




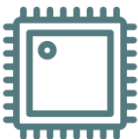






Advanced Materials and Chemicals Update

July 2023

Advanced Polymers 	Agriculture Chemicals 	Catalysts 	ChemTech 	Coatings 
Electronic Materials 	Engineered Materials 	Biosciences / Bio-Chemicals / Bio-Industrials 	Ingredients and Additives 	Sustainable Materials 

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Key Index Trading Performance

	Share Price Performance				
	3-Years	1-Year	YTD	3 Months	1 Month
S&P 500	40%	11%	20%	10%	3%
S&P Chemicals Index	39%	10%	9%	5%	3%
S&P Commodity Chemicals Index	62%	9%	14%	5%	8%
S&P Specialty Chemicals Index	26%	4%	10%	9%	2%

(Indexed to 100)



	Average Performance (EV / NTM EBITDA)					
	3-Years	1-Year	YTD	3 Months	1 Month	Current
S&P 500	13.4x	12.3x	12.6x	13.0x	13.5x	13.6x
S&P Chemicals Index	11.0x	10.2x	10.7x	10.9x	11.3x	11.5x
S&P Commodity Chemicals Index	6.5x	6.3x	6.9x	6.6x	6.8x	7.2x
S&P Specialty Chemicals Index	13.7x	12.0x	12.0x	12.3x	12.7x	12.8x

(EV / NTM EBITDA)



Advanced Materials and Chemicals Industry M&A Activity

	2023		2022		YoY Change	
	#	Value (\$bns)	#	Value (\$bns)	#	Value
1Q	181	\$22.2	219	\$29.1	(17%)	(24%)
2Q	158	\$24.5	190	\$38.0	(17%)	(35%)
July	39	\$2.4	42	\$1.8	(60%)	(48%)
Year to Date	378	49	451	69	(16%)	(29%)

Select Mergers & Acquisitions

- On July 3, PE firm **Stirling Square Capital Partners** that its portfolio company **Sustainable Agro Solutions (SAS)** has acquired **Biovert**, a Spanish family-owned developer and producer of bio-stimulants, biocontrol and specialty plant nutrition solutions for the agricultural sector ([Press Release](#))
- On July 3, **Evonik**, a German specialty chemical company, acquired **Novachem**, an Argentinian sustainable cosmetic actives innovator ([Press Release](#))
- On July 5, **Bunge** and Chevron's **Renewable Energy Group Inc.**, a subsidiary of **Chevron Corporation**, acquired **Chacraservicios**, a producer of camelina crop intended for industrial use and for animal and human consumption based in Argentina, from Italy-based **Adamant Group** ([Press Release](#))
- On July 11, **Biocoat**, a Horsham, PA-based biomaterial coatings company backed by **GTCR**, a leading private equity firm, announced that it has acquired **Chempilots**, a Danish provider of polymer research and production services. This transaction represents the first add-on acquisition since GTCR invested in Biocoat in November 2022 ([Press Release](#))
- On July 11, **Olmix**, a France-based hygiene, nutrition and health products maker backed by **Motion Equity Partners**, acquired **Yes Sinergy**, a Brazil-based biotechnology company specialized in natural additives for animal nutrition and welfare ([Press Release](#))
- On July 14, **IMCD**, a Netherlands-based distributor of specialty chemicals, pharmaceutical and food ingredients, acquired a 90% stake in **O&3**, a UK-based leading innovative natural ingredients supplier ([Press Release](#))
- On July 19, **IMCD**, a Netherlands-based distributor of specialty chemicals, pharmaceutical and food ingredients, announced it has reached an agreement to acquire **Representaciones de Materias Primas Industriales (MAPRIN)**, a Chile-based leading raw materials distributor for the beauty and personal care industry. MAPRIN generated a revenue of approximately USD \$8 million in 2022 ([Press Release](#))
- On July 21, **Chase Corporation**, a leading global manufacturer of protective materials for high-reliability applications across diverse market sectors, announced that it has entered into a definitive agreement to be acquired by an affiliate of investment funds managed by **KKR**, a leading global investment firm. The all-cash transaction is valued at approximately **\$1.3 billion**, including the assumption of debt ([Press Release](#))

Select Capital Raises

- On July 5, **Lenzing**, an Austria-based manufacturer of textile fibers and pulp material, announced that it has raised **\$437.9 million (EUR 400 million)** in gross proceeds from its offering of new shares ([Press Release](#))
- On July 11, **Aphea.Bio**, a Gent, Belgium-based agricultural technology company, raised **\$77 million (EUR 70 million)** in Series C funding in a round led by Innovation Industries and joined by Korys Investments, Bill & Melinda Gates Foundation, BNP Paribas Fortis, Astanor and others ([Press Release](#))
- On July 12, **Allonnia**, a Massachusetts-based bioremediation company, announced that it has raised **\$30 million** in a Series A extension round led by Bison Ventures, with participation from BHP Ventures, Vale Ventures, Battelle, General Atlantic and Viking Global Investors. This brings Allonnia's total funding to date to \$90 million ([Press Release](#))
- On July 26, **Dioxycle**, a French-American start-up that transforms CO2 emissions into high-value, sustainable chemicals, announced that it has closed a **\$17 million** Series A funding round, co-led by renowned climate tech investors Lowercarbon Capital and Breakthrough Energy Ventures Europe (BEV-E), with participation from Gigascale Capital ([Press Release](#))

**Regulatory
Announcements**

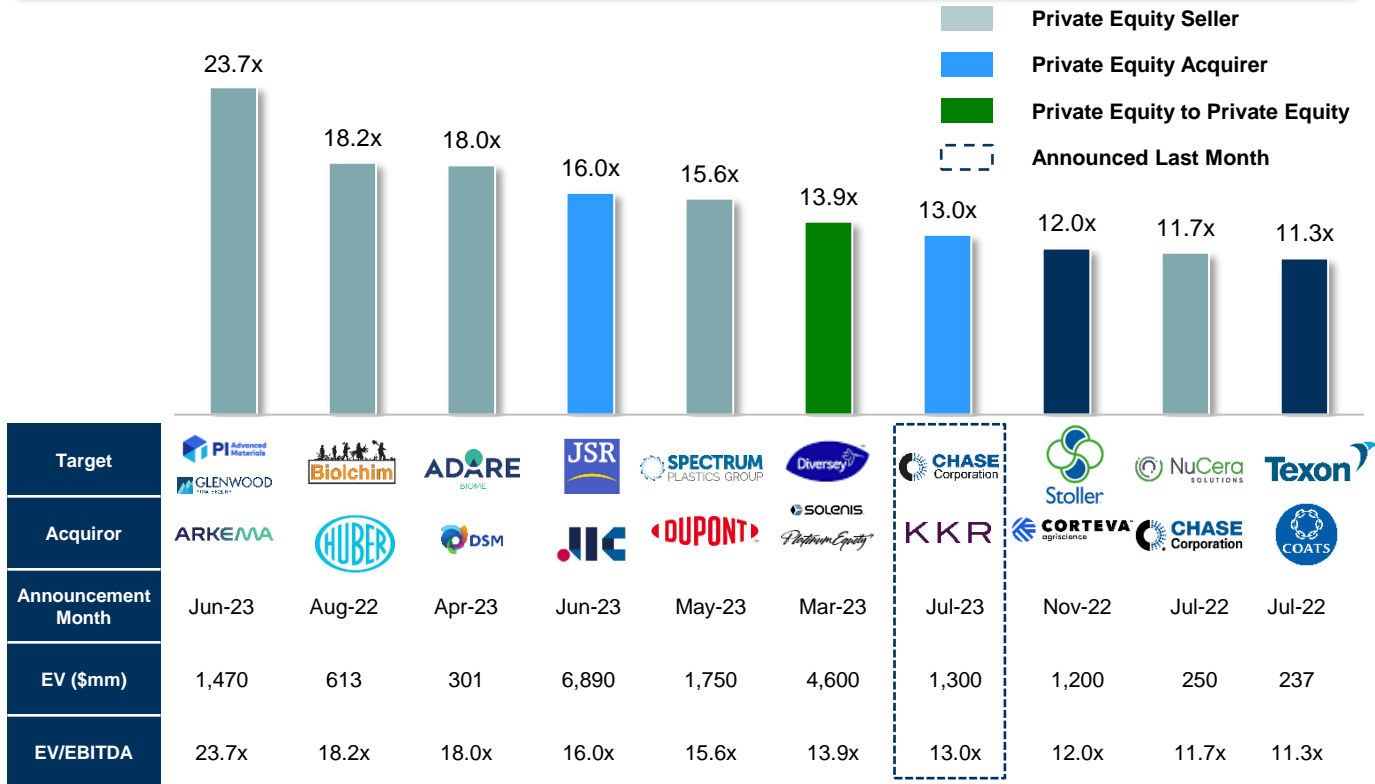
- On July 17, the **US Environmental Protection Agency** proposed a rule which would require a workplace chemical protection program with strict controls that include inhalation exposure limits and dermal protections for the manufacturing (including import) of carbon tetrachloride, processing, and other industrial or commercial uses ([Press Release](#))

**Corporate and
Market
Announcements**

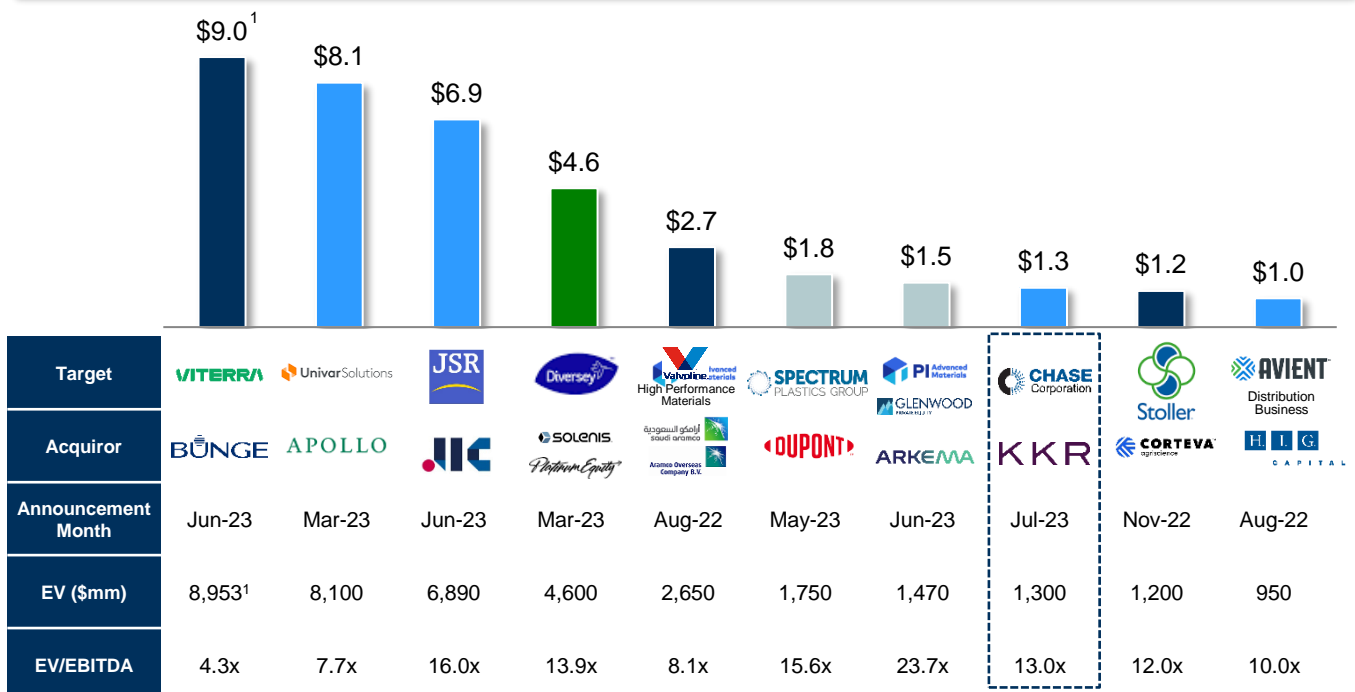
- **Heineken** announced that it would build a low-carbon fertiliser plant in Spain as part of **FertigHy**, a company it has founded together with **EIT InnoEnergy**, **RIC Energy**, **MAIRE**, **Siemens Financial Services** and **InVivo** to accelerate decarbonisation of food value chain. FertigHy plans to build and operate several large-scale low-carbon fertiliser projects ([Press Release](#))
- **Cepsa**, a Spanish multinational oil and gas company, announced plans to build the world's first production plant for the sustainable production of isopropyl alcohol (IPA) in Huelva, Spain. The new plant will require an investment of 75 million euros and is expected to be operational in 2025 ([Press Release](#))
- Swiss-based **EuroChem Group AG**, one of the world's leading fertilizer companies, announced it will initiate a process to mothball its Lifosa operation in Lithuania due to the impact of sanctions, which the company says has prevented normal and profitable operations ([Press Release](#))
- **Syclus**, a Netherlands-based biobased chemical company, has selected **Axens**, a French oilmass conversion technologies company, as licensor for Europe's first ethanol-based renewable ethylene production plant ([Press Release](#))
- **Moleaer**, a global leader in nanobubble technology, has entered into a distribution agreement with **Griffin Greenhouse Supplies**, one of the largest horticultural distribution and brokerage companies in the U.S. ([Press Release](#))
- **Lygos, Inc.**, a Berkeley, California-based biotechnology provider of sustainable specialty ingredients, announced the launch of Soltellus™, a line of multi-functional, water-soluble polymers for home care, agronomy, and water treatment. Soltellus is a nontoxic and biodegradable alternative to persistent polyacrylate and polycarboxylate polymers ([Press Release](#))
- **Locus Fermentation Solutions (Locus FS)**, a leading green tech company that produces biological alternatives to chemicals, has expanded its operational footprint by 100,000 square feet, which includes two biomanufacturing facilities in Solon, Ohio and increases Locus' production capacity by 3x ([Press Release](#))

Advanced Materials and Chemicals Transaction Statistics (LTM)

Highest Multiples Paid



Largest Transaction Size by EV



Source: Company filings, Mergermarket, Factset as of July 31st, 2023. All estimates reflect Factset consensus estimates.

1. Bunge acquisition of Viteria assumes RMI of \$9.0bn to be netted off from net debt.

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Markets Update

WTI / Brent



Natural Gas



Ethylene / Polyethylene



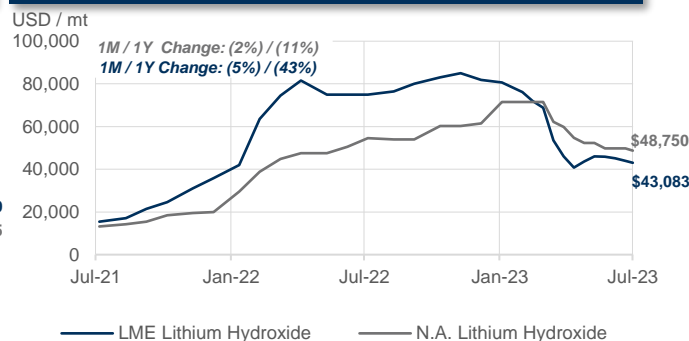
TiO₂



Nitrogen



Lithium



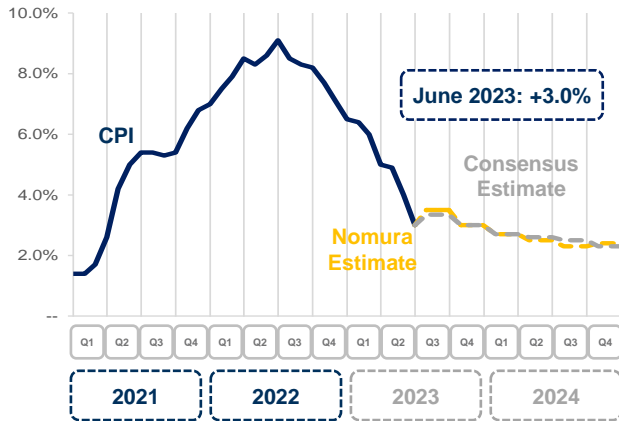
Corn



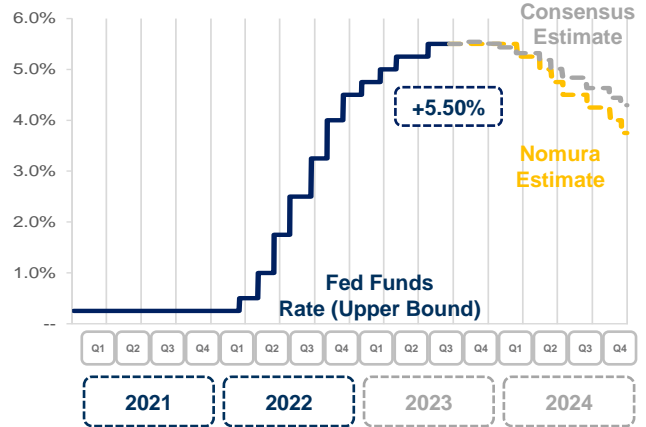
Soy



Inflation Continues to Moderate

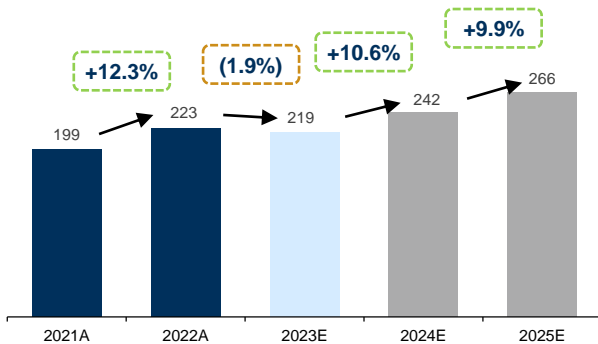


Fed Tightening Cycle Approaching Its Conclusion

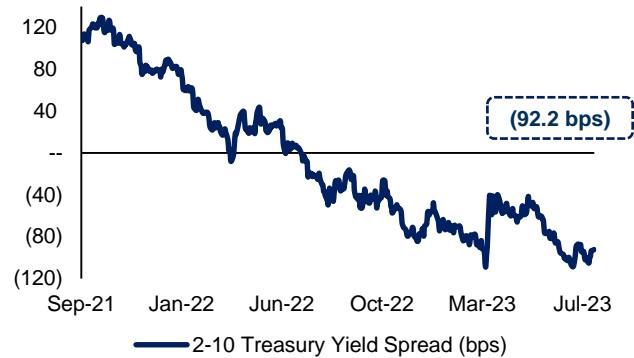


Guidance Points to '23 Earnings Contraction

S&P 500 Expected Earnings¹



In-Line with the Signal from the Yield Curve

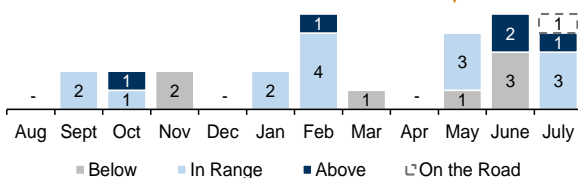


IPO Market Beginning to Thaw

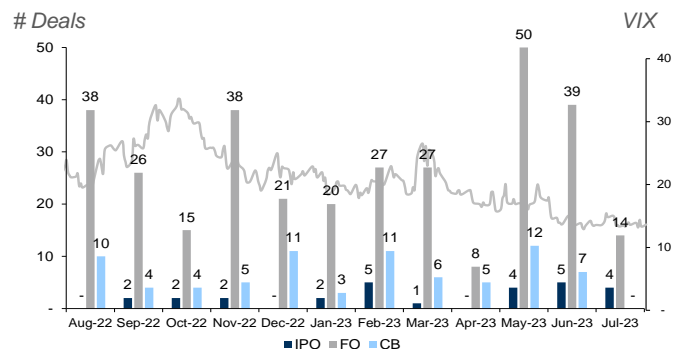
Total IPO Proceeds (\$bn)

-- 1.9 1.2 0.1 -- 0.3 1.6 0.3 -- 5.6 1.7 1.1

Kenvue's \$4.4bn IPO priced in May: largest IPO since Rivian in November 2021



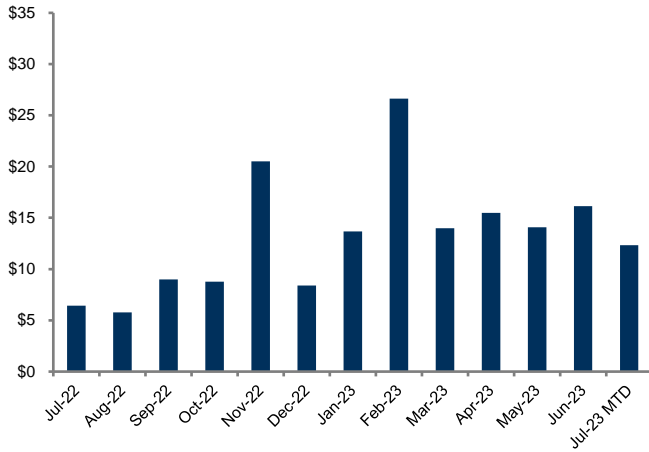
Market Activity Highly Correlated with the VIX



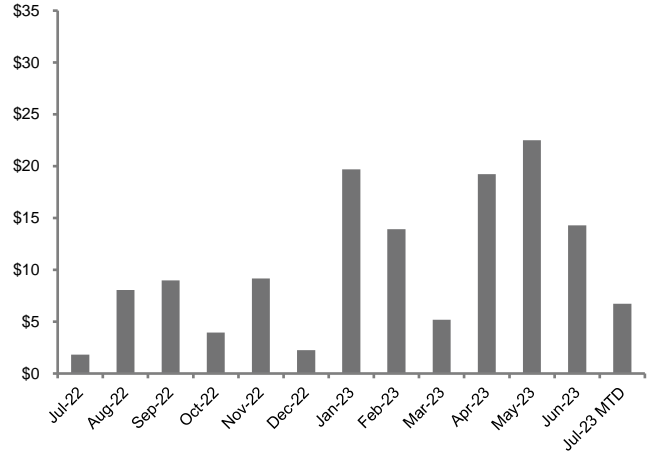
Source: Bloomberg as of market close July 31, 2023. Inflation chart reflects June data.

1. S&P 500 Expected Earnings as of July 31, 2023.

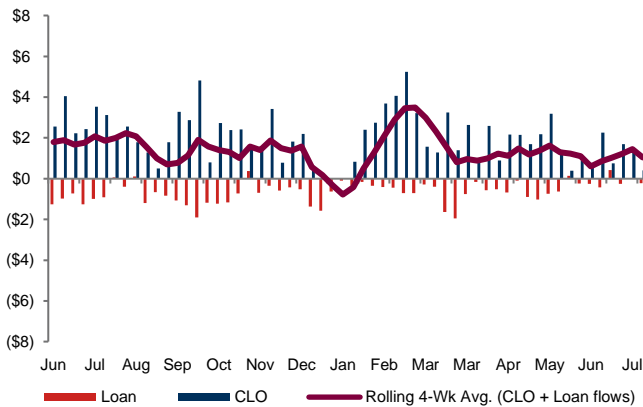
Loan Volume



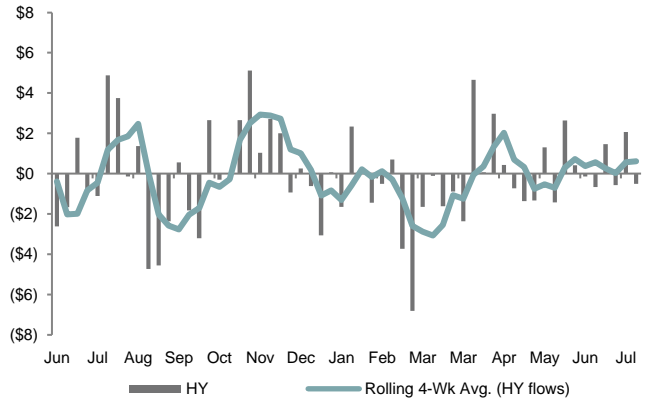
High Yield Volume (\$bn)



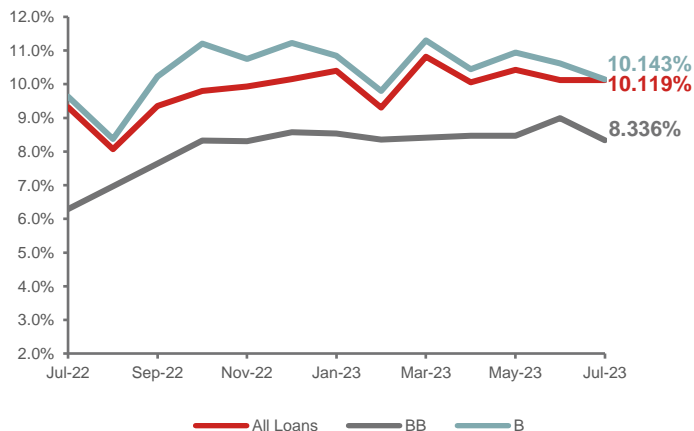
CLO Issuance + Loans Funds Flows (\$bn)



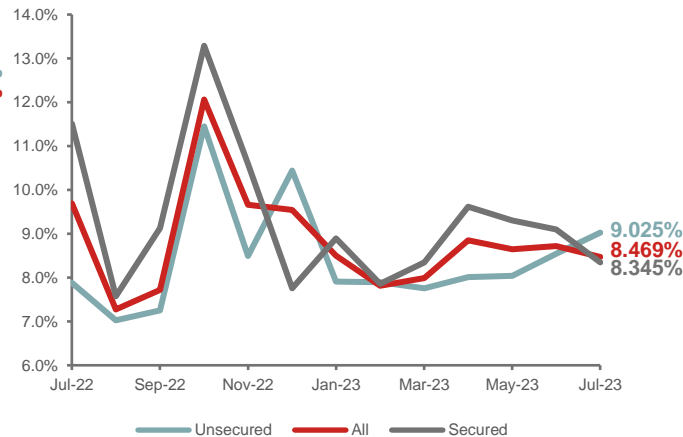
Recent High Yield Funds Flows (\$bn)



Leveraged Loan New Issue Yields¹



High Yield New Issue Yields²



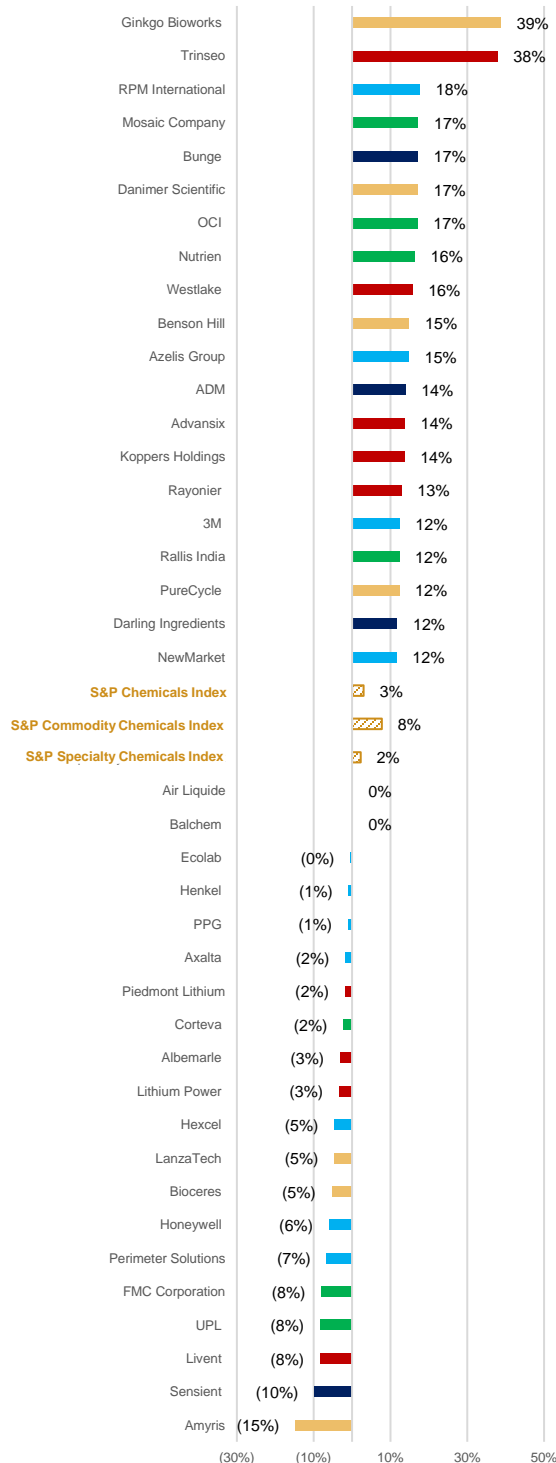
Source: Nomura, LCD.

1. Reflects rolling 30-day period.

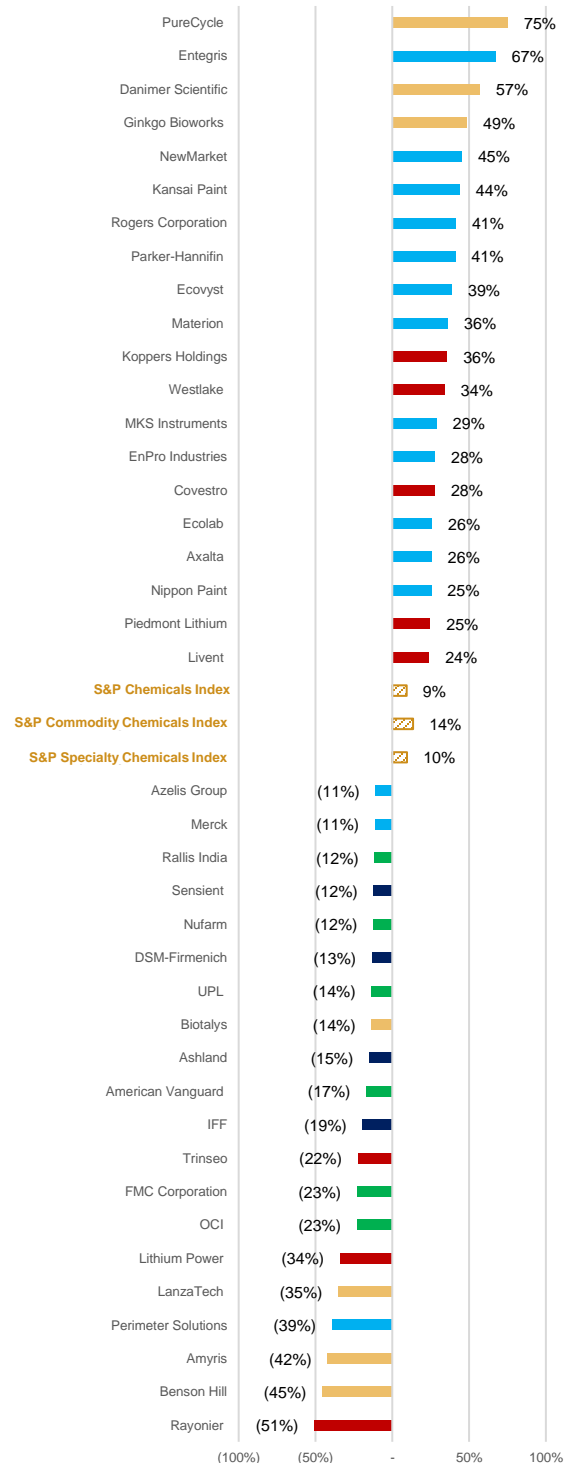
2. New Issue Yields reflect unsecured debt only.

Advanced Materials and Chemicals Share Price Performance

1 Month (Top & Bottom 20 Performers)



Year-to-Date (Top & Bottom 20 Performers)



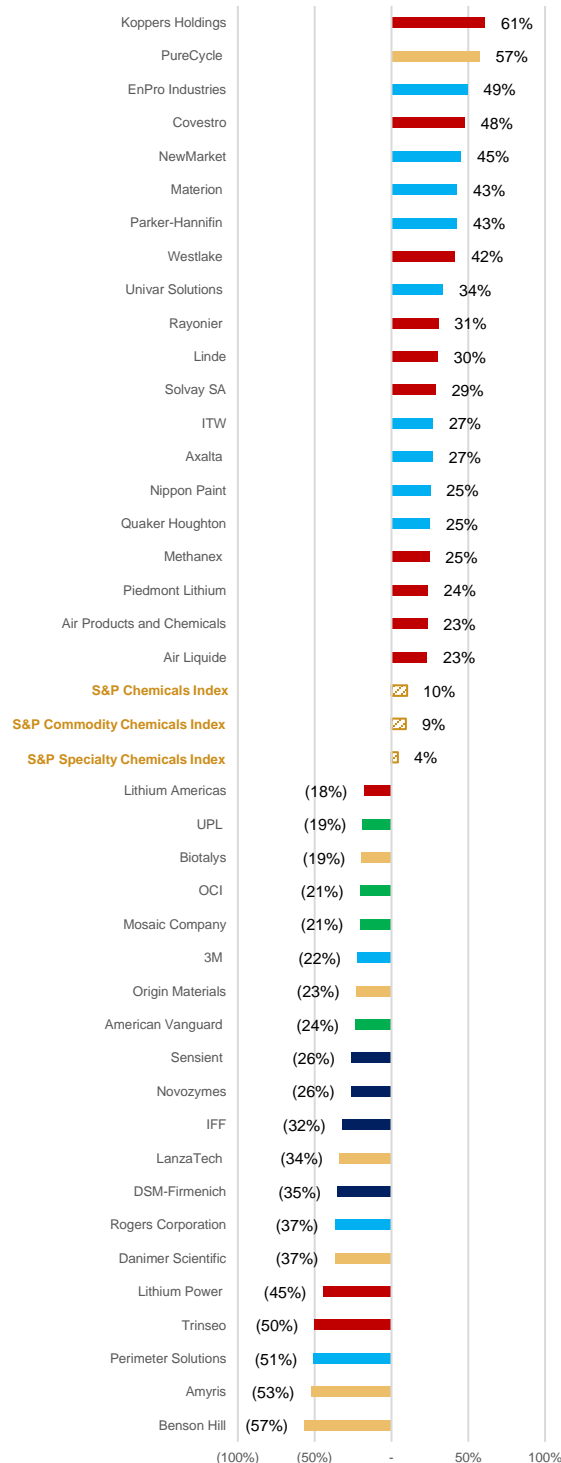
● Agriculture Chemicals
 ● Commodity & Diversified
 ● Chemicals Technology
 ● Ingredients
 ● Specialties
 ● Indices

Source: Factset as of July 31st, 2023, third-party providers.

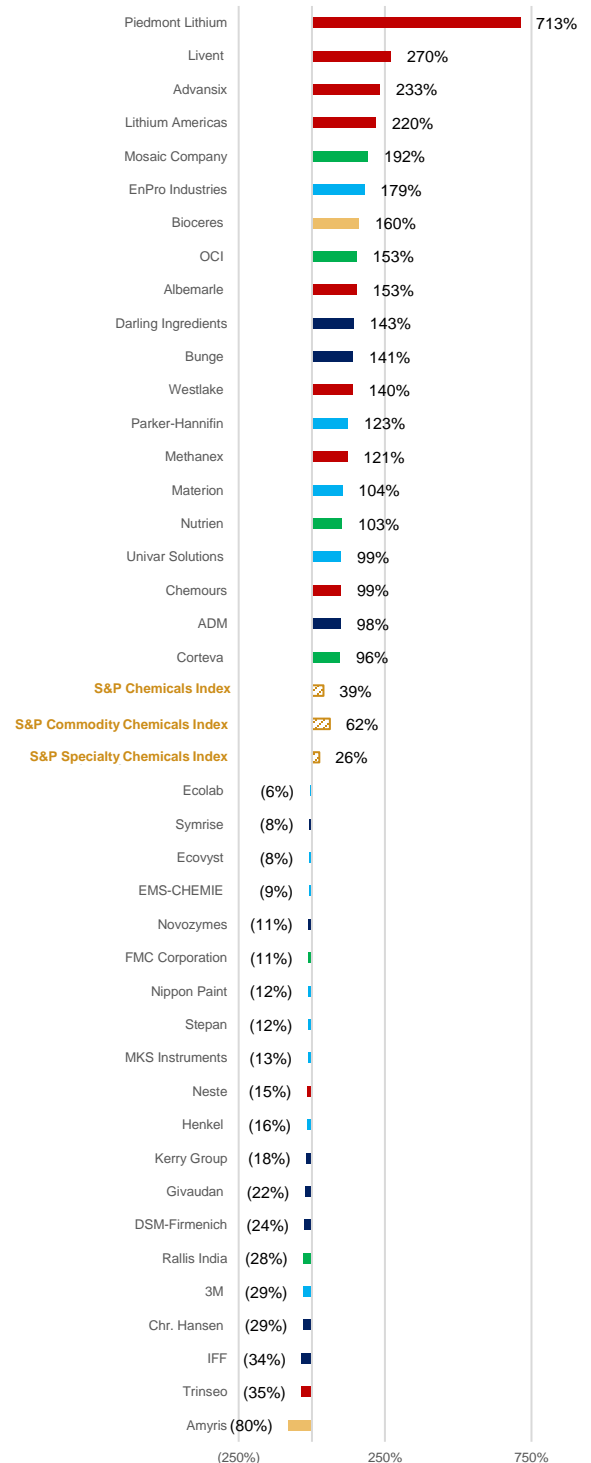
Note: Not including GRNA due to announced go-private transaction on May 30, 2023

Advanced Materials and Chemicals Share Price Performance

1 Year (Top & Bottom 20 Performers)



3 Years (Top & Bottom 20 Performers)



● Agriculture Chemicals ● Commodity & Diversified ● Chemicals Technology ● Ingredients ● Specialties ● Indices

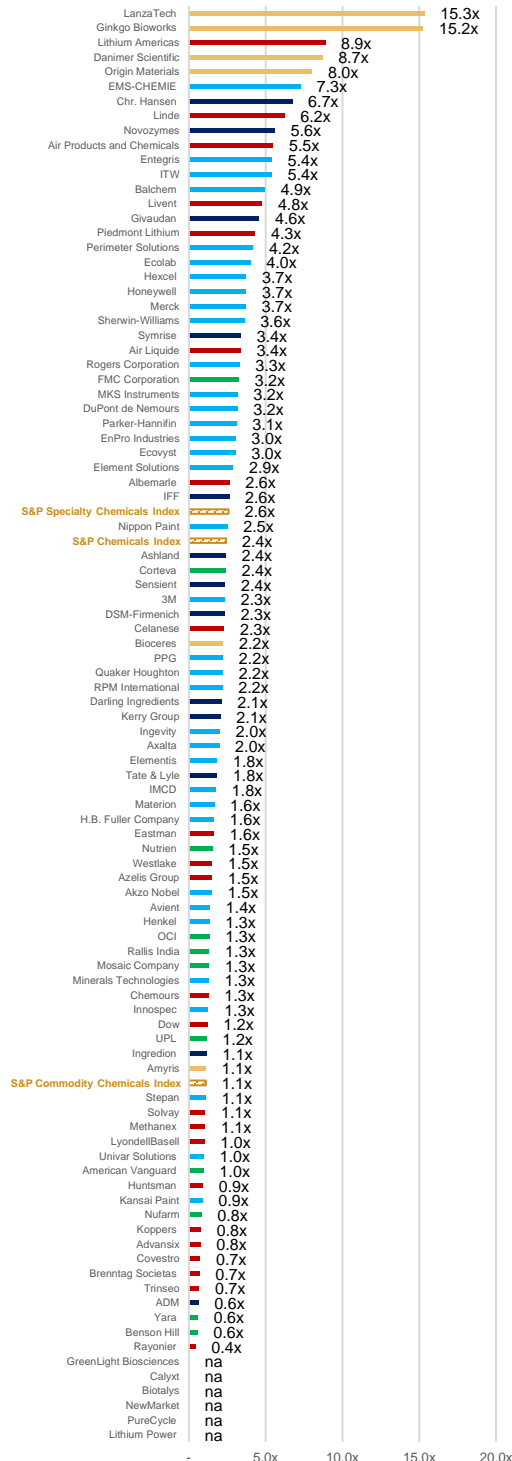
Source: Factset as of July 31st, 2023, third-party providers.

Note: Not including GRNA due to announced go-private transaction on May 30, 2023

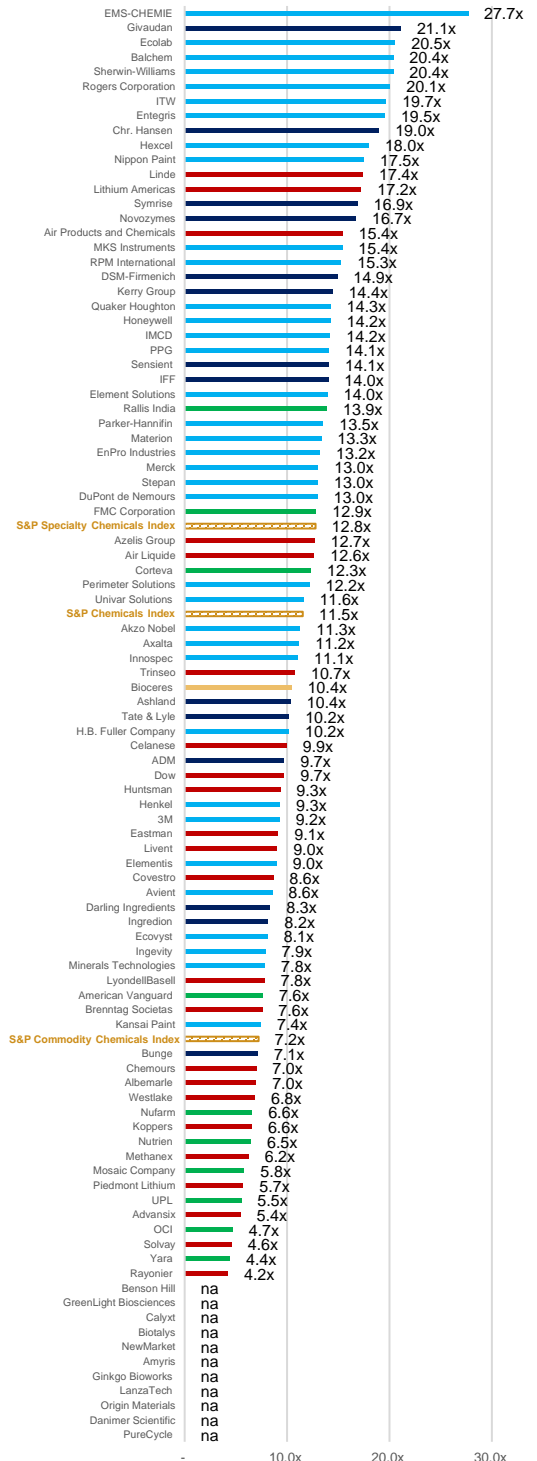
Advanced Materials and Chemicals

Trading Multiples

EV / 2023E Sales



EV / 2023E EBITDA



● Agriculture Chemicals ● Commodity & Diversified ● Chemicals Technology ● Ingredients ● Specialties ● Indices

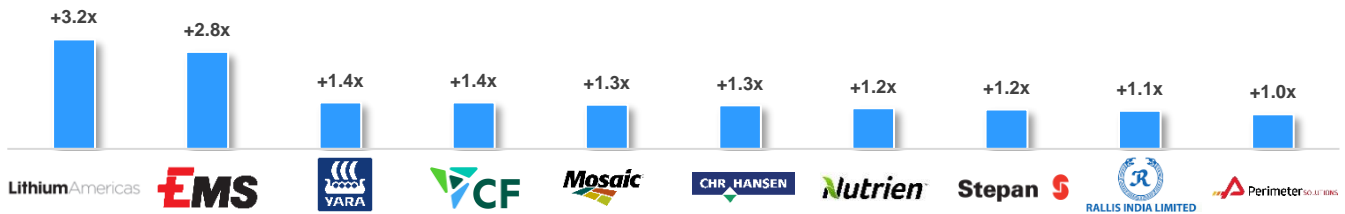
Source: Factset as of July 31st, 2023, third-party providers.

Note: Not including GRNA due to announced go-private transaction on May 30, 2023

Advanced Materials and Chemicals Top & Bottom Performers (EV Multiple)

1 Month Change (EV / NTM Multiple)

Top 10 Performers

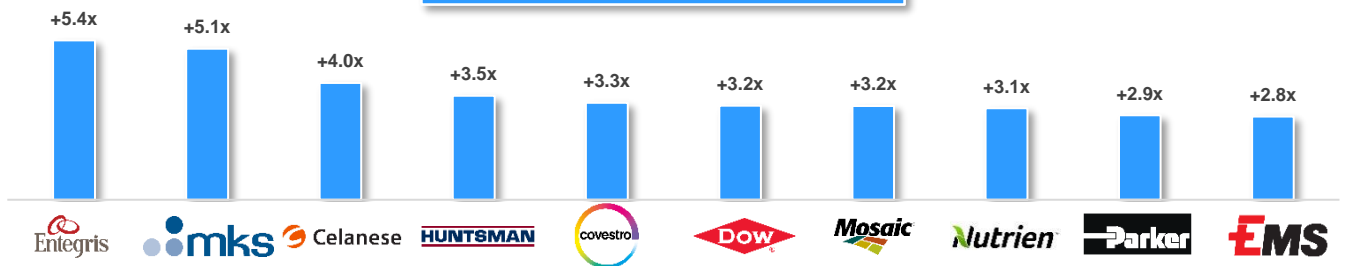


Bottom 10 Performers

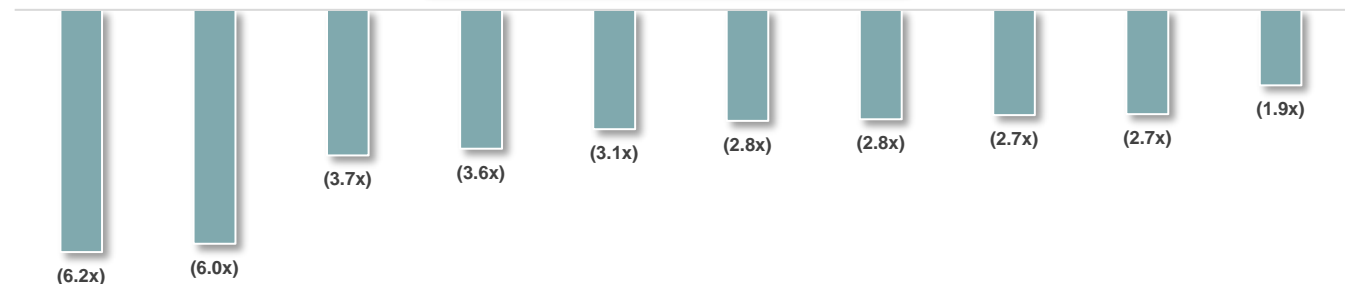


1 Year Change (EV / NTM Multiple)

Top 10 Performers



Bottom 10 Performers



Trading Comparables

Advanced Materials and Chemicals

Trading Comparables

Agriculture Chemicals

Company	Local Currency	Local		% of 52 week high	Price Return YTD	Dividend Yield	EBITDA			Sales		Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA		Price/Earnings		Net Leverage 2023E
		Price as of 31-Jul-2023					Sales 2023E	EBITDA 2023E	Margin 2023E	2022A-2024E CAGR	2023E 2024E				2023E 2024E	2023E 2024E			
AgChem Majors																			
Corteva	USD	56.43	82%	(4%)	1.1%	18,618	3,620	19.4%	5.8%	40,410	44,592	2.4x	12.3x	11.2x	19.6x	16.6x	0.8x		
FMC	USD	96.23	72%	(23%)	2.4%	5,316	1,341	25.2%	(0.2%)	12,082	17,239	3.2x	12.9x	11.2x	15.1x	12.3x	3.8x		
Tier 1 Mean			77%	(14%)	1.8%			22.3%	2.8%			2.8x	12.6x	11.2x	17.4x	14.4x	2.3x		
Tier 1 Median			77%	(14%)	1.8%			22.3%	2.8%			2.8x	12.6x	11.2x	17.4x	14.4x	2.3x		
AgChem Diversified																			
American Vanguard	USD	18.06	74%	(18%)	n.a.	640	80	12.6%	7.3%	538	615	1.0x	7.6x	6.8x	n.m.	n.m.	1.0x		
Nufem	AUD	5.37	94%	(12%)	2.1%	2,489	312	12.5%	0.3%	1,386	2,049	0.8x	6.6x	6.2x	13.9x	13.0x	2.0x		
Rallis India	INR	218.50	81%	(10%)	1.5%	380	36	9.6%	9.7%	517	504	1.3x	13.9x	11.1x	28.6x	21.2x	(0.4x)		
UPL	INR	624.35	77%	(13%)	2.1%	6,885	1,439	20.9%	8.1%	5,698	7,943	1.2x	5.5x	5.1x	10.8x	8.9x	1.5x		
Tier 2 Mean			79%	(13%)	1.9%			13.9%	6.3%			1.1x	8.4x	7.3x	17.8x	14.4x	1.0x		
Tier 2 Median			79%	(12%)	2.1%			12.5%	7.7%			1.1x	7.1x	6.5x	13.9x	13.0x	1.2x		

Agriculture Technology

Company	Local Currency	Local		% of 52 week high	Price Return YTD	Dividend Yield	EBITDA			Sales		Equity Value	Enterprise Value	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
		Price as of 31-Jul-2023					Sales 2023E	EBITDA 2023E	Margin 2023E	CAGR 2022E-2024E	2023E				2024E	2023E	2024E		
Benson Hill	USD	1.39	34%	(49%)	n.a.		430	(57)	(13.1%)	2.9%	303	239	0.6x	n.m.	n.m.	n.m.	n.m.	n.m.	
Bioceres	USD	12.89	83%	5%	n.a.		466	100	21.4%	23.7%	808	1,041	2.2x	10.4x	9.8x	n.m.	n.m.	2.3x	
Biotolays	EUR	5.88	79%	(12%)	n.a.		3	(22)	n.m.	n.m.	220	183	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	
Cibul	USD	20.00	51%	152%	n.a.		3	(78)	n.m.	n.m.	359	362	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	
GreenLight Biosciences	USD	0.30	5%	(75%)	n.a.		7	(108)	n.m.	41.6%	NA	NA	n.a.	n.m.	n.m.	n.m.	n.m.	n.m.	
Mean			51%	4%	NA				4.1%	22.7%			1.4x	10.4x	9.8x	NA	NA	2.3x	
Median			51%	(12%)	NA				4.1%	23.7%			1.4x	10.4x	9.8x	NA	NA	2.3x	

Coatings, Adhesives, Sealants and Elastomers (CASE)

Company	Local Currency	Local		Price as of 31-Jul-2023	% of 52 week high	Price Return YTD	Dividend Yield	EBITDA			Sales		Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA		Price/Earnings		Net Leverage
		Sales	EBITDA					Margin	CAGR	2023E	2024E	2023E				2024E	2023E	2024E		
CASE																				
Akzo Nobel	EUR	77.76	98%		26%	2.6%		12,135	1,612	13.3%	2.4%	14,257	18,208	1.5x	11.3x	9.8x	19.7x	15.7x	2.9x	
Axalta	USD	32.00	95%	27%		n.a.		5,262	930	17.7%	6.0%	7,173	10,400	2.0x	11.2x	10.4x	20.4x	16.9x	3.3x	
Chase Corporation	USD	125.89	93%	n.a.	46%	n.a.		n.a.	n.a.	n.m.	n.m.	1,205	1,029	n.m.	n.m.	n.m.	n.a.	n.a.	n.a.	
H.B. Fuller	USD	74.03	91%	2%	1.1%	3,674		589	18.6%	2.7%	4,186	5,992	1.6x	10.2x	9.1x	19.1x	16.0x	3.1x		
Henkel	EUR	63.54	91%	7%	2.9%	23,924	3,441	14.4%	(0.9%)	30,424	32,032	1.3x	9.3x	8.7x	16.1x	14.7x	0.4x			
Kansai Paint	JPY	2,329.00	98%	42%	1.6%	3,828	453	11.8%	6.4%	3,255	3,369	0.9x	7.4x	n.m.	16.9x	13.6x	0.4x			
Nippon Paint	JPY	1,302.00	99%	19%	1.0%	9,986	1,438	14.4%	6.9%	21,699	25,148	2.5x	17.5x	16.1x	27.3x	24.7x	2.3x			
PPG	USD	143.90	94%	16%	1.8%	18,190	2,861	15.7%	3.2%	34,148	40,359	2.2x	14.1x	12.8x	19.4x	17.3x	2.0x			
Quaker Houghton	USD	200.38	93%	19%	0.4%	2,010	310	15.4%	3.6%	3,639	4,421	2.2x	14.3x	13.2x	20.3x	16.7x	2.5x			
RPM	USD	103.31	96%	7%	1.7%	7,436	1,063	14.3%	5.0%	13,721	16,249	2.2x	15.3x	13.7x	23.0x	20.1x	2.3x			
Shawin-Williams	USD	276.50	97%	18%	0.9%	22,831	4,049	17.7%	3.0%	72,162	82,434	3.6x	20.4x	19.0x	28.9x	26.9x	2.5x			
Mean			95%	21%	1.6%				15.1%	3.8%				2.0x	13.1x	12.5x	21.1x	18.3x	2.2x	
Median			95%	19%	1.6%				14.9%	3.3%				2.1x	12.7x	12.8x	20.0x	16.8x	2.4x	

Chemical Distribution

Company	Local			Price as of 31-Jul-2023	% of 52 week high	Price Return YTD	Dividend	EBITDA		Sales		Equity	Enterprise	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
	Local Currency	Price as of	52 week high					Sales 2023E	EBITDA 2023E	Margin 2023E	CAGR 2022A-2024E				Value	Value	2023E	2024E	
Chemical Distribution																			
Azelis	EUR	23.50	86%	(12%)	1.5%	4,973	590	11.9%	8.0%	6,320	7,486	1.5x	12.7x	11.7x	19.0x	17.5x	2.0x		
Brenntag	EUR	70.48	91%	19%	3.0%	20,061	1,819	9.1%	(1.5%)	12,006	13,781	0.7x	7.6x	7.2x	13.1x	12.2x	0.9x		
IMCD	EUR	137.95	88%	3%	1.7%	5,365	664	12.4%	5.3%	8,674	9,440	1.8x	14.2x	13.6x	21.3x	20.8x	1.1x		
Univer	USD	36.14	100%	13%	0.9%	11,005	920	8.4%	(1.0%)	5,824	10,667	1.0x	11.6x	11.0x	12.8x	11.8x	5.2x		
Mean			91%	6%	1.8%			10.4%	2.7%			1.2x	11.5x	10.9x	16.5x	15.6x	2.3x		
Median			89%	8%	1.6%			10.5%	2.1%			1.2x	12.1x	11.4x	16.0x	14.9x	1.5x		

Chemical Technology

Company	Local Currency	Local		% of 52 week high	Price Return YTD	Dividend Yield	EBITDA			Sales		Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA		Price/Earnings		Net Leverage
		Price as of 31-Jul-2023					Sales 2023E	EBITDA 2023E	Margin 2023E	CAGR 2022A-2024E	2023E				2024E	2023E	2024E		
ChemTech																			
Danimer Scientific	USD	2.81	49%	53%	n.a.	70	(31)	n.m.	70.3%	293	653	9.3x	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	
Origin Materials	USD	4.48	60%	(8%)	n.a.	47	(59)	n.m.	n.m.	698	374	8.0x	n.m.	n.m.	n.m.	n.m.	n.m.	8.3x	
PureCycle	USD	11.84	100%	67%	n.a.	46	(56)	n.m.	n.m.	2,003	2,021	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.	
Mean			69%	37%	NA			NA	70.3%			8.7x	NA	NA	NA	NA	NA	8.3x	
Median			60%	53%	NA			NA	70.3%			8.7x	NA	NA	NA	NA	NA	8.3x	

Commodity

		Local		Price as of 31-Jul-2023	52 week high	% of	Price Return YTD	Dividend Yield	EBITDA		Sales		Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA		Price/Earnings		Net Leverage
Company	Local Currency	Sales 2023E	EBITDA 2023E						Margin 2023E	CAGR 2022E-2024E	2023E	2024E				2023E	2024E			
Commodity																				
AdvanSix	USD	40.11	90%	3%	0.7%	1,650	229	13.9%	(6.3%)	1,148	1,246	0.8x	5.4x	4.6x	9.7x	10.5x	0.4x			
Dow	USD	56.47	93%	10%	5.0%	44,120	5,500	12.5%	(9.8%)	40,319	53,465	1.2x	9.7x	7.6x	24.9x	14.9x	2.1x			
LyondellBasell	USD	98.86	98%	18%	4.8%	41,949	5,467	13.0%	(10.0%)	32,345	42,625	1.0x	7.8x	7.0x	11.0x	9.5x	1.8x			
Methanex	CAD	59.43	80%	14%	1.6%	3,631	613	16.9%	(7.7%)	3,051	3,821	1.1x	6.2x	4.8x	24.5x	17.3x	1.2x			
Westlake	USD	137.50	99%	34%	1.0%	13,756	3,038	22.1%	(5.5%)	17,771	20,793	1.5x	6.8x	6.5x	13.2x	12.4x	0.9x			
Mean			92%	16%	2.6%			15.7%	(7.9%)			1.1x	7.2x	6.1x	16.7x	12.9x	1.3x			
Median			93%	14%	1.6%			13.9%	(7.7%)			1.1x	6.8x	6.5x	13.2x	12.4x	1.2x			

Advanced Materials and Chemicals

Trading Comparables

Diversified

Company	Local		% of	Price Return	Dividend	EBITDA			Sales	Equity	Enterprise	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
	Local	Price as of				Sales	EBITDA	Margin					2023E	2024E	2023E	2024E	
	Currency	31-Jul-2023	52 week high	YTD	Yield	2023E	2023E	2023E	2022A-2024E	Value	Value	2023E	2023E	2024E	2023E	2024E	2023E
Diversified																	
Celanese	USD	125.39	98%	23%	2.2%	11,822	2,725	23.1%	13.7%	13,682	27,090	2.3x	9.9x	8.9x	11.7x	9.2x	4.8x
Eastman	USD	85.58	84%	6%	3.7%	9,505	1,682	17.7%	(2.0%)	10,279	15,350	1.6x	9.1x	8.0x	12.6x	10.1x	3.0x
Solvay SA	EUR	109.10	97%	16%	3.8%	14,206	3,281	23.1%	(9.3%)	12,433	15,039	1.1x	4.6x	4.7x	8.3x	8.3x	0.5x
Covestro	EUR	48.83	96%	35%	0.7%	17,656	1,491	8.4%	(3.5%)	10,401	12,885	0.7x	8.6x	7.2x	n.m.	17.0x	1.4x
Olefinours	USD	36.98	96%	19%	2.7%	6,258	1,139	18.2%	(0.1%)	5,476	7,956	1.3x	7.0x	6.1x	10.6x	8.1x	2.2x
Huntsman	USD	29.77	89%	8%	3.2%	6,871	672	9.8%	(4.5%)	5,394	6,271	0.9x	9.3x	7.1x	22.7x	13.3x	1.3x
Trinseo	USD	17.62	49%	(22%)	4.3%	4,486	275	6.1%	(2.7%)	643	2,956	0.7x	10.7x	7.4x	n.m.	18.4x	7.8x
Koppers	USD	38.26	100%	34%	n.a.	2,110	249	11.8%	3.9%	797	1,582	0.7x	6.3x	5.5x	8.6x	8.0x	3.0x
Rayonier Advanced Materials	USD	4.73	48%	(52%)	n.a.	1,812	181	10.0%	1.8%	308	765	0.4x	4.2x	3.7x	n.m.	n.m.	2.0x
Mean			84%	8%	2.9%			14.2%	(0.3%)			1.1x	7.8x	6.5x	12.4x	11.5x	2.9x
Median			95%	16%	3.2%			11.8%	(2.0%)			0.9x	8.6x	7.1x	11.1x	9.6x	2.2x

Electronic Chemicals & Materials

Company	Local		% of	Price Return	Dividend	EBITDA			Sales	Equity	Enterprise	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
	Local	Price as of				Sales	EBITDA	Margin					2023E	2024E	2023E	2024E	
	Currency	31-Jul-2023	52 week high	YTD	Yield	2023E	2023E	2023E	2022A-2024E	Value	Value	2023E	2023E	2024E	2023E	2024E	2023E
Electronic Chemicals																	
Element Solutions	USD	20.96	96%	15%	1.6%	2,392	493	20.6%	(0.5%)	5,062	6,885	2.9x	14.0x	12.6x	15.8x	13.9x	3.6x
CF Industries	USD	138.78	96%	26%	n.a.	1,102	254	23.0%	2.7%	2,897	3,351	3.3x	13.2x	12.1x	20.7x	18.7x	1.8x
Entegris	USD	109.71	96%	65%	0.4%	3,610	998	27.6%	8.9%	16,611	19,492	5.4x	19.5x	17.0x	44.4x	29.4x	2.9x
MKS Instruments	USD	109.17	88%	28%	0.8%	3,641	750	20.6%	6.3%	7,381	11,542	3.2x	15.4x	12.4x	33.7x	19.7x	5.4x
Materion	USD	119.14	97%	33%	0.4%	1,792	221	12.4%	3.6%	2,525	2,962	1.6x	13.3x	11.9x	21.3x	18.3x	1.9x
Rogers Corporation	USD	168.61	62%	40%	n.a.	974	160	16.4%	3.5%	3,205	3,203	3.3x	20.1x	15.8x	67.9x	33.5x	(0.0x)
Merck	EUR	159.80	79%	(11%)	1.4%	23,724	6,733	28.4%	1.0%	76,920	87,765	3.7x	13.0x	11.9x	17.8x	16.0x	1.3x
Mean			88%	28%	0.9%			21.3%	3.6%			3.3x	15.5x	13.4x	31.7x	21.3x	2.4x
Median			96%	28%	0.8%			20.6%	3.5%			3.2x	14.0x	12.4x	21.3x	16.7x	1.9x

Fertilizers

Company	Local		% of	Price Return	Dividend	EBITDA			Sales	Equity	Enterprise	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
	Local	Price as of				Sales	EBITDA	Margin					2023E	2024E	2023E	2024E	
	Currency	31-Jul-2023	52 week high	YTD	Yield	2023E	2023E	2023E	2022A-2024E	Value	Value	2023E	2023E	2024E	2023E	2024E	2023E
Fertilizers																	
CF Industries	USD	82.08	69%	(5%)	1.9%	6,816	2,864	42.0%	(24.9%)	16,086	16,801	2.8x	5.9x	6.6x	10.4x	13.3x	0.2x
Mosaic	USD	40.76	66%	(8%)	2.6%	13,324	2,995	22.5%	(20.9%)	13,537	17,449	1.3x	5.8x	6.6x	10.0x	11.8x	1.3x
Nutrien	CAD	90.87	68%	(9%)	3.0%	28,517	6,746	23.7%	(12.5%)	34,351	43,628	1.5x	6.5x	6.8x	11.7x	12.2x	1.3x
Ocl	EUR	25.88	72%	(12%)	6.7%	5,454	1,557	28.5%	(24.0%)	6,044	7,282	1.3x	4.7x	3.9x	33.0x	13.9x	0.8x
NOK	NOK	414.40	63%	(4%)	3.3%	16,784	2,230	13.3%	(13.5%)	10,434	9,854	0.8x	4.4x	3.8x	18.1x	10.9x	(0.3x)
Mean			71%	(6%)	3.3%			26.0%	(18.2%)			1.4x	5.5x	5.8x	16.8x	12.4x	0.7x
Median			69%	(8%)	3.0%			23.7%	(20.9%)			1.3x	5.8x	6.6x	11.7x	12.2x	0.8x

Ingredients

Company	Local		% of	Price Return	Dividend	EBITDA			Sales	Equity	Enterprise	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
	Local	Price as of				Sales	EBITDA	Margin					2023E	2024E	2023E	2024E	
	Currency	31-Jul-2023	52 week high	YTD	Yield	2023E	2023E	2023E	2022A-2024E	Value	Value	2023E	2023E	2024E	2023E	2024E	2023E
Diversified Ingredients																	
Archer-Daniels-Midland Company	USD	84.96	86%	(7%)	2.1%	99,207	6,273	6.3%	(1.4%)	52,639	61,022	0.6x	9.7x	10.4x	13.5x	14.8x	1.3x
Bunge Limited	USD	108.67	99%	9%	2.4%	63,035	2,968	4.7%	(4.7%)	16,670	21,171	0.3x	7.1x	7.4x	9.4x	9.7x	1.5x
Darling Ingredients Inc	USD	69.25	84%	11%	n.a.	7,448	1,900	25.5%	8.4%	11,267	15,851	2.1x	8.3x	7.8x	12.4x	11.5x	2.4x
Ingredion Incorporated	USD	111.26	98%	13%	2.6%	8,717	1,214	13.9%	7.2%	7,522	9,916	1.1x	8.2x	7.7x	12.2x	11.4x	2.0x
Tate & Lyle PLC	GBP	7.47	89%	7%	2.7%	2,292	412	18.0%	5.8%	3,829	4,197	1.8x	10.2x	9.7x	13.3x	12.4x	0.6x
Mean			91%	6%	2.4%			13.7%	3.1%			1.2x	8.7x	8.6x	12.1x	11.9x	1.5x
Median			89%	9%	2.5%			13.9%	5.8%			1.1x	8.3x	7.8x	12.4x	11.5x	1.5x
Specialty Ingredients																	
Ashland Inc.	USD	91.36	80%	(15%)	1.6%	2,252	522	23.2%	0.9%	4,729	5,408	2.4x	10.4x	9.1x	17.8x	14.7x	1.2x
DSM-Firmenich AG	EUR	100.50	3%	3%	2.5%	11,154	1,356	15.6%	24.8%	19,684	20,220	2.3x	14.9x	13.3x	37.4x	27.3x	0.4x
International Flavors & Fragrances Inc.	USD	84.61	65%	(19%)	3.9%	12,237	2,289	18.7%	0.9%	21,667	32,087	2.6x	14.0x	12.4x	18.4x	15.0x	4.5x
Givaudan SA	CHF	2,939.00	85%	4%	2.3%	8,041	1,742	21.7%	1.2%	31,379	36,731	4.6x	21.1x	19.5x	28.6x	26.6x	3.0x
Kerry Group Plc Class A	EUR	90.36	84%	8%	1.3%	9,393	1,343	14.3%	(0.3%)	17,809	19,371	2.1x	14.4x	13.2x	20.6x	18.4x	1.2x
Sensient Technologies Corporation	USD	64.04	72%	(11%)	2.6%	1,491	250	16.8%	4.6%	2,724	3,520	2.4x	14.1x	12.9x	21.3x	18.4x	3.1x
Symrise AG	EUR	99.38	86%	(2%)	1.1%	5,404	1,080	20.0%	6.0%	15,315	18,238	3.4x	16.9x	15.3x	30.4x	26.6x	2.2x
Mean			68%	(5%)	2.2%			18.6%	5.4%			2.8x	15.1x	13.7x	24.9x	21.0x	2.3x
Median			80%	(2%)	2.3%			18.7%	1.2%			2.4x	14.4x	13.2x	21.3x	18.4x	2.2x
Bio-Ingredients																	
Chr. Hansen Holding A/S	DKK	512.00	85%	3%	1.5%	1,494	530	35.5%	6.9%	10,007	10,052	6.7x	19.0x	17.3x	35.4x	30.9x	0.1x
Novozymes A/S Class B	DKK	340.00	72%	(4%)	1.8%	2,666	892	33.5%	4.0%	13,904	14,902	5.6x	16.7x	15.0x	27.8x	25.3x	1.1x
Mean			79%	(1%)	1.7%			34.5%	5.4%			6.2x	17.8x	16.1x	31.6x	28.1x	0.6x
Median			79%	(1%)	1.7%			34.5%	5.4%			6.2x	17.8x	16.1x	31.6x	28.1x	0.6x

Industrial Gas

Company	Local Currency	Local		% of 52 week high	Price Return YTD	Dividend Yield	EBITDA		Sales		Equity Value	Enterprise Value	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
		Price as of 31-Jul-2023					Sales	EBITDA	Margin	CAGR				2023E	2024E	2023E	2024E	
Industrial Gas																		
L'Air Liquide S.A.	EUR	163.36	97%	24%	2.0%	31,750	8,452	26.6%	1.2%	94,488	106,874	3.4x	12.6x	11.8x	25.1x	23.0x	1.3x	
Air Products and Chemicals, Inc.	USD	305.33	93%	(2%)	2.3%	13,498	4,797	35.5%	6.0%	68,216	73,937	5.5x	15.4x	14.1x	26.1x	23.4x	1.2x	
Linde plc	USD	390.67	100%	19%	1.3%	33,487	11,980	35.8%	3.1%	192,623	208,412	6.2x	17.4x	16.4x	28.1x	26.3x	1.3x	
Median			97%	14%	1.9%			32.6%	3.4%			5.9x	15.2x	14.1x	24.2x	21.3x	1.3x	
				97%	1.3%			35.5%	3.1%			6.2x	15.4x	14.1x	26.1x	23.4x	1.3x	

Advanced Materials and Chemicals

Trading Comparables

Lithium

Company	Local Currency	Local		% of 52 week high	Price Return YTD	Dividend Yield	EBITDA			Sales		Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA		Price/Earnings		Net Leverage 2023E
		Price as of 31-Jul-2023					Sales 2023E	EBITDA 2023E	Margin 2023E	CAGR 2022A-2024E					2023E	2024E	2023E	2024E	
Lithium																			
Albemarle	USD	212.28		63%	(4%)	0.8%	10,164	3,855	37.9%	18.3%	25,056	26,880	2.6x	7.0x	7.7x	9.5x	10.8x		0.4x
Lithium Americas	CAD	26.62		62%	0%	n.a.	351	180	51.5%	n.m.	3,301	3,109	8.9x	17.2x	12.9x	n.m.	28.7x		(1.1x)
Livent	USD	24.62		68%	24%	n.a.	1,095	578	52.8%	30.0%	5,156	5,213	4.8x	9.0x	7.6x	12.0x	10.4x		0.1x
Lithium Power	AUD	0.29		39%	(32%)	n.a.	n.a.	n.a.	n.m.	n.m.	123	119	n.m.	n.m.	n.m.	n.m.	n.m.		n.m.
Piedmont Lithium	USD	54.86		71%	23%	n.a.	223	168	75.4%	n.m.	1,061	961	4.3x	5.7x	3.1x	8.8x	2.5x		(0.6x)
Mean				61%	2%	0.8%			54.4%	24.1%				5.1x	9.7x	7.8x	10.1x	13.1x	(0.3x)
Median				63%	0%	0.8%			52.1%	24.1%				4.5x	8.0x	7.6x	9.5x	10.6x	(0.2x)

Multi-Industrial

Company	Local Currency	Local		% of 52 week high	Price Return YTD	Dividend Yield	EBITDA			Sales		Equity Value	Enterprise Value	EV/Sales	EV/EBITDA		Price/Earnings		Net Leverage
		Price as of 31-Jul-2023					Sales 2023E	EBITDA 2023E	Margin 2023E	CAGR 2022A-2024E	2023E				2024E	2023E	2024E		
Multi Industrial																			
3M	USD	111.50	73%	(7%)	5.4%	31,693	8,026	25.3%	(2.1%)	61,883	74,201	2.3x	9.2x	8.6x	12.6x	11.6x	1.5x		
DuPont de Nemours, Inc.	USD	77.63	99%	13%	1.9%	12,441	3,023	24.3%	0.4%	35,836	39,195	3.2x	13.0x	11.7x	21.9x	19.1x	1.1x		
Honeywell	USD	194.13	88%	(9%)	2.2%	37,028	9,671	26.1%	4.9%	130,092	137,721	3.7x	14.2x	13.3x	21.2x	19.5x	1.3x		
ITW	USD	263.32	100%	18%	2.0%	16,428	4,512	27.5%	3.2%	80,510	88,688	5.4x	19.7x	18.7x	27.5x	26.3x	1.8x		
Merck	EUR	159.80	79%	(11%)	1.4%	23,724	6,733	28.4%	1.0%	76,920	87,765	3.7x	13.0x	11.9x	17.8x	16.0x	1.3x		
Parker-Hannifin	USD	410.01	100%	37%	1.4%	19,448	4,453	22.9%	8.4%	53,646	60,283	3.1x	13.5x	12.6x	19.3x	17.7x	1.4x		
Mean			90%	7%	2.4%			25.7%	2.6%				3.6x	13.8x	12.8x	20.0x	18.4x	1.4x	
Median			93%	3%	1.9%			25.7%	2.1%				3.4x	13.3x	12.3x	20.2x	18.4x	1.4x	

Specialty

Company	Local Currency	Local		% of 52 week high	Price Return YTD	Dividend Yield	EBITDA			Sales		Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA		Price/Earnings		Net Leverage 2023E
		Price as of 31-Jul-2023					Sales 2023E	EBITDA 2023E	Margin 2023E	CAGR 2022A-2024E					2023E	2024E	2023E	2024E	
		Specialty																	
Avient	USD	40.53	82%	19%	2.4%	3,280	525	16.0%	1.8%	3,718	4,489	1.4x	8.6x	7.5x	22.8x	17.4x	1.4x		
Balchem	USD	134.74	94%	7%	n.a.	958	232	24.2%	5.4%	4,384	4,723	4.9x	20.4x	19.5x	32.5x	29.3x	1.5x		
Ecolab	USD	183.14	96%	26%	1.2%	15,307	2,991	19.5%	6.6%	52,527	61,438	4.0x	20.5x	18.6x	37.1x	31.7x	2.8x		
Ecoyst	USD	12.29	100%	38%	n.a.	760	285	37.5%	(1.2%)	1,527	2,306	3.0x	8.1x	7.5x	12.9x	11.9x	2.7x		
Elementis	GBP	1.11	85%	(9%)	2.1%	713	147	20.6%	(1.7%)	860	1,316	1.8x	9.0x	8.3x	14.0x	12.1x	3.3x		
EMS-CHEMIE	CHF	726.00	90%	17%	2.8%	2,654	697	26.3%	(0.1%)	19,589	19,318	7.3x	27.7x	25.3x	34.9x	33.1x	(0.3x)		
Hexcel	USD	70.68	89%	19%	0.7%	1,818	376	20.7%	13.7%	6,067	6,763	3.7x	18.0x	15.2x	36.8x	28.7x	1.8x		
Innospec	USD	107.14	92%	3%	1.3%	2,024	231	11.4%	4.2%	2,740	2,557	1.3x	11.1x	9.3x	18.5x	15.4x	(0.6x)		
Koppers	USD	38.26	100%	34%	n.a.	2,110	249	11.8%	3.9%	848	1,633	0.8x	6.6x	6.1x	9.1x	8.5x	3.0x		
Minerals Technologies	USD	61.35	(2%)	0.3%	2,203	365	16.6%	4.2%	2,007	2,866	1.3x	7.8x	7.1x	12.9x	10.7x	2.2x			
NewMarket	USD	451.70	100%	44%	n.a.	n.a.	n.a.	n.a.	n.a.	4,343	4,943	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.		
Ingevity	USD	64.02	70%	(10%)	n.a.	1,829	469	25.7%	7.8%	2,358	3,698	2.0x	7.9x	7.2x	11.6x	9.7x	2.8x		
Perimeter Solutions	USD	5.56	46%	(40%)	n.a.	341	117	34.2%	13.1%	873	1,421	4.2x	12.2x	7.8x	n.m.	30.7x	4.7x		
Stepan	USD	95.82	82%	(12%)	1.5%	2,459	206	8.4%	(2.8%)	2,155	2,685	1.1x	13.0x	8.8x	27.2x	16.6x	2.6x		
Mean			86%	10%	1.5%			21.0%	4.2%				2.8x	13.1x	11.4x	22.5x	19.7x	2.1x	
Median			90%	12%	1.4%			20.6%	4.2%				2.0x	11.1x	8.3x	20.7x	16.6x	2.6x	

Synthetic Biology

		Local					EBITDA			Sales								
	Local	Price as of	% of	Price Return	Dividend	Sales	EBITDA	Margin	CAGR	Equity	Enterprise	EV/Sales	EV/EBITDA	Price/Earnings	Net Leverage			
Company	Currency	31-Jul-2023	52 week high	YTD	Yield	2023E	2023E	2023E	2022E-2024E	Value	Value	2023E	2023E	2023E	2023E			
SynBio																		
Ginkgo Bioworks	USD	2.51	51%	44%	n.a.	290	(271)	n.m.	(12.9%)	5,746	4,422	15.2x	n.m.	n.m.	n.m.			
Amyris	USD	0.89	18%	(44%)	n.a.	529	(156)	n.m.	34.6%	342	583	1.1x	n.m.	n.m.	n.m.			
LanzaTech	USD	6.48	60%	(35%)	n.a.	88	(77)	n.m.	116.6%	1,353	1,353	15.3x	n.m.	n.m.	n.m.			
Mean			43%	(11%)	NA			NA	46.1%			10.6x	NA	NA	NA			
Median			51%	(35%)	NA			NA	34.6%			15.2x	NA	NA	NA			

Global Experts in Sustainable Technology and Infrastructure

Nomura Greentech Offices



Nomura Greentech Transactions

Mergers & Acquisitions

- Corporate sales
- Acquisitions
- Minority investments
- Joint ventures
- Fairness opinions

\$147bn

Asset Transactions

- Acquisitions
- Divestitures
- Passive equity
- Development capital formation

Operating 55GW | **Development 200GW**

Capital Raising

- Equity private placements
- Debt private placements
- Project finance advisory
- Bookrun public equity offering

\$59bn

Transactions

- Mergers and acquisitions
- Sales and divestitures
- Capital raise
- Capital markets
- General advisory

>260 transactions

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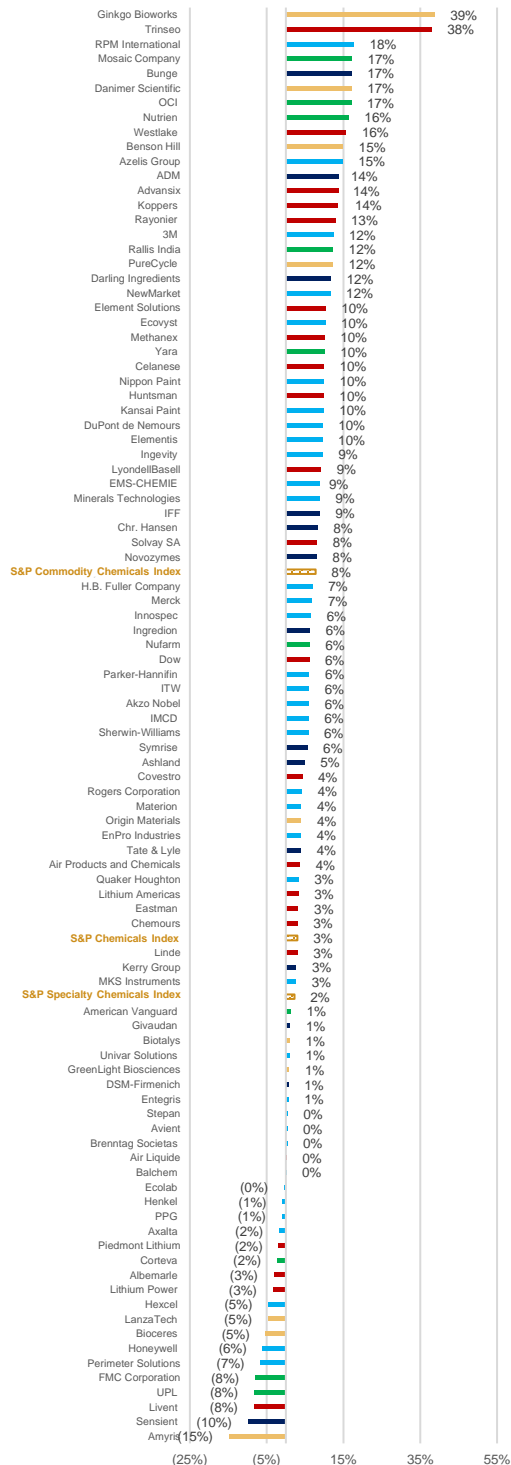


Appendix

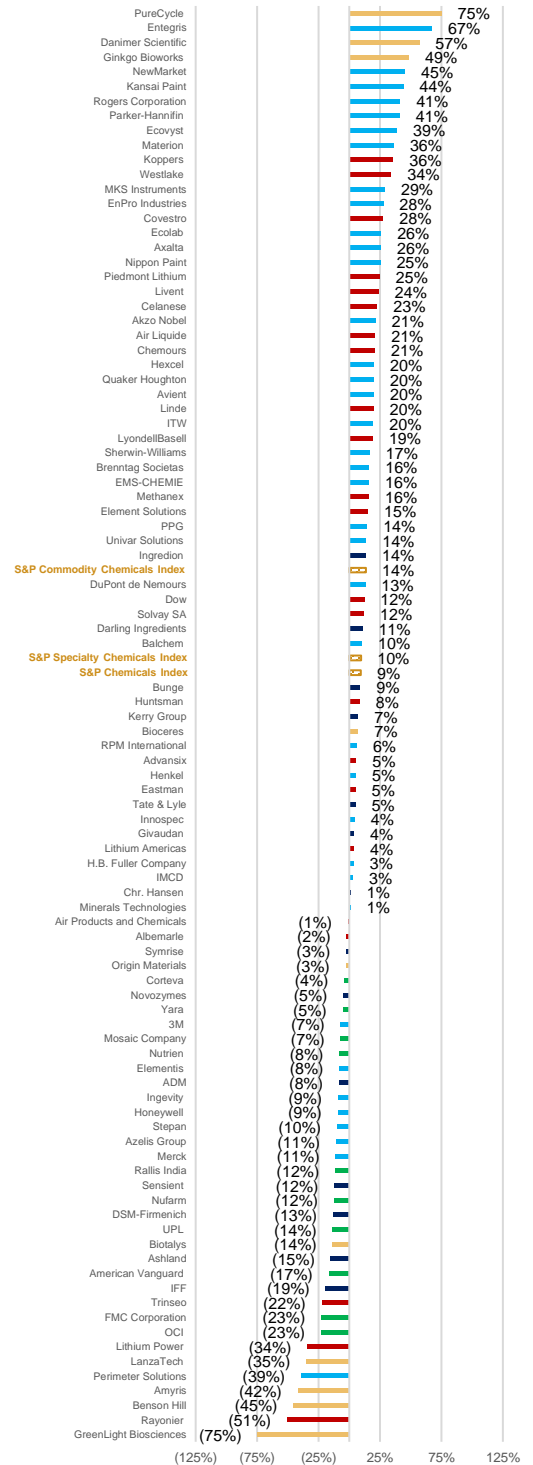
Advanced Materials and Chemicals

Share Price Performance

1 Month



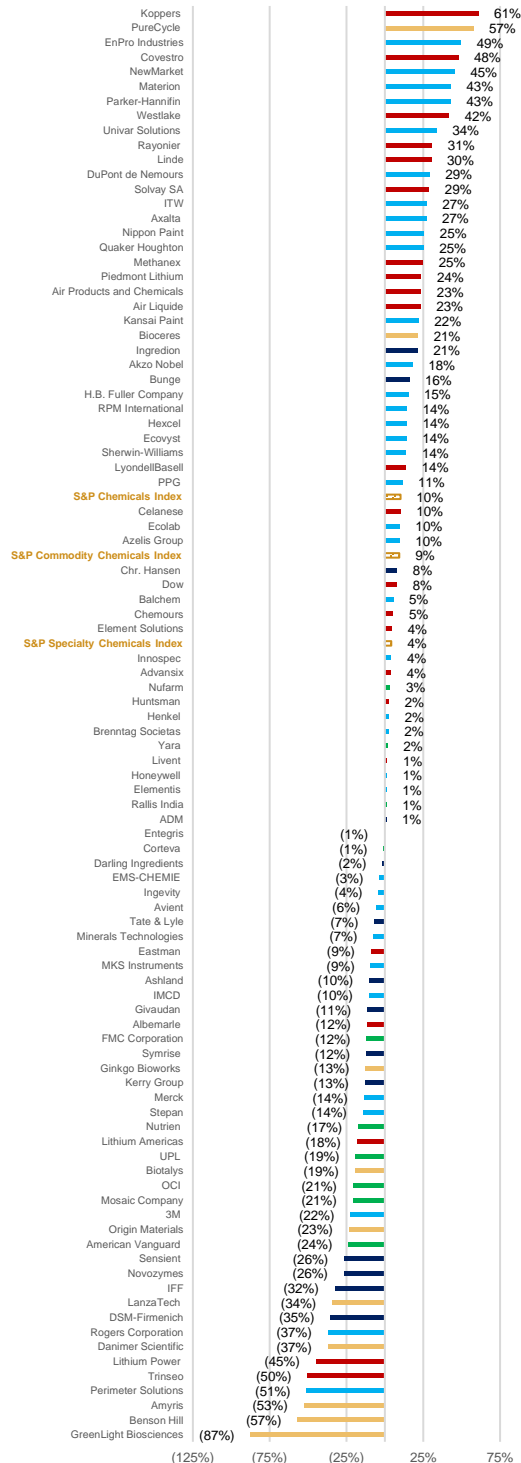
Year-to-Date



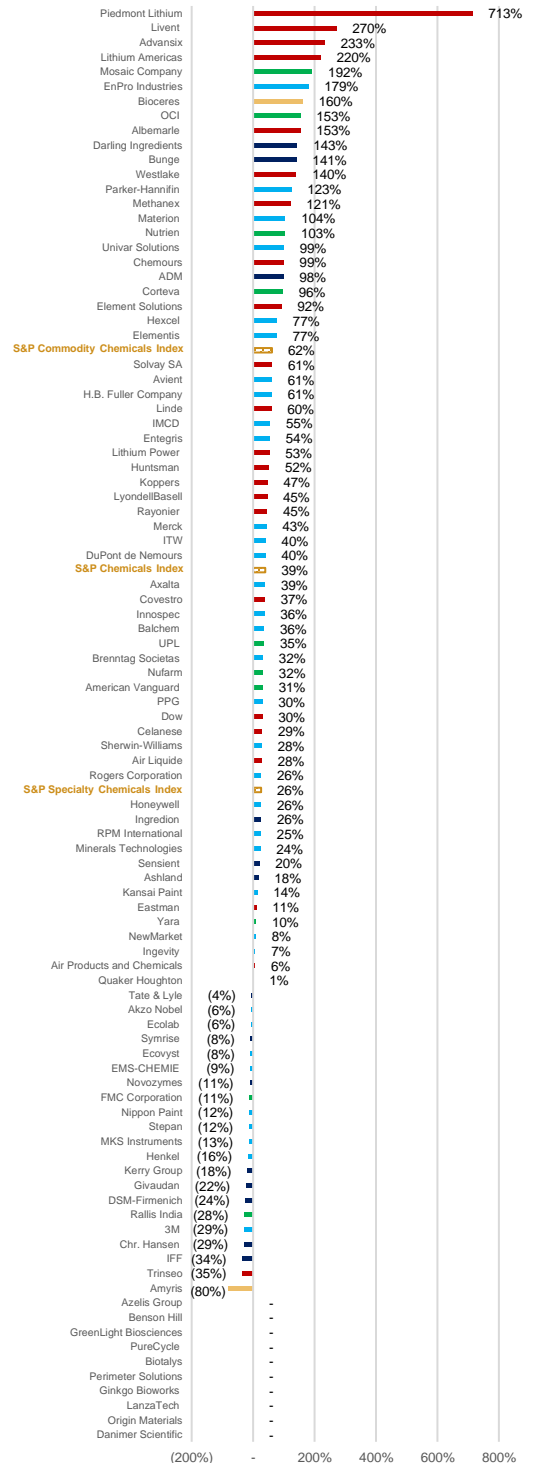
Advanced Materials and Chemicals

Share Price Performance

1 Year



3 Years



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