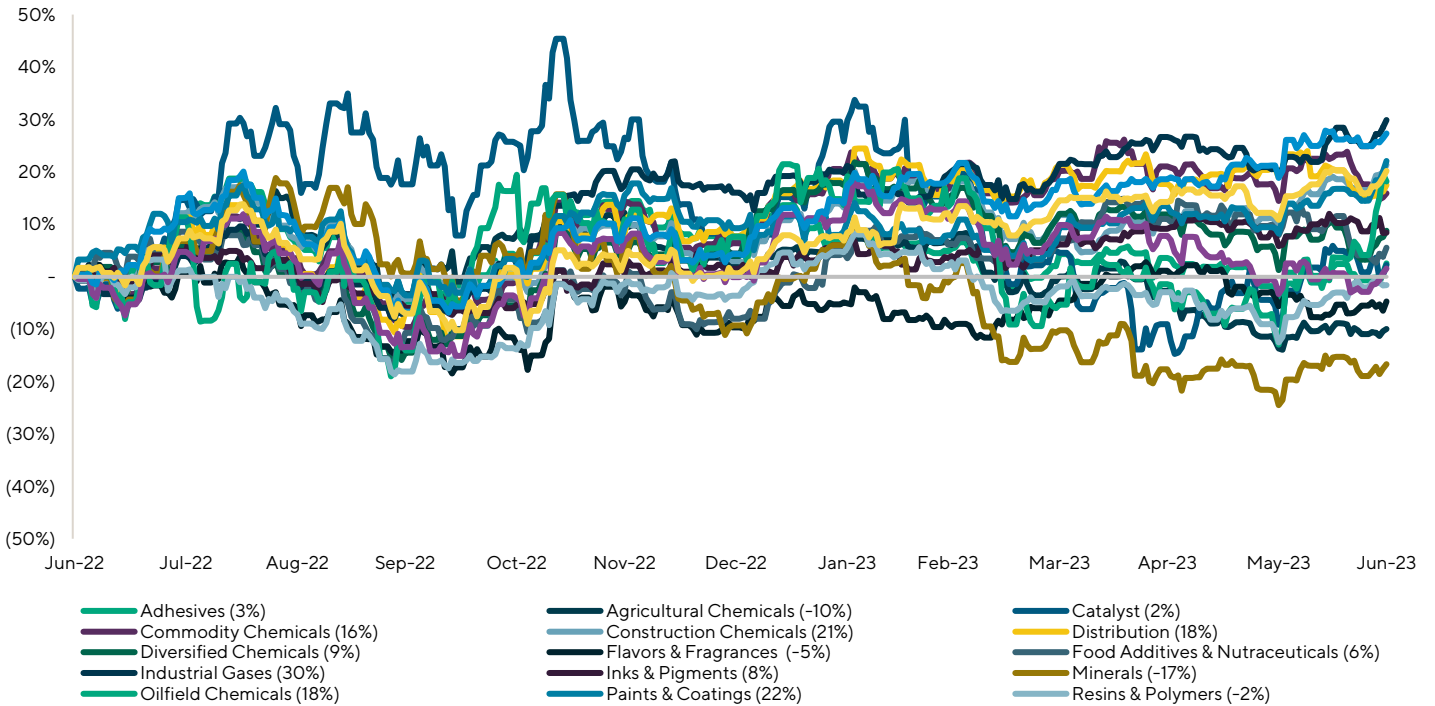
# Chemicals & Materials Market Update

## ENTERPRISE VALUE / LTM EBITDA



Note: The above multiples are based on the mean for the past four quarters for each corresponding sub-sector

## 1-YEAR STOCK PERFORMANCE BY CHEMICALS SUB-SECTOR



Note: Calculated based on an average of publicly traded companies in the sector

## SELECT Q2 2023 M&A TRANSACTIONS

(USD in millions)

Closing Date/ Status	Target	Acquiring Company	Target Location	Acquirer Location	Enterprise Value	EV / LTM		EBITDA Margin
						Revenue	EBITDA	
Announced	Rialti	Borealis	Italy	Austria	-	-	-	-
Announced	British Lithium	Imerys	UK	France	-	-	-	-
Announced	JSR	JICC-02 Co.	Japan	Japan	\$7,067	2.48x	16.2x	15.3%
Announced	PI Advanced Materials	Arkema	South Korea	France	-	-	-	-
Announced	Nutrinova Netherlands	Mitsui	Netherlands	Japan	675	3.95x	14.7x	26.9%
Announced	Shanghai Saifu Chemical Development	Brenntag	China	Germany	-	-	-	-
Announced	Brylchem Group	IMCD	Singapore	Netherlands	-	-	-	-
Announced	Porus Labs	Bain Capital	India	US	-	-	-	-
Announced	JPF Netherlands Investment	Jindal Poly Films	Netherlands	India	-	-	-	-
Announced	Natural Gas-to-Liquids Facility in Uzbekistan	Air Products	Uzbekistan	US	1,000	-	-	-
Announced	Wastewater Treatment Product Lines of Siemens Energy	Lummus Technology	Germany	US	-	-	-	-
Announced	Euro Chemo-Pharma	IMCD	Malaysia	Netherlands	-	-	-	-
Announced	Gillco Products	Azelis	US	Belgium	-	-	-	-
Announced	Polytec	Arkema	Germany	France	-	-	-	-
Announced	KMG Chemicals	FUJIFILM	US	Japan	700	-	-	-
Announced	Livent	Allkem	US	Australia	3,810	4.13x	8.5x	48.5%
Announced	Novamont	Versalis	Italy	Italy	-	-	-	-
Announced	Spectrum Plastics Group	DuPont	US	US	1,750	-	-	-
Announced	Allianz Group	IMCD	Colombia	Netherlands	-	-	-	-
Announced	KOI	IMCD	Israel	Netherlands	-	-	-	-
Announced	Baba Fine Chemicals	Ami Organics	India	India	-	-	-	-
Announced	Chinese Decorative Paints Business of Sherwin-Williams	Akzo Nobel	China	Netherlands	-	-	-	-
Announced	Three Product Lines of TotalEnergies	Pacific Avenue Capital Partners	US	US	-	-	-	-

Source: Capital IQ, Mergermarket, Pitchbook and company data

## SELECT Q2 2023 M&A TRANSACTIONS (CONT.)

(USD in millions)

Closing Date/ Status	Target	Acquiring Company	Target Location	Acquirer Location	Enterprise Value	EV / LTM		EBITDA Margin
						Revenue	EBITDA	
Announced	Laboratory and Product Development Business of Tina Life Sciences	Calibre Chemicals	India	India	-	-	-	-
Announced	Vogler Ingredients	Azelis	Brazil	Belgium	-	-	-	-
Announced	HCS Group	International Chemical Investors	Germany	Luxembourg	-	-	-	-
Announced	Porus Labs	Bain Capital	India	US	-	-	-	-
Announced	Novamont	Versalis	Italy	Italy	-	-	-	-
Announced	Tradeimpex Polymers India	IMCD	India	Netherlands	-	-	-	-
Announced	Cyanuric Chloride Business of Evonik Industries AG	International Chemical Investors	Germany	Luxembourg	-	-	-	-
Jun-23	Novachem	Evonik	Argentina	Germany	-	-	-	-
Jun-23	Adhezion Biomedical	H.B. Fuller	US	US	\$95	-	-	-
Jun-23	Adare Biome	DSM	France	Netherlands	300	-	-	-
Jun-23	Intec	Briolf Group	Italy	Spain	-	-	-	-
Jun-23	Engineered Foams Business of Recticel	Carpenter	Netherlands	US	497	-	7.5x	-
Jun-23	Premier Sealant Systems	Red Coast Industries	UK	UK	-	-	-	-
Jun-23	QualiTech	MidOcean Partners	US	US	-	-	-	-
Jun-23	Kale Kimya	Univar	Turkey	US	143	-	-	-
Jun-23	Canadian Subsidiary of PCAS	DIC	Canada	Japan	95	-	-	-
May-23	Kwang Jin Chemical	Affirma Capital, Theham Partners	South Korea	Singapore, South Korea	190	-	-	-
May-23	Pacific Coast Composites	GracoRoberts	US	US	-	-	-	-
May-23	Construction Chemicals Business of Oracom	Sika	Dubai	Switzerland	-	-	-	-
May-23	NEXGEN Oilfield Chemicals	Foremark Performance Chemicals	US	US	-	-	-	-
May-23	Neotrimental	Orbia	Mexico	Mexico	-	-	-	-
May-23	Organica Feinchemie	International Chemical Investors	Germany	Luxembourg	-	-	-	-
May-23	Neotrimental	Polymer Solutions & Innovation	Mexico	Mexico	-	-	-	-

Source: Capital IQ, Mergermarket, Pitchbook and company data



## SELECT Q2 2023 M&A TRANSACTIONS (CONT.)

(USD in millions)

Closing Date/ Status	Target	Acquiring Company	Target Location	Acquirer Location	Enterprise Value	EV / LTM		EBITDA Margin
						Revenue	EBITDA	
May-23	Organica Feinchemie	International Chemical Investors	Germany	Luxembourg	-	-	-	-
May-23	Neotrimental	Polymer Solutions & Innovation	Mexico	Mexico	-	-	-	-
May-23	Iber Resinas	TotalEnergies	Spain	France	-	-	-	-
May-23	Benz Oil	AMSOIL	US	US	-	-	-	-
May-23	Trinseo's PMMA Plant in Mexico	Plaskolite	Mexico	US	\$19	-	-	-
May-23	Thermal Spray Solutions	Kymera	US	US	-	-	-	-
May-23	Ceramic Industrial Coatings	Canlak	US	US	-	-	-	-
May-23	Carbonyl Iron Manufacturing Business of Ashland	American Carbonyl	US	US	-	-	-	-
May-23	Fortress North America	Compass Minerals	US	US	75	-	-	-
May-23	Ceram-Traz	Valentus Specialty Chemicals	US	US	-	-	-	-
May-23	Americo Chemical Products	Harbour Group Industries	US	US	-	-	-	-
May-23	Pachin	National Paints	Egypt	UAE	25	-	-	-
May-23	Macsprod Australia	Syngenta	Australia	Switzerland	-	-	-	-
Apr-23	Firmenich	DSM	Switzerland	Netherlands	19,858	4.12x	23.4x	17.6%
Apr-23	Oil Sands Assets of TotalEnergies	Suncor Energy	Canada	Canada	4,479	-	-	-
Apr-23	Russian Business of Henkel	Augment Investments Limited, Kismet Capital and Elbrus Services	Russia	Russia	662	-	-	-
Apr-23	ACM	IMCD	Sweden	Netherlands	-	-	-	-
Apr-23	SG Technologies	Neo Performance Materials	UK	Canada	22	-	-	-
Apr-23	SOLEVO	Development Partners International	Ivory Coast	UK	-	-	-	-
Apr-23	Metachem Industrial Comercial	Barentz	Brazil	Netherlands	-	-	-	-
Apr-23	Conser	NextChem	Italy	Italy	45	-	-	-
Apr-23	Fuji Oil's Louisiana Refinery	Bunge	US	US	-	-	-	-

Source: Capital IQ, Mergermarket, Pitchbook and company data

## SELECT Q2 2023 M&A TRANSACTIONS (CONT.)

(USD in millions)

Closing Date/ Status	Target	Acquiring Company	Target Location	Acquirer Location	Enterprise Value	EV / LTM		EBITDA Margin
						Revenue	EBITDA	
Apr-23	Linden Bulk Transportation	Boasso Global	US	US	-	-	-	-
Apr-23	Krayden	Audax	US	US	-	-	-	-
Apr-23	Asbury Carbons	Mill Rock Advanced Materials	US	US	-	-	-	-
Apr-23	Coatings Hub	JON-DON	US	US	-	-	-	-
Apr-23	Total Polymer Solutions	Formerra	Ireland	US	-	-	-	-
Apr-23	Iron Oxide Business of Venator Materials	Cathay Industries	US	Hong Kong	\$140	-	-	-
Apr-23	Mitsui Phenols	Ineos	Singapore	UK	330	0.54x	-	-
Apr-23	Certain Cosmetic Ingredients of Amyris	Givaudan	US	Switzerland	350	-	-	-
Apr-23	Additive Manufacturing Materials Business of Covestro	Stratasys	Netherlands	US	82	-	-	-

Source: Capital IQ, Mergermarket, Pitchbook and company data

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