




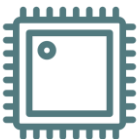






Advanced Materials and Chemicals Update

December 2023

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

Keith Tauro

Head of Advanced Materials and Chemicals, Americas
New York, NY

Mobile: +1 646 617 0791

keith.tauro@nomuragreentech.com

C W James VanMilder

Head of Nomura Greentech Equity Capital Markets
New York, NY

Mobile: +1 703 624 8705

james.vanmilder@nomuragreentech.com

Niul Wood

Head of Advanced Materials and Chemicals, EMEA
London, U.K.

Mobile: +44 792 564 2383

niul.wood@nomura.com

Key Index Trading Performance

	Share Price Performance (Indexed to Today)				
	3-Years	1-Year	YTD	3 Months	1 Month
S&P 500	28%	24%	24%	11%	5%
S&P Chemicals Index	19%	8%	9%	9%	6%
S&P Commodity Chemicals Index	15%	11%	11%	6%	6%
S&P Specialty Chemicals Index	7%	12%	13%	14%	10%

(Indexed to 100)



	Average Performance (EV / NTM EBITDA)					
	3-Years	1-Year	YTD	3 Months	1 Month	Current
S&P 500	13.2x	12.7x	12.8x	12.8x	13.2x	13.4x
S&P Chemicals Index	10.8x	10.9x	10.9x	11.1x	11.6x	11.9x
S&P Commodity Chemicals Index	6.2x	6.9x	6.9x	7.0x	7.3x	7.5x
S&P Specialty Chemicals Index	13.4x	12.2x	12.2x	12.3x	13.2x	13.6x

(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%)
3 Q	141	\$15.0	138	\$9.5	2%	58%
4 Q	190	\$32.8	186	\$19.6	2%	67%
Year to Date	670	\$94.6	733	\$96.3	(9%)	(2%)

2023 Review

- Destocking since Q3 2022 was the longest in the last ~30 years, leading to a weak demand, under-utilization of manufacturing asset base and pricing pressure
- This was exacerbated by persistent inflation and higher interest rate environment, leading to slower growth
- Companies, especially those based in Europe, had profit warning and lowered FY 2023 guidance
- Due to low volume growth, companies focused on price and cost-cutting ("self-help efforts") to deliver on profit growth

2024 Outlook

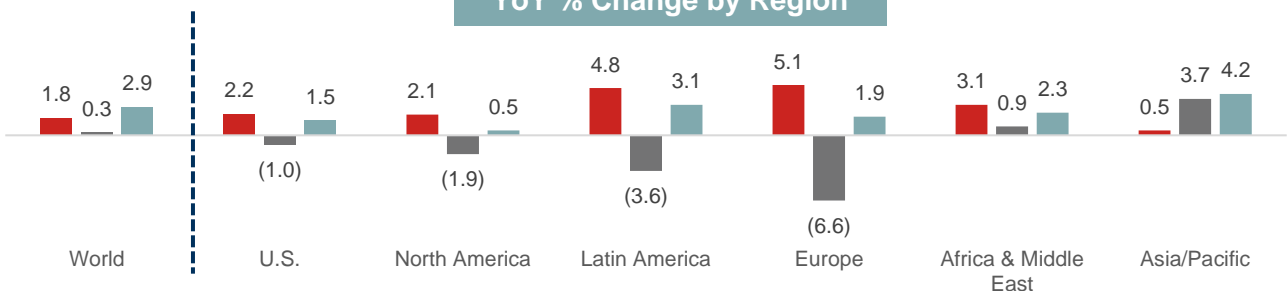
- While many expect no further significant destocking, important questions remain for 2024:
 - Timing:** When will the volume recovery, or restocking, start?
 - Scale:** Will volumes get back to the previous expansionary cycle levels?
- Many are assuming recovery to start in 2H 2024 after seeing more visible signs of improvement in industrial production and possible Fed rate cuts
- Despite an end to a de-stocking cycle, companies are likely to be cautious about building their inventory
 - Choice between producing more for better costs and fixed cost absorption, or producing less to lower working capital and improve FCF
- Key end markets to look for improvement include auto, industrials and building/construction sectors
- Geopolitics and US election (i.e., reversal of IRA) are events that will impact view on outlook

Global Macroeconomic Statistics

	YoY % Change		
	2022	2023E	2024E
GDP	3.2	2.7	2.3
Industrial Production	3.0	0.6	1.8
Consumer Prices	8.3	5.9	4.5
World Trade Volumes	3.6	0.3	2.9

Global Chemicals Volumes

YoY % Change by Region



YoY % Change by Segment



■ 2022 ■ 2023 ■ 2024

Select Mergers & Acquisitions

- On December 8, **Ineos**, a manufacturer of petrochemicals, specialty chemicals and oil products, announced the acquisition of **LyondellBasell's Ethylene Oxide and Derivatives Business** for **\$700mm** ([Press Release](#))
- On December 12, **Kerry Group**, an Ireland-based manufacturer of frozen and processing food, announced the acquisition of **The Lactate Enzymes Business**, the lactate enzyme business of **Chris Hansen Holdings** and **Novozymes** ([Press Release](#))
- On December 15, **Abu Dhabi National Oil Company (ADNOC)**, a UAE-based provider of drilling services and marine equipment, acquired a **50% stake** in **Fertiglobe**, a UAE-based nitrogen fertilizer producer for **\$3.7bn** from **OCI** ([Press Release](#))
- On December 18, **Koch Ag and Energy Solutions**, a Koch Industries Hold Co. providing solutions for the agriculture, energy and chemicals market, acquired **OCI's Iowa Fertilizer Company (IFCO)**, a large-scale US greenfield nitrogen fertilizer facility, for **\$3.6bn** ([Press Release](#))
- On December 18, **EQT**, a Sweden-based investment organization, acquired **Zeus**, a developer of fluoropolymer tubing for medical devices and select industrial applications ([Press Release](#))
- On December 18, **Samyang Holdings**, a South Korea-based Holding company investing in the chemicals, food and pharmaceuticals sector, acquired **Verdant Specialty Solutions**, a provider of amphetary surfactants for industrials, home and personal care, for **~\$250mm** ([Press Release](#))
- On December 19, **ADM**, a global human and animal nutrition company, acquired **Fuerst Day Lawson**, an ingredients solution provider specializing in the development and manufacturing of natural taste and nutrition solutions ([Press Release](#))
- On December 20, **Trelleborg**, a Sweden-based provider of polymer solutions to seal, dampen and protect critical applications, acquired **MNE Group**, a South-Korea based manufacturer of precision seals for semiconductor production equipment, through **Trelleborg Sealing Solutions** for **\$64mm** ([Press Release](#))
- On December 22, **PT Lintas Citra Pratama**, a subsidiary of Indonesia-based chemical product manufacturing holding company Polychem Capital, acquired 80% stake in **PT Mitsubishi Chemical Indonesia**, an Indonesia-based chemicals manufacturer ([Press Release](#))

Select Capital Raises

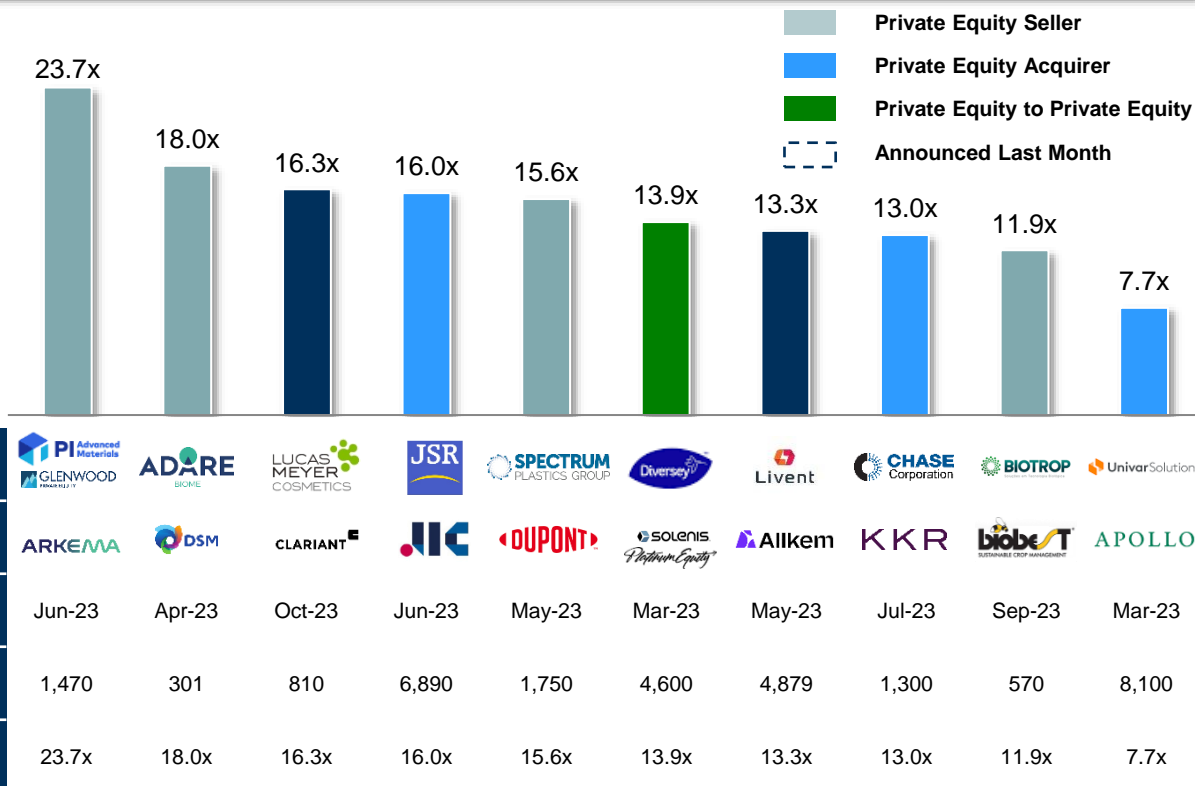
- On December 5, **Ionomr Innovations**, a developer of foundational polymer and membrane technologies for hydrogen applications, raised **\$20mm** in **Series A4** led by **NGIF Cleantech Ventures** and **Pallasite Ventures**, with participation from **Shell Ventures**, **Chevron Technology Ventures** and **Finindus** amongst others ([Press Release](#))
- On December 8, **Nth Cycle**, a critical metal refining company raised **\$37mm** in **Series B** funding and an additional **\$7mm** in non-dilutive financing led by **VoLo Earth Ventures**, **MassMutual**, **Caterpillar Venture Capital** and **Equinor Ventures** ([Press Release](#))

**Corporate and
Market
Announcements**

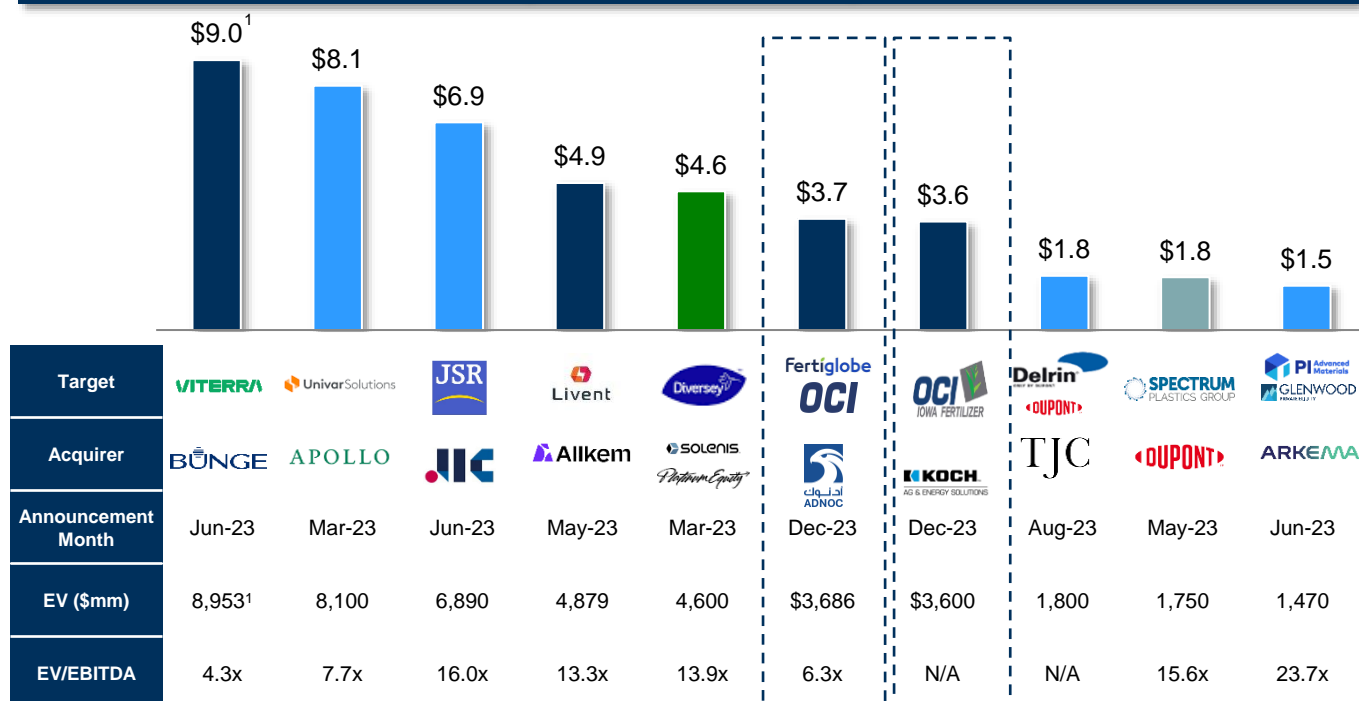
- **Gunvor USA**, an independent commodities trading house, executed a feedstock supply and product offtake Letter of Intent with **ClearShift**, a Dallas-based producer of gas-to-liquid technology, specialty chemicals and low-carbon fuels ([Press Release](#))
- **Mott Corporation**, a provider of filtration and flow control solutions and announced an agreement with **S-OIL**, a South Korea-based refinery, to provide filtration technology for S-OIL's **Sahaheen Project**, an under construction petrochemical project, in South Korea ([Press Release](#))
- **Texcel**, a supplier of industrial hoses, fluid sealing and hydraulic products and services, announced a partnership with **Harbor Group Partners**, an operations focused company with companies engaged in manufacturing and distribution across specialty chemicals, outdoor living products amongst others ([Press Release](#))
- **GreenLab**, an emerging biotechnology company producing complex crop protein, announced a partnership with **Ginko Bioworks**, a developer of a cell programming and biosecurity platform, to leverage Ginko's **Ginko Enzyme Services** platform to discover a novel enzyme to degrade per- and polyfluoroalkyl substances (PFAS) ([Press Release](#))
- **Trinseo**, a specialty material solution provider, inaugurated its next generation polymethyl methacrylate (PMMA) depolymerization plant in Rho, Italy which is scheduled to be commissioned in Q1 2024 ([Press Release](#))
- **PPG**, a global coatings producer, inaugurated a **\$17mm** aerospace application support center with filling and packaging capabilities for aerospace materials including coatings and sealants for aircrafts in Toulouse, France ([Press Release](#))
- **Darling Ingredients**, a company turning food waste into sustainable products, announced that its health brand **Rousselot**, received a U.S. patent for its product StabiCaps™, a specialized gelatin that improves the formulation and stability of soft gel capsules and enhances the release of active ingredients ([Press Release](#))
- The Coil and Extrusion Coatings business of **AkzoNobel**, a Netherlands-based paint and coatings producer, signed a strategic agreement with **Wuxi EI Pont Radiation Technology**, a company operating in the high energy radiation accelerator market, to develop a pioneering process that uses electron beams to cure coatings on metal substrates ([Press Release](#))
- **Rogers Corporation**, a developer of engineered materials for equipment manufacturers and component suppliers, expanded its PORON EVExtend product portfolio, designed to address the challenges of EV battery pads, to include PORON EVExtend 71, a product that maintains a high compression force on the battery ([Press Release](#))

Advanced Materials and Chemicals Transaction Statistics (LTM)

Highest Multiples Paid



Largest Transaction Size by EV



Source: Company filings, Mergermarket, Dealogic, Factset as of December 29th, 2023. All estimates reflect Factset consensus estimates.

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

Nomura is not associated, affiliated, authorized, sponsored, or endorsed by any of the third parties referenced herein. All third party names, marks, and logos are trademarks™ or registered® trademark of their respective owners.

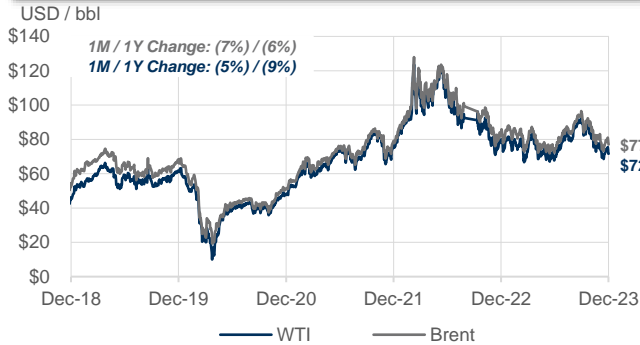
Markets Update

Advanced Materials and Chemicals

Historical Commodity Pricing

Conventional Chemical Commodities

WTI / Brent



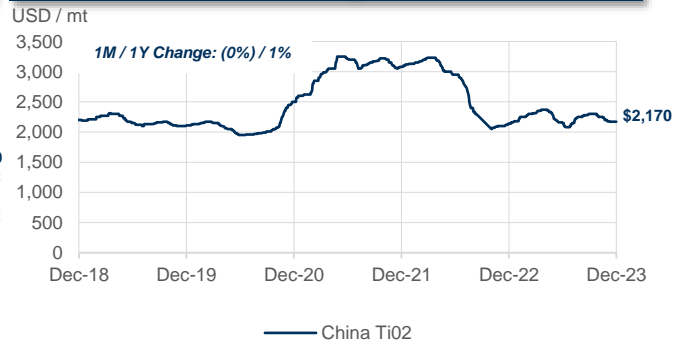
Natural Gas



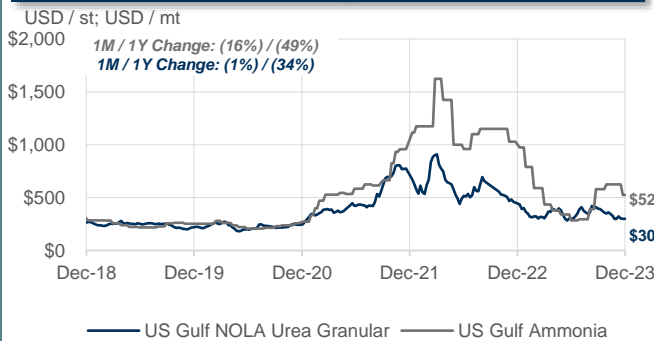
Ethylene / Polyethylene



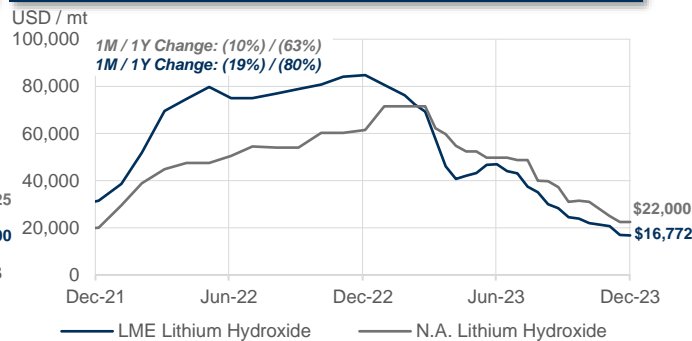
TiO₂



Nitrogen



Lithium



Corn

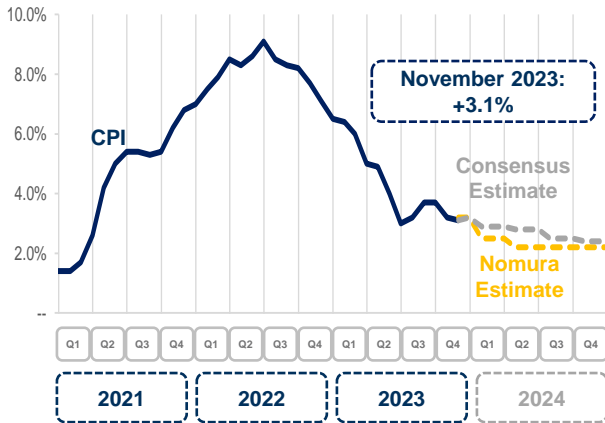


Soy

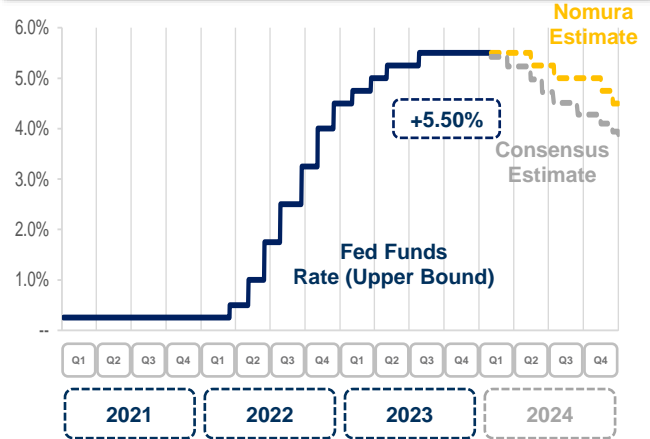


Crops

Inflation Estimates Approaching Fed Target

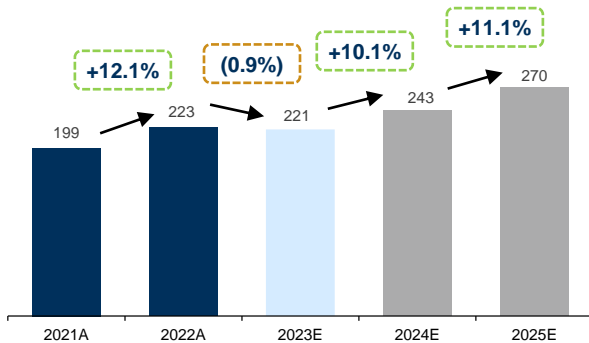


Fed Tightening Cycle Likely Complete

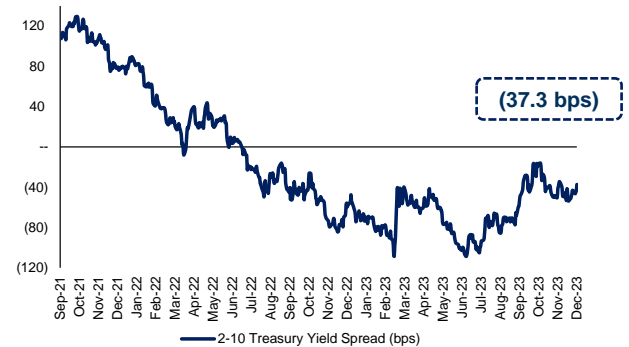


Markets Looking Past '23 Earnings Contraction

Consensus S&P 500 Expected Earnings



In-Line with the Signal from the Yield Curve



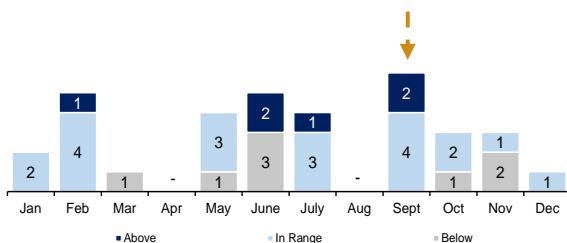
IPO Activity Has Picked Up in Recent Months

Total IPO Proceeds (\$bn)

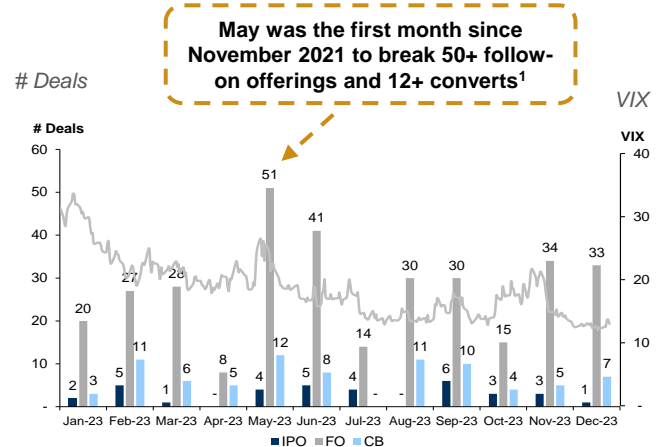
0.3 1.6 0.3 -- 5.6 1.7 1.0 -- 7.1 1.9 0.7 0.1

34 IPOs priced YTD compared to 20 in all of 2022

Arm's \$5.2bn IPO: largest IPO since Rivian in November 2021



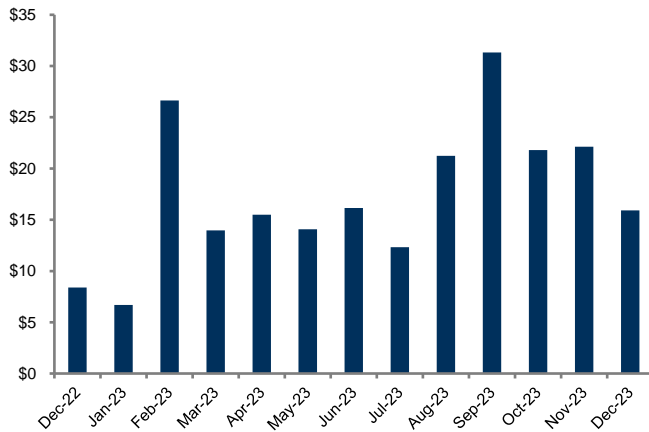
Follow-On Activity at '22/'23 Highs



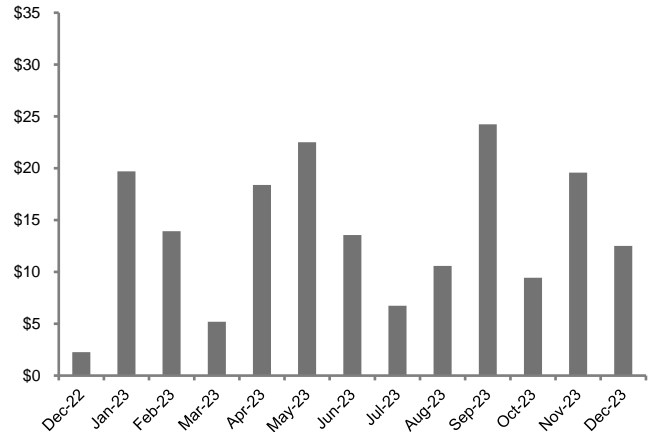
Source: Bloomberg as of market close December 29th, 2023. Inflation chart reflects October data.

1. November 2021 saw 23 IPOs, 69 Follow-ons and 18 Convertible Bonds over \$50m priced

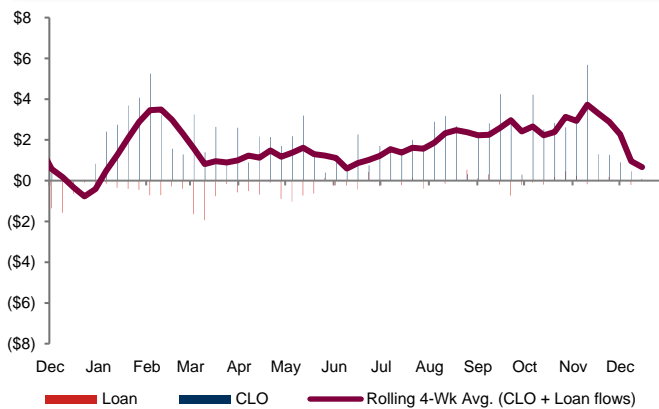
Loan Volume



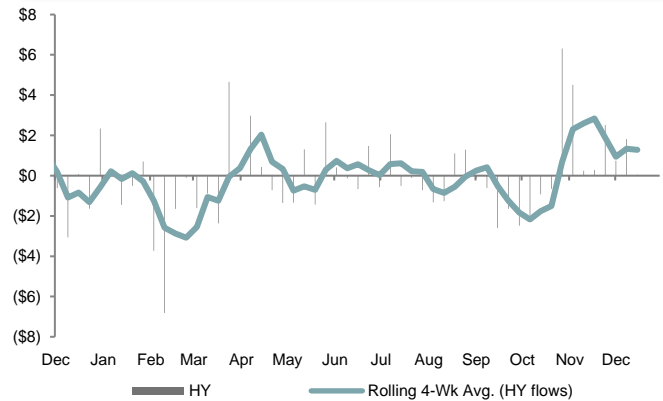
High Yield Volume (\$bn)



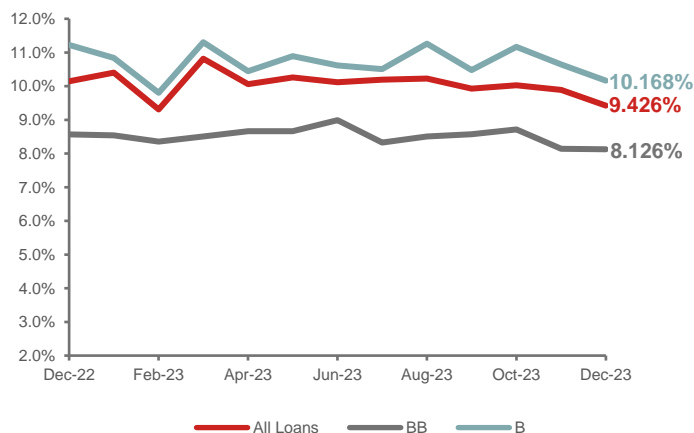
CLO Issuance + Loans Funds Flows (\$bn)



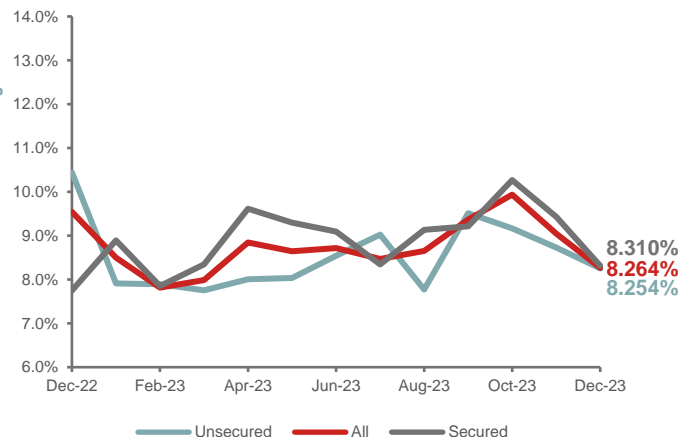
Recent High Yield Funds Flows (\$bn)



Leveraged Loan New Issue Yields¹



High Yield New Issue Yields



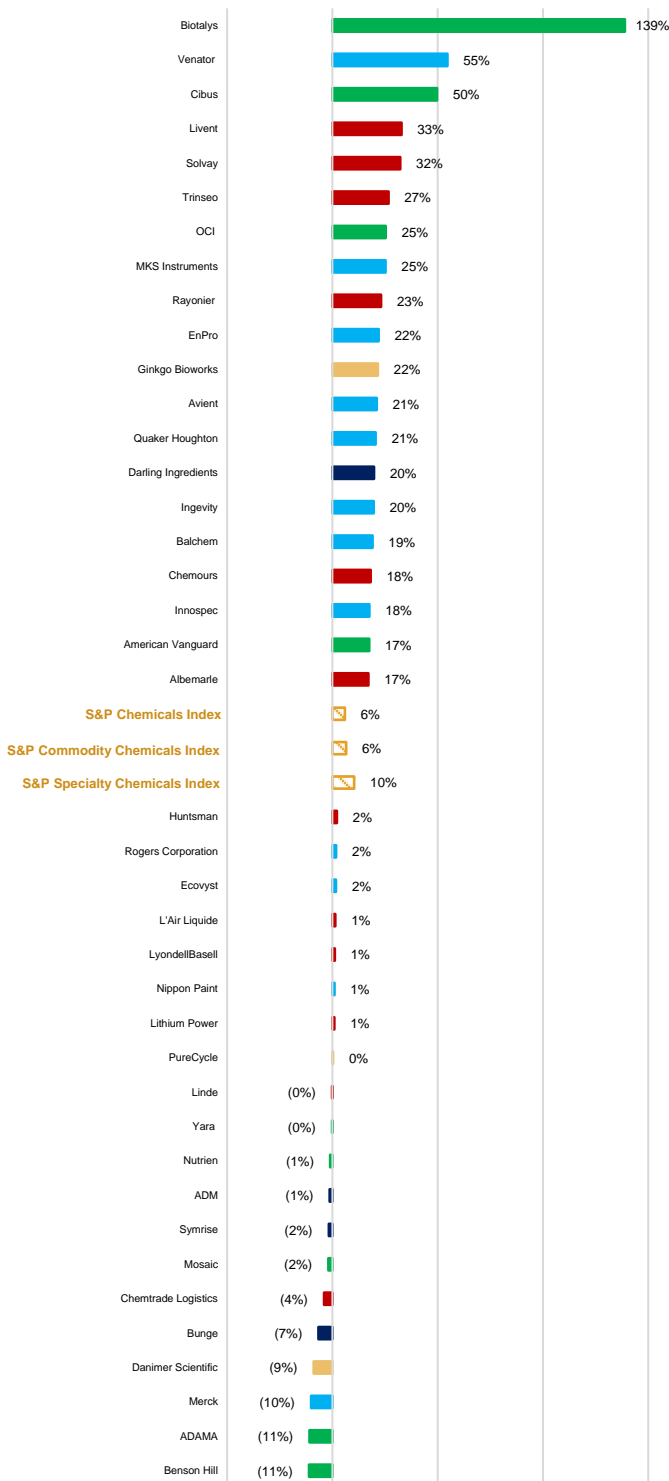
Source: Nomura, LCD.

1. Reflects rolling 30-day period.

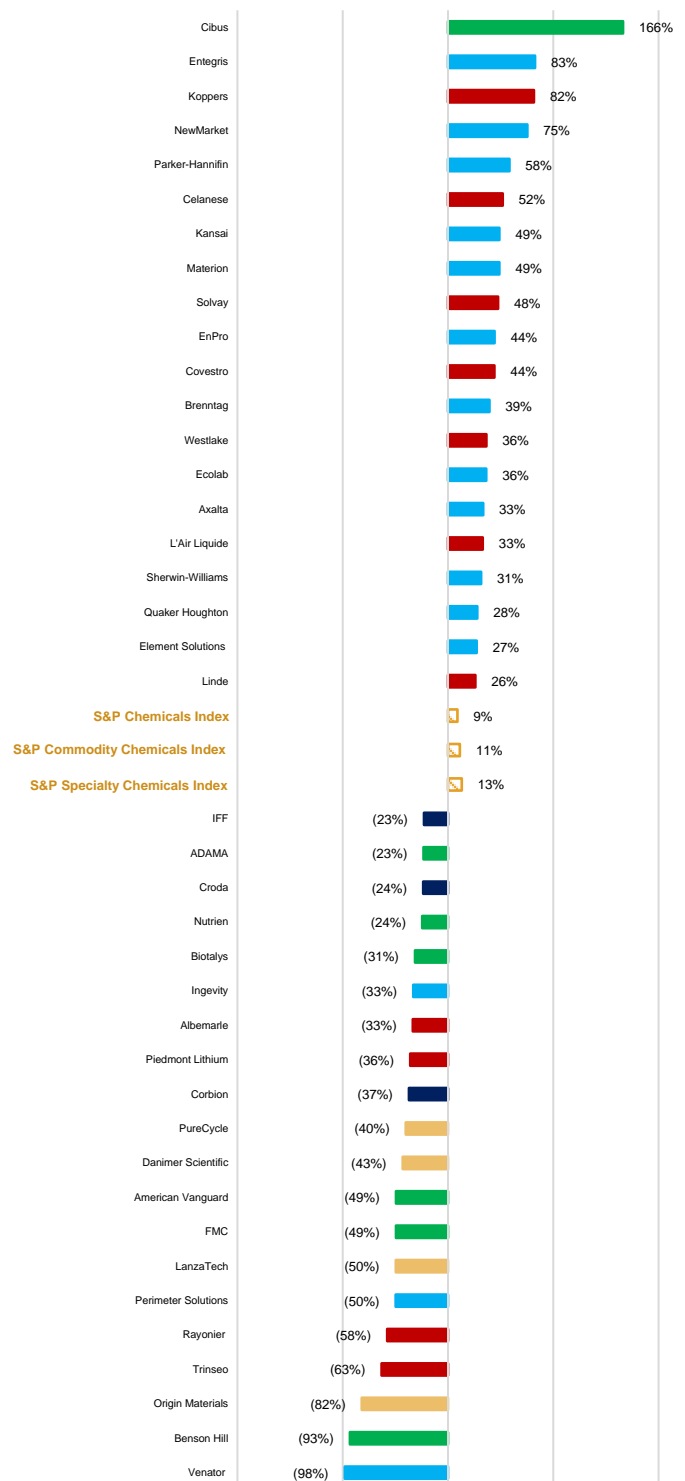
Advanced Materials and Chemicals

Share Price Performance

1 Month (Top & Bottom 20 Performers)



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



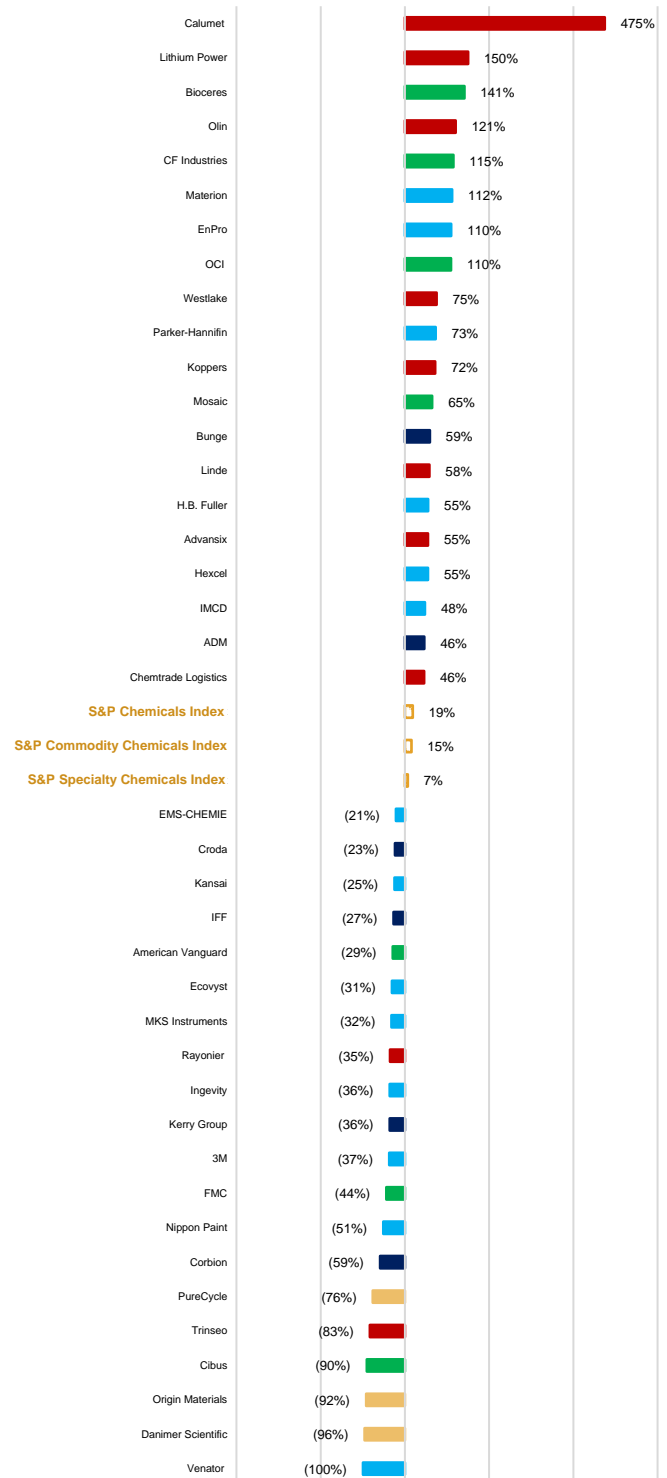
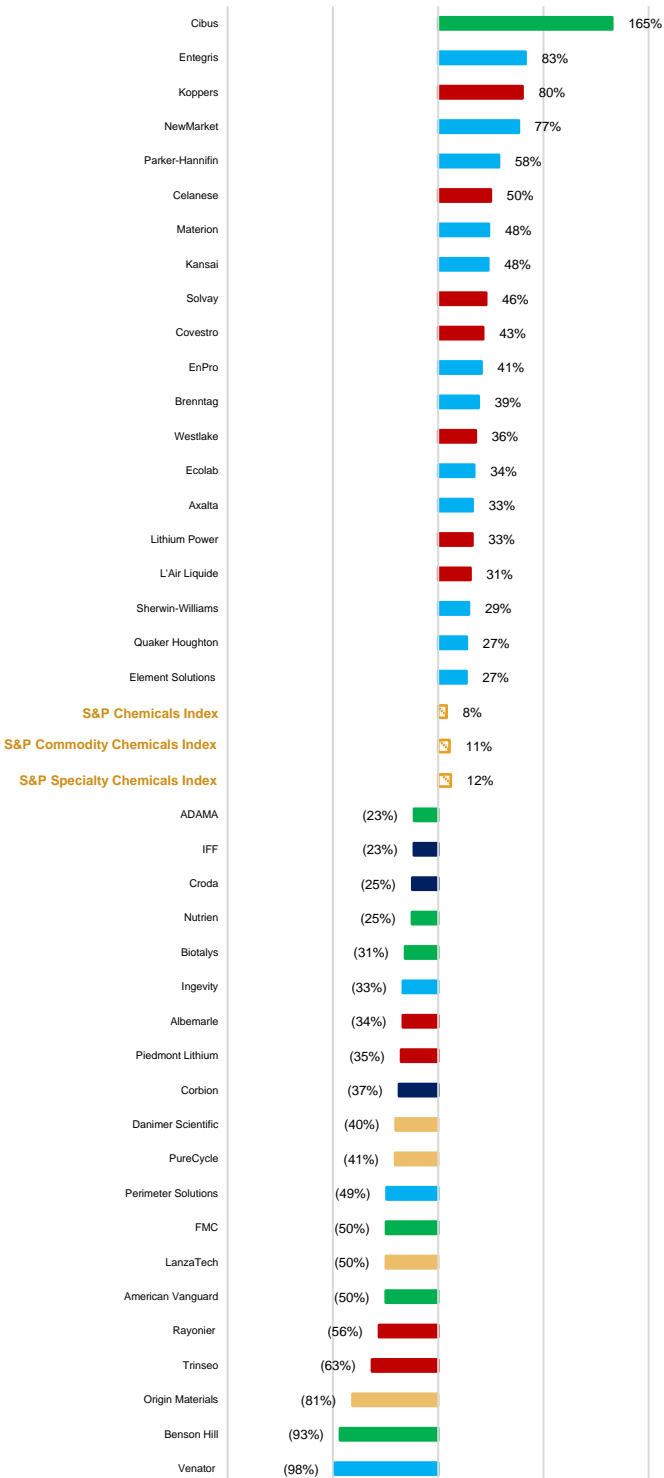
● Agriculture Chemicals
 ● Commodity & Diversified
 ● Chemicals Technology
 ● Ingredients
 ● Specialties
 ● Indices

Advanced Materials and Chemicals

Share Price Performance

1 Year (Top & Bottom 20 Performers)

3 Years (Top & Bottom 20 Performers)



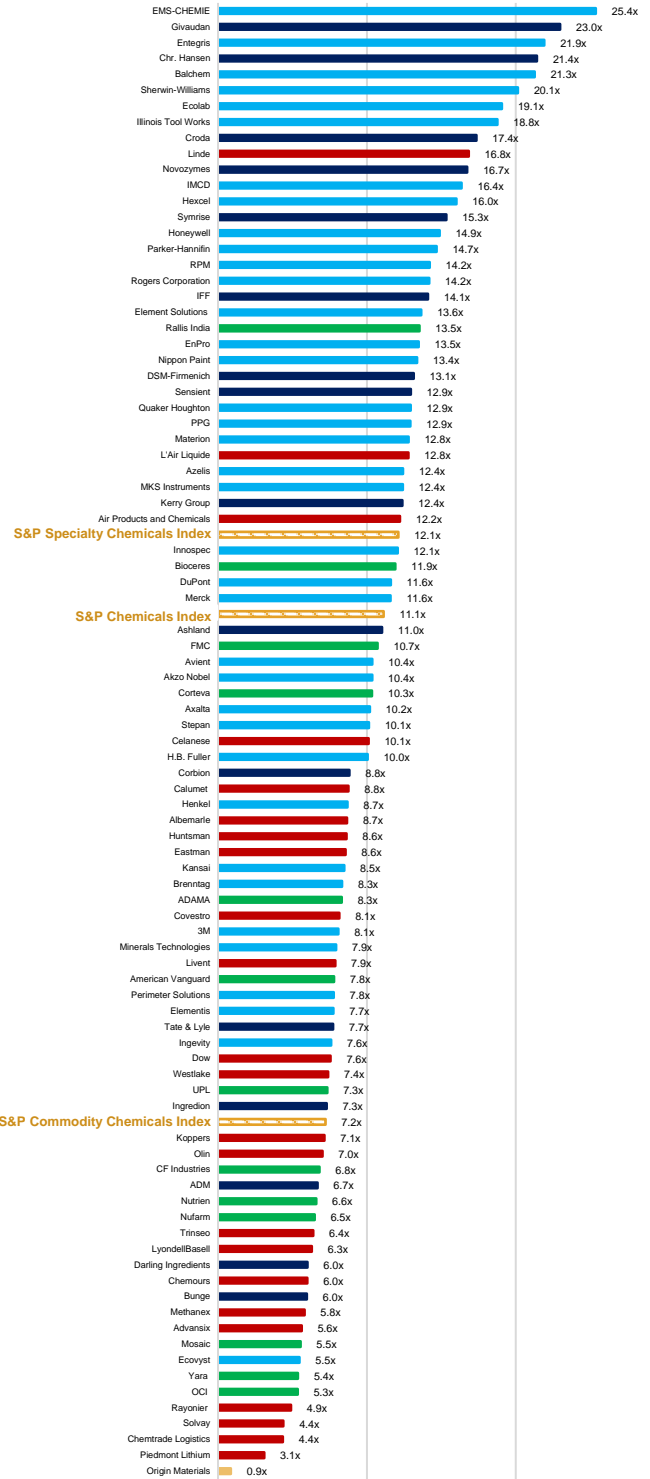
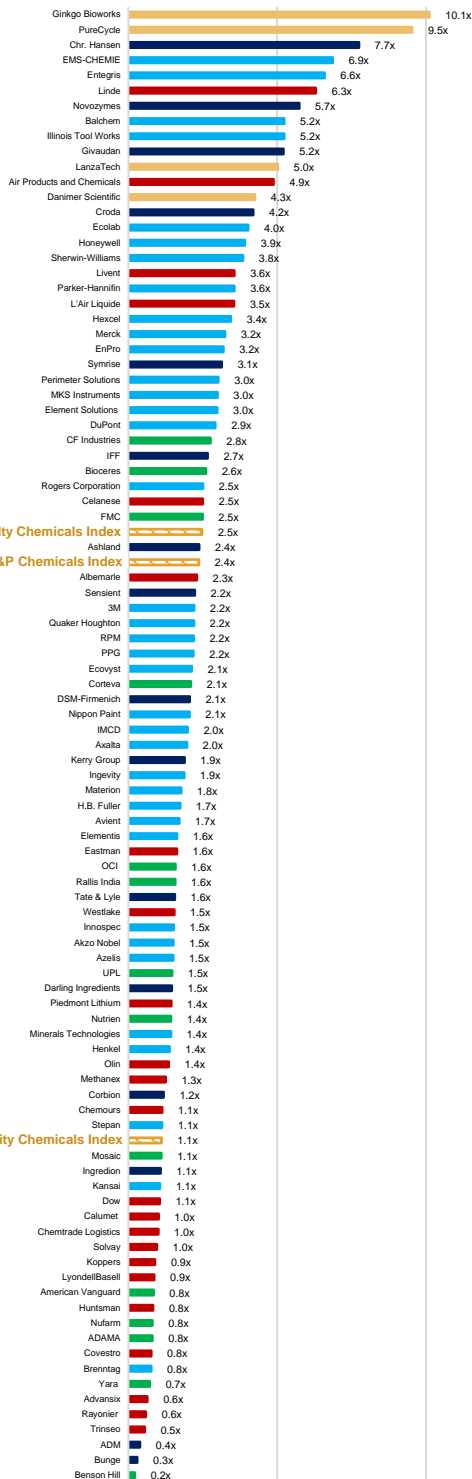
● Agriculture Chemicals
 ● Commodity & Diversified
 ● Chemicals Technology
 ● Ingredients
 ● Specialties
 ● Indices

Advanced Materials and Chemicals

Trading Multiples

EV / 2024E Sales

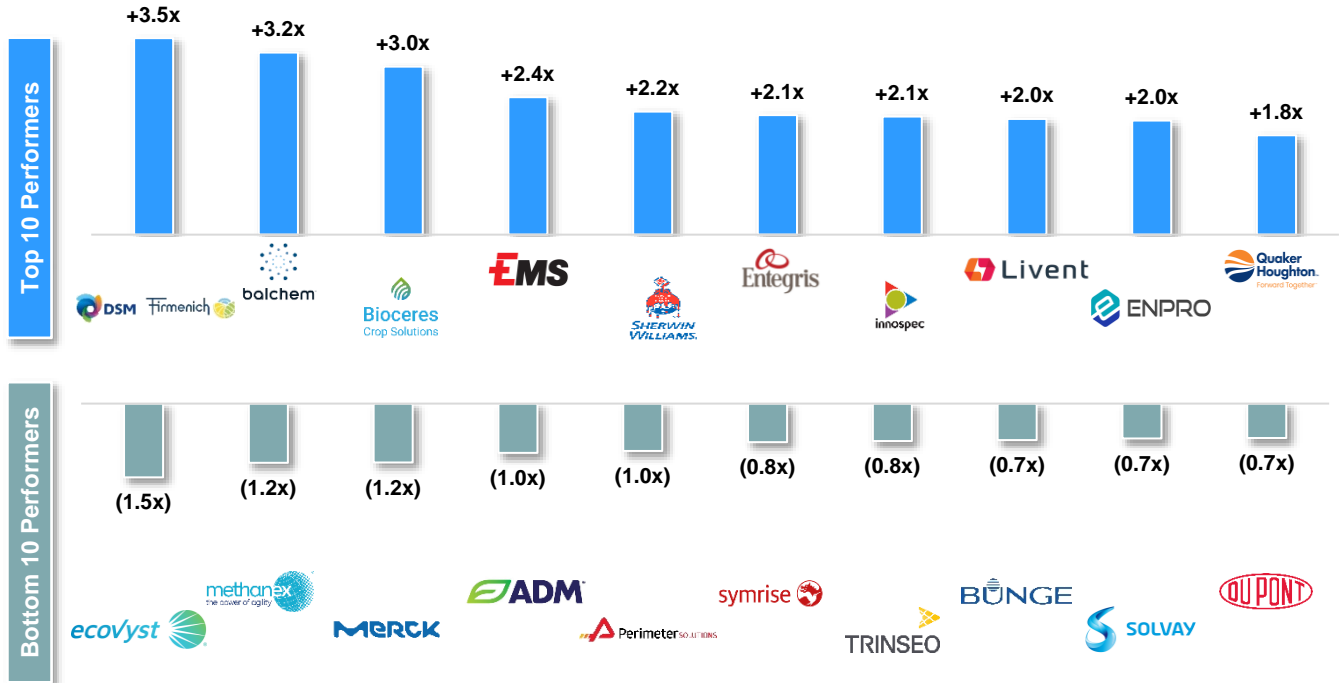
EV / 2024E EBITDA



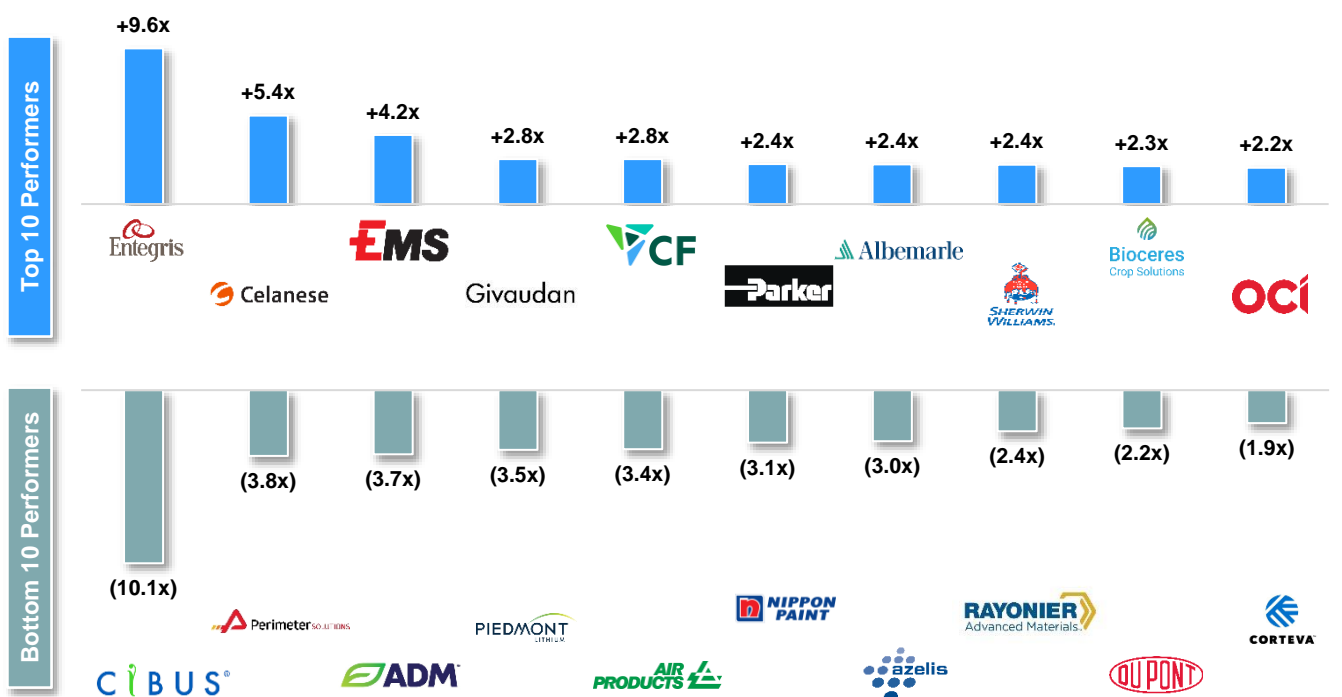
● Agriculture Chemicals ● Commodity & Diversified ● Chemicals Technology ● Ingredients ● Specialties ● Indices

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

1 Month Change (EV / NTM EBITDA)



1 Year Change (EV / NTM EBITDA)



Source: Factset as of December 29th, 2023. All estimates reflect Factset consensus estimates.

Nomura is not associated, affiliated, authorized, sponsored, or endorsed by any of the third parties referenced herein. All third party names, marks, and logos are trademarks™ or registered® trademark of their respective owners.

Trading Comparables

Advanced Materials and Chemicals

Trading Comparables

Agriculture Chemicals

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
AgChem Majors																	
Corteva	USD	47.92	73%	(18%)	1.3%	17,187	3,319	19.3%	0.7%	33,997	37,145	2.2x	11.2x	10.3x	18.4x	15.8x	0.9x
FMC	USD	63.05	47%	(49%)	3.7%	4,583	993	21.7%	(10.1%)	7,891	11,687	2.6x	11.8x	10.7x	16.5x	14.0x	3.8x
Mean			60%	(34%)	2.5%			20.5%	(4.7%)			2.4x	11.5x	10.5x	17.4x	14.9x	2.4x
Median			60%	(34%)	2.5%			20.5%	(4.7%)			2.4x	11.5x	10.5x	17.4x	14.9x	2.4x
UPL	INR	587.50	75%	(18%)	1.6%	6,203	1,191	19.2%	1.8%	5,299	9,515	1.5x	8.0x	7.3x	15.5x	12.3x	0.0x
ADAMA	CNY	6.94	65%	(23%)	0.3%	4,737	267	5.6%	0.6%	2,280	4,312	0.9x	16.1x	8.3x	n.m.	34.9x	1.1x
Nufarm	AUD	5.22	83%	(15%)	2.0%	2,404	301	12.5%	0.2%	1,369	2,053	0.9x	6.8x	6.5x	17.4x	15.1x	1.1x
Rallis India	INR	249.80	94%	3%	1.2%	344	34	9.9%	3.8%	584	587	1.7x	17.2x	13.5x	31.4x	23.1x	0.0x
American Vanguard	USD	10.97	46%	(49%)	n.a.	578	53	9.2%	0.4%	318	522	0.9x	9.8x	7.8x	37.2x	16.5x	3.9x
Mean			79%	(13%)	1.3%			11.8%	1.3%			1.3x	12.0x	8.9x	21.4x	21.3x	0.6x
Median			79%	(16%)	1.4%			11.2%	1.2%			1.2x	12.1x	7.8x	17.4x	19.1x	0.6x

Agriculture Technology

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Ag_Tech																	
Bioceres	USD	13.73	97%	14%	n.a.	445	85	19.1%	18.9%	1,215	1,391	3.1x	16.4x	11.9x	33.8x	17.6x	2.2x
Cibus	USD	19.64	51%	166%	n.a.	1	(71)	n.m.	281.4%	501	581	n.m.	n.m.	n.m.	n.m.	n.m.	0.7x
Biotalsys	EUR	4.67	66%	(31%)	0.0%	3	(20)	n.m.	0.8%	172	139	n.m.	n.m.	n.m.	n.m.	n.m.	1.9x
Benson Hill	USD	0.17	6%	(93%)	n.a.	421	(55)	(13.0%)	(13.3%)	38	61	0.1x	n.m.	n.m.	n.m.	n.m.	(0.4x)
Mean			55%	14%	0.0%			3.0%	72.0%			1.6x	16.4x	11.9x	33.8x	17.6x	1.1x
Median			58%	(9%)	0.0%			3.0%	9.8%			1.6x	16.4x	11.9x	33.8x	17.6x	1.3x

Coatings, Adhesives, Sealants and Elastomers (CASE)

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
CASE																	
Sherwin-Williams	USD	311.90	99%	31%	0.8%	23,002	4,261	18.5%	3.1%	81,142	90,574	3.9x	21.3x	20.1x	30.2x	27.7x	2.2x
PPG	USD	149.55	98%	19%	1.7%	18,156	2,891	15.9%	2.6%	35,547	40,642	2.2x	14.1x	12.9x	19.6x	17.7x	1.7x
Henkel	EUR	64.98	93%	8%	2.9%	23,792	3,602	15.1%	(1.8%)	31,173	32,951	1.4x	9.1x	8.7x	15.0x	13.9x	0.5x
Nippon Paint	JPY	1,140.00	87%	10%	1.2%	10,160	1,591	15.7%	7.7%	18,993	22,130	2.2x	13.9x	13.4x	22.4x	21.1x	0.0x
Akzo Nobel	EUR	74.82	94%	20%	2.6%	11,863	1,582	13.3%	1.1%	13,744	18,523	1.6x	11.7x	10.4x	21.1x	16.3x	3.2x
RPM	USD	111.63	98%	15%	1.3%	7,433	1,075	14.5%	5.2%	14,751	17,054	2.3x	15.9x	14.2x	23.8x	20.8x	2.1x
Axalta	USD	33.97	99%	33%	n.a.	5,171	953	18.4%	4.5%	7,551	10,530	2.0x	11.1x	10.2x	21.4x	17.7x	3.1x
H.B. Fuller	USD	81.41	97%	14%	1.0%	3,549	586	16.5%	(0.6%)	4,636	6,427	1.8x	11.0x	10.0x	21.1x	18.7x	3.1x
Quaker Houghton	USD	213.42	96%	28%	0.6%	1,958	317	16.2%	1.6%	3,887	4,421	2.3x	13.9x	12.9x	28.2x	24.1x	2.0x
Kansai	JPY	2,409.00	97%	49%	1.4%	3,859	458	11.9%	8.9%	3,864	4,349	1.1x	9.5x	8.5x	10.5x	13.0x	0.0x
Mean			96%	23%	1.5%			15.8%	3.2%			2.1x	13.1x	12.1x	21.3x	19.1x	1.8x
Median			97%	19%	1.3%			15.8%	2.9%			2.1x	12.8x	11.6x	21.3x	18.2x	2.0x

Chemical Distribution

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Chemicals Distribution																	
Brenntag	EUR	83.22	100%	39%	2.4%	19,158	1,768	9.2%	(3.8%)	13,332	15,250	0.8x	8.6x	8.3x	15.7x	14.8x	1.2x
IMCD	EUR	157.55	99%	18%	1.4%	5,026	612	12.2%	2.6%	9,926	10,666	2.1x	17.4x	16.4x	27.1x	25.5x	1.3x
Azelis	EUR	22.18	82%	(16%)	1.3%	4,689	567	12.1%	5.0%	5,976	7,534	1.6x	13.3x	12.4x	22.1x	19.0x	2.9x
Mean			94%	14%	1.7%			11.2%	1.3%			1.5x	13.1x	12.4x	21.6x	19.8x	1.8x
Median			99%	18%	1.4%			12.1%	2.6%			1.6x	13.3x	12.4x	22.1x	19.0x	1.3x

Chemical Technology

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
ChemTech																	
PureCycle	USD	4.05	34%	(40%)	n.a.	6	(95)	n.m.	n.m.	683	930	n.m.	n.m.	n.m.	n.m.	n.m.	(2.6x)
Danimer Scientific	USD	1.02	22%	(43%)	n.a.	52	(39)	n.m.	34.6%	107	410	8.0x	n.m.	n.m.	n.m.	n.m.	(7.8x)
Origin Materials	USD	0.84	13%	(82%)	n.a.	28	(46)	n.m.	n.m.	130	(56)	n.m.	1.2x	0.9x	n.m.	n.m.	4.0x
Mean			23%	(55%)	NA			NA	34.6%			8.0x	1.2x	0.9x	NA	NA	(2.1x)
Median			22%	(43%)	NA			NA	34.6%			8.0x	1.2x	0.9x	NA	NA	(2.6x)

Commodity

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Commodity																	
Dow	USD	54.84	90%	9%	5.2%	44,448	5,410	12.2%	(10.1%)	39,054	48,440	1.1x	9.0x	7.6x	24.8x	17.0x	1.9x
LyondellBasell	USD	95.08	93%	15%	5.1%	41,281	5,317	12.9%	(10.2%)	31,014	35,348	0.9x	6.8x	6.3x	10.8x	10.1x	1.6x
Westlake	USD	139.96	97%	36%	1.2%	12,574	2,658	21.1%	(10.8%)	18,161	19,391	1.5x	7.3x	7.4x	16.5x	17.4x	0.7x
Olin	USD	53.95	83%	2%	1.5%	6,712	1,316	19.6%	(13.9%)	6,769	9,439	1.4x	7.2x	7.0x	14.7x	14.2x	2.0x
Methanex	CAD	62.68	84%	22%	1.6%	3,808	642	16.9%	(4.9%)	3,214	4,951	1.3x	7.7x	5.8x	22.7x	14.0x	2.0x
Chemtrade Logistics	CAD	8.52	84%	(5%)	7.0%	1,387	382	27.5%	(0.7%)	831	1,362	1.0x	3.6x	4.4x	4.9x	9.9x	1.1x
Advansix	USD	29.96	67%	(21%)	0.3%	1,489	155	10.4%	(11.1%)	833	981	0.7x	6.3x	5.6x	14.2x	10.9x	1.0x
Mean			86%	8%	3.1%			17.2%	(8.8%)			1.1x	6.8x	6.3x	15.5x	13.4x	1.4x
Median			84%	9%	1.6%			16.9%	(10.2%)			1.1x	7.2x	6.3x	14.7x	14.0x	1.6x

Source: Company filings, Factset as of December 29th, 2023.

Advanced Materials and Chemicals

Trading Comparables

Diversified

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Diversified																	
Celanese	USD	155.37	98%	52%	1.8%	10,978	2,457	22.4%	8.3%	16,953	28,358	2.6x	11.5x	10.1x	17.2x	13.0x	5.0x
Eastman	USD	89.82	97%	10%	3.5%	9,210	1,609	17.5%	(4.9%)	10,719	15,572	1.7x	9.7x	8.6x	14.1x	11.4x	3.0x
Covestro	EUR	52.68	96%	44%	n.a.	15,954	1,181	7.4%	(8.8%)	10,796	12,684	0.8x	10.7x	8.1x	n.m.	32.6x	1.9x
Chemours	USD	31.54	81%	3%	3.2%	6,017	1,051	17.5%	(4.4%)	4,761	7,040	1.2x	6.7x	6.0x	10.5x	8.4x	2.3x
Huntsman	USD	25.13	75%	(9%)	3.7%	6,091	505	8.3%	(12.5%)	4,442	5,327	0.9x	10.6x	8.6x	46.3x	21.2x	2.2x
Solvay	EUR	27.73	25%	48%	8.8%	5,362	1,323	24.7%	(43.0%)	3,160	4,607	0.9x	3.5x	4.4x	9.2x	10.3x	1.5x
Calumet	USD	17.87	88%	6%	n.a.	4,159	334	8.0%	(11.3%)	1,458	3,745	0.9x	11.2x	8.8x	15.2x	23.5x	6.1x
Trinseo	USD	8.37	27%	(63%)	5.9%	3,676	179	4.9%	(12.7%)	307	2,074	0.6x	11.6x	6.4x	n.m.	n.m.	11.3x
Koppers	USD	51.22	98%	82%	n.a.	2,137	256	12.0%	5.1%	1,143	1,957	0.9x	7.6x	7.1x	11.5x	10.9x	3.2x
Rayonier	USD	4.05	41%	(58%)	n.a.	1,631	150	9.2%	(0.1%)	278	999	0.6x	6.7x	4.9x	n.m.	n.m.	4.8x
Mean			76%	19%	4.5%			13.6%	(9.4%)			1.2x	9.2x	7.6x	17.7x	16.4x	4.1x
Median			88%	10%	3.6%			12.0%	(8.8%)			0.9x	10.6x	8.1x	14.1x	12.2x	3.0x

Electronic Chemicals & Materials

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Electronic Chemicals																	
Merck	EUR	144.10	71%	(20%)	1.5%	23,317	6,428	27.6%	(0.8%)	69,495	78,531	3.4x	12.2x	11.6x	17.0x	16.0x	1.5x
Entegris	USD	119.82	98%	83%	0.3%	3,493	941	26.9%	3.2%	18,210	23,042	6.6x	24.5x	21.9x	46.3x	35.9x	5.1x
MKS Instruments	USD	102.87	90%	21%	0.9%	3,576	853	23.9%	1.8%	6,983	10,997	3.1x	12.9x	12.4x	25.0x	21.5x	4.7x
Element Solutions	USD	23.14	97%	27%	1.1%	2,351	487	20.7%	(1.4%)	5,679	7,405	3.1x	15.2x	13.6x	17.9x	15.8x	3.5x
EnPro	USD	156.74	97%	44%	n.a.	1,074	247	23.0%	2.1%	3,318	3,654	3.4x	14.8x	13.5x	23.1x	20.5x	1.3x
Materion	USD	130.13	98%	49%	0.4%	1,666	222	13.3%	1.4%	2,765	3,210	1.9x	14.5x	12.8x	22.5x	19.5x	2.0x
Rogers Corporation	USD	132.07	76%	11%	n.a.	924	160	17.3%	(0.1%)	2,486	2,429	2.6x	15.2x	14.2x	31.6x	25.7x	(0.3x)
Mean			90%	31%	0.8%			21.8%	0.9%			3.5x	15.6x	14.3x	26.2x	22.1x	2.6x
Median			97%	27%	0.9%			23.0%	1.4%			3.1x	14.8x	13.5x	23.1x	20.5x	2.0x

Fertilizers

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Fertilizers																	
Nutrien	CAD	74.65	66%	(24%)	3.7%	29,451	6,402	21.7%	(12.3%)	28,054	41,669	1.4x	6.5x	6.6x	11.5x	11.1x	1.6x
CF Industries	USD	79.50	87%	(7%)	2.0%	6,568	2,830	43.1%	(24.7%)	15,273	17,532	2.7x	6.2x	6.8x	9.7x	11.7x	(0.1x)
Mosaic	USD	35.73	62%	(19%)	2.5%	13,786	2,698	19.6%	(19.1%)	11,785	13,903	1.0x	5.2x	5.5x	9.6x	10.9x	1.1x
Yara	NOK	361.20	73%	(16%)	5.1%	16,143	1,627	10.1%	(17.8%)	9,060	11,890	0.7x	7.3x	5.4x	29.8x	11.1x	0.2x
OCI	EUR	26.24	77%	(11%)	6.4%	5,279	1,266	24.0%	(23.9%)	6,140	9,202	1.7x	7.3x	5.3x	n.m.	16.7x	2.1x
Mean			73%	(15%)	3.9%			23.7%	(19.5%)			1.5x	6.5x	5.9x	15.1x	12.3x	1.0x
Median			73%	(16%)	3.7%			21.7%	(19.1%)			1.4x	6.5x	5.5x	10.6x	11.1x	1.1x

Ingredients

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	2024E	Price/Earnings 2023E	2024E	Net Leverage 2023E
Diversified Ingredients																	
ADM	USD	72.22	78%	(22%)	2.5%	95,695	6,318	6.6%	(3.3%)	39,055	36,746	0.4x	5.8x	6.7x	9.9x	11.1x	0.5x
Bunge	USD	100.95	87%	1%	2.6%	59,979	3,274	5.5%	(6.1%)	14,938	17,641	0.3x	5.4x	6.0x	7.9x	8.7x	0.9x
Darling Ingredients	USD	49.84	70%	(20%)	n.a.	6,869	1,670	24.3%	3.9%	8,085	10,295	1.5x	6.2x	6.0x	11.3x	11.3x	2.6x
Ingredion	USD	108.53	96%	11%	2.7%	8,330	1,196	14.4%	3.5%	7,086	9,205	1.1x	7.7x	7.3x	11.7x	11.2x	1.7x
Tate & Lyle	GBP	6.59	79%	(7%)	2.9%	2,219	421	19.0%	3.1%	3,420	3,499	1.6x	8.3x	7.7x	12.4x	11.2x	0.8x
Mean			82%	(8%)	2.7%			13.9%	0.2%			1.0x	6.7x	6.7x	10.6x	10.7x	1.3x
Median			79%	(7%)	2.7%			14.4%	3.1%			1.1x	6.2x	6.7x	11.3x	11.2x	0.9x
Specialty Ingredients																	
Givaudan	CHF	3,484.00	99%	23%	2.0%	8,222	1,793	21.8%	(0.1%)	38,311	43,988	5.4x	24.5x	23.0x	34.7x	32.3x	3.8x
IFF	USD	80.97	68%	(23%)	4.0%	11,464	1,965	17.1%	(4.1%)	20,736	30,479	2.7x	15.5x	14.1x	24.1x	20.1x	4.9x
DSM-Firmenich	EUR	92.00	75%	#N/A	2.2%	12,866	1,748	13.6%	23.5%	27,000	29,111	2.3x	16.7x	13.1x	n.m.	34.2x	1.3x
Kerry Group	EUR	78.66	79%	(7%)	1.5%	9,070	1,303	14.4%	(2.7%)	15,419	17,306	1.9x	13.3x	12.4x	18.3x	16.8x	1.6x
Symrise	EUR	99.64	90%	(2%)	1.1%	5,229	1,018	19.5%	3.5%	15,384	17,121	3.3x	16.8x	15.3x	37.4x	30.2x	2.4x
Croda	GBP	50.50	69%	(24%)	2.2%	2,193	514	23.4%	(8.0%)	9,091	9,446	4.3x	18.4x	17.4x	30.6x	28.9x	0.8x
Ashland	USD	84.31	75%	(22%)	1.7%	2,182	457	20.9%	(3.2%)	4,343	5,217	2.4x	11.4x	11.0x	20.9x	19.3x	1.8x
Sensient	USD	66.00	83%	(9%)	2.5%	1,471	244	16.6%	3.6%	2,807	3,446	2.3x	14.1x	12.9x	22.6x	20.9x	2.6x
Corbion	USD	21.45	52%	(37%)	2.8%	1,594	205	12.9%	3.1%	1,274	1,946	1.2x	9.5x	8.8x	17.6x	16.9x	3.4x
Mean			79%	NA	2.1%			18.7%	1.3%			3.2x	16.7x	15.2x	27.7x	26.0x	2.4x
Median			75%	NA	2.0%			19.5%	(2.7%)			2.7x	16.7x	14.1x	27.4x	28.9x	1.8x
Bio-Ingredients																	
Novozymes	DKK	371.10	99%	5%	1.6%	2,660	873	32.8%	3.8%	15,235	16,092	6.0x	18.4x	16.7x	30.0x	27.6x	0.1x
Chr. Hansen	DKK	566.20	99%	13%	1.2%	1,113	392	35.2%	11.4%	11,084	12,172	10.9x	31.1x	21.4x	n.m.	35.3x	0.4x
Mean			99%	9%	1.4%			34.0%	7.6%			8.5x	24.8x	19.1x	30.0x	31.4x	0.3x
Median			99%	9%	1.4%			34.0%	7.6%			8.5x	24.8x	19.1x	30.0x	31.4x	0.3x

Advanced Materials and Chemicals

Trading Comparables

Industrial Gas

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	EV/EBITDA 2024E	Price/Earnings 2023E	Price/Earnings 2024E	Net Leverage 2023E
Industrial Gas																	
Linde	USD	410.71	95%	26%	1.3%	32,737	12,167	37.2%	1.6%	201,312	216,761	6.6x	17.8x	16.8x	29.2x	26.6x	1.2x
L'Air Liquide	EUR	176.12	98%	33%	1.8%	30,899	8,397	27.2%	(1.3%)	102,073	114,418	3.7x	13.6x	12.8x	27.3x	25.2x	1.5x
Air Products and Chemicals	USD	273.80	85%	(11%)	2.5%	12,763	4,844	38.0%	3.5%	61,083	66,223	5.2x	13.7x	12.2x	23.1x	20.6x	1.7x
Mean			93%	16%	1.9%			34.1%	1.3%			5.2x	15.0x	14.0x	26.5x	24.1x	1.5x
Median			95%	26%	1.8%			37.2%	1.6%			5.2x	13.7x	12.8x	27.3x	25.2x	1.5x

Lithium

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	EV/EBITDA 2024E	Price/Earnings 2023E	Price/Earnings 2024E	Net Leverage 2023E
Lithium																	
Albemarle	USD	144.48	49%	(33%)	1.1%	9,565	3,351	35.0%	6.9%	17,043	19,243	2.0x	5.7x	8.7x	6.5x	11.0x	0.6x
Livent	USD	17.98	62%	(10%)	n.a.	921	519	56.3%	15.9%	3,758	3,888	4.2x	7.5x	7.9x	9.5x	10.4x	0.3x
Piedmont Lithium	USD	28.23	37%	(36%)	n.a.	111	36	32.9%	n.m.	547	319	2.9x	8.8x	3.1x	23.6x	12.3x	(2.6x)
Lithium Power	AUD	0.55	99%	25%	n.a.	n.a.	(2)	n.m.	n.m.	244	236	n.m.	n.m.	n.m.	n.m.	n.m.	3.3x
Mean			62%	(13%)	1.1%			41.4%	11.4%			3.0x	7.3x	6.5x	13.2x	11.3x	0.4x
Median			55%	(21%)	1.1%			35.0%	11.4%			2.9x	7.5x	7.9x	9.5x	11.0x	0.4x

Multi-Industrial

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	EV/EBITDA 2024E	Price/Earnings 2023E	Price/Earnings 2024E	Net Leverage 2023E
Multi industrial																	
Honeywell	USD	209.71	97%	(2%)	2.0%	36,933	9,594	26.0%	4.8%	139,699	152,406	4.1x	15.9x	14.9x	22.9x	21.0x	1.3x
Illinois Tool Works	USD	261.94	99%	19%	2.0%	16,128	4,454	27.6%	1.8%	79,302	86,379	5.4x	19.4x	18.8x	26.9x	25.9x	1.6x
Parker-Hannifin	USD	460.70	99%	58%	1.2%	19,484	4,511	23.2%	8.0%	60,481	72,524	3.7x	16.1x	14.7x	20.6x	18.9x	2.6x
3M	USD	109.32	84%	(9%)	5.6%	31,510	8,228	26.1%	(2.7%)	60,707	71,566	2.3x	8.7x	8.1x	12.0x	11.1x	1.3x
DuPont	USD	76.93	98%	12%	1.9%	12,178	2,975	24.4%	(1.0%)	33,283	37,293	3.1x	12.5x	11.6x	22.2x	19.3x	1.4x
Mean			95%	16%	2.6%			25.5%	2.2%			3.7x	14.5x	13.6x	20.9x	19.2x	1.6x
Median			98%	12%	2.0%			26.0%	1.8%			3.7x	15.9x	14.7x	22.2x	19.3x	1.4x

Specialty

Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	EV/EBITDA 2024E	Price/Earnings 2023E	Price/Earnings 2024E	Net Leverage 2023E
Specialty																	
Ecolab	USD	198.35	98%	36%	1.1%	15,328	3,039	19.8%	6.4%	57,064	64,692	4.2x	21.3x	19.1x	38.3x	32.3x	2.5x
EMS-CHEMIE	CHF	681.00	85%	9%	2.7%	2,566	652	25.4%	(4.3%)	18,925	18,236	7.1x	27.9x	25.4x	37.3x	34.0x	(1.3x)
Hexcel	USD	73.75	93%	25%	0.7%	1,805	361	20.0%	12.9%	6,309	6,914	3.8x	19.2x	16.0x	39.2x	29.8x	1.8x
NewMarket	USD	545.83	94%	75%	n.a.	n.a.	n.a.	n.m.	n.m.	5,253	5,930	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Avient	USD	41.57	93%	23%	1.8%	3,131	500	16.0%	(2.9%)	3,820	5,472	1.7x	10.9x	10.4x	18.0x	16.4x	3.3x
Balchem	USD	148.75	99%	22%	n.a.	929	233	25.1%	2.2%	4,856	5,156	5.5x	22.1x	21.3x	36.7x	36.7x	1.3x
Minerals Technologies	USD	71.31	97%	17%	0.3%	2,158	371	17.2%	1.7%	2,346	3,143	1.5x	8.5x	7.9x	13.7x	12.2x	2.1x
Innospec	USD	123.24	98%	20%	1.1%	1,934	213	11.0%	(0.7%)	3,154	2,949	1.5x	13.8x	12.1x	21.0x	18.6x	(1.0x)
Ingevity	USD	47.22	52%	(33%)	n.a.	1,653	385	23.3%	(3.4%)	1,734	2,921	1.8x	7.6x	7.6x	13.0x	12.9x	3.3x
Stepan	USD	94.55	83%	(11%)	1.6%	2,329	186	8.0%	(7.6%)	2,138	2,681	1.2x	14.4x	10.1x	41.9x	24.7x	2.9x
Venator	USD	0.01	1%	(98%)	n.a.	n.a.	n.a.	n.m.	n.m.	1,127	1,962	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Ecovyst	USD	9.77	79%	10%	n.a.	688	260	37.7%	(5.6%)	1,167	1,557	2.3x	6.0x	5.5x	12.6x	9.7x	3.2x
Perimeter Solutions	USD	4.60	48%	(50%)	n.a.	306	92	30.0%	9.1%	703	1,297	4.2x	14.1x	7.8x	n.m.	21.6x	6.5x
Elementis	GBP	1.28	97%	6%	1.4%	712	145	20.4%	(3.4%)	955	1,208	1.7x	8.3x	7.7x	15.3x	12.9x	2.2x
Mean			78%	4%	1.3%			21.2%	0.7%			3.2x	15.1x	13.0x	27.2x	22.6x	2.2x
Median			93%	17%	1.1%			20.0%	(0.7%)			2.3x	14.1x	10.4x	28.9x	21.6x	2.5x

Synthetic Biology

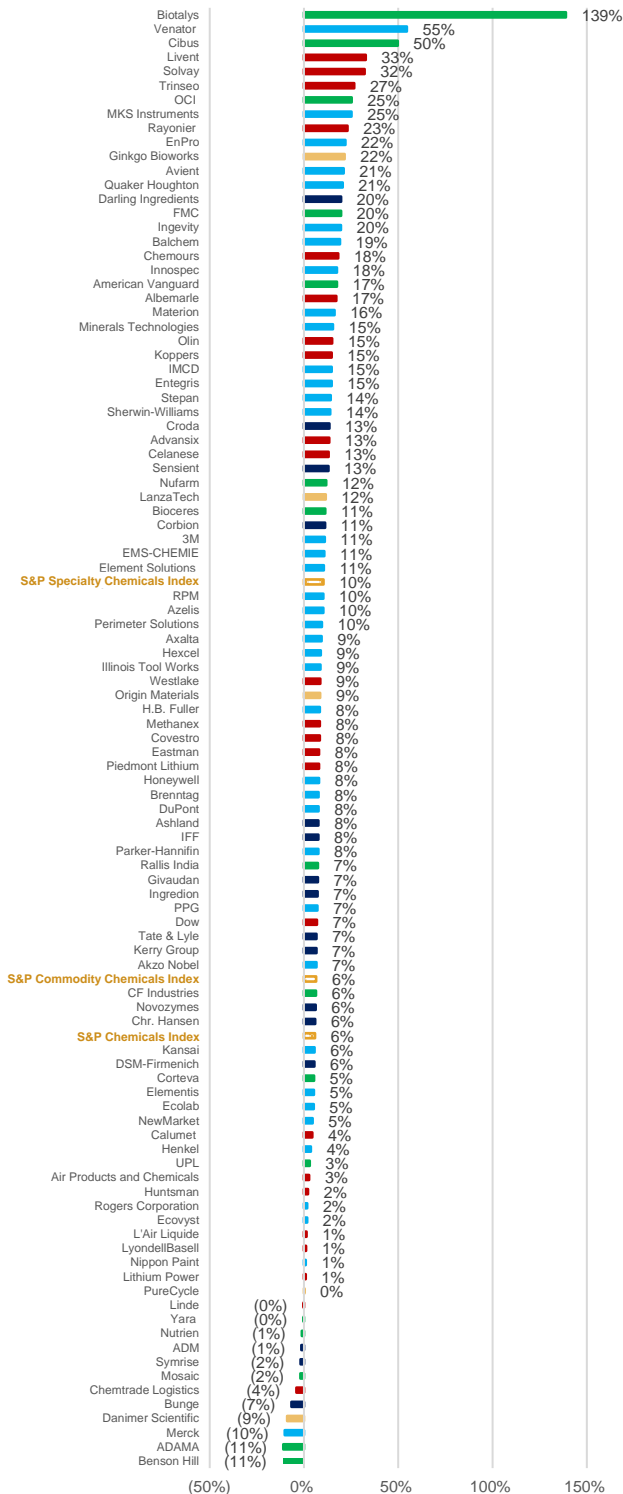
Company	Local Currency	Local Price as of 29-Dec-2023	% of 52 week high	Price Return YTD	Dividend Yield	Sales 2023E	EBITDA 2023E	EBITDA Margin 2023E	Sales CAGR 2022A-2024E	Equity Value	Enterprise Value	EV/Sales 2023E	EV/EBITDA 2023E	EV/EBITDA 2024E	Price/Earnings 2023E	Price/Earnings 2024E	Net Leverage 2023E
SynBio																	
Ginkgo Bioworks	USD	1.69	66%	0%	n.a.	259	(452)	n.m.	(23.1%)	3,910	2,856	11.0x	n.m.	n.m.	n.m.	n.m.	2.3x
LanzaTech	USD	5.03	47%	(50%)	n.a.	81	(83)	n.m.	123.5%	1,074	937	11.6x	n.m.	n.m.	n.m.	n.m.	1.5x
Mean			56%	(25%)	NA			NA	50.2%			11.3x	NA	NA	NA	NA	1.9x
Median			56%	(25%)	NA			NA	50.2%			11.3x	NA	NA	NA	NA	1.9x

Appendix

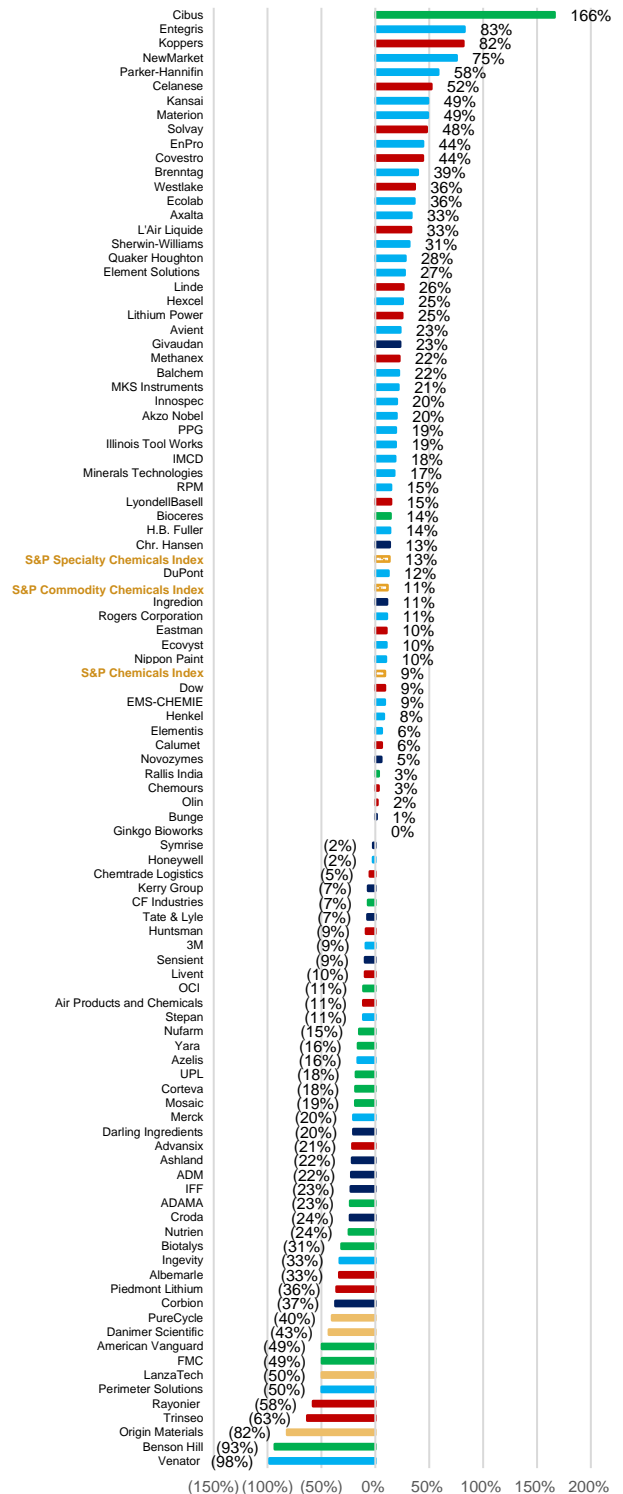
Advanced Materials and Chemicals

Share Price Performance

1 Month



Year-to-Date



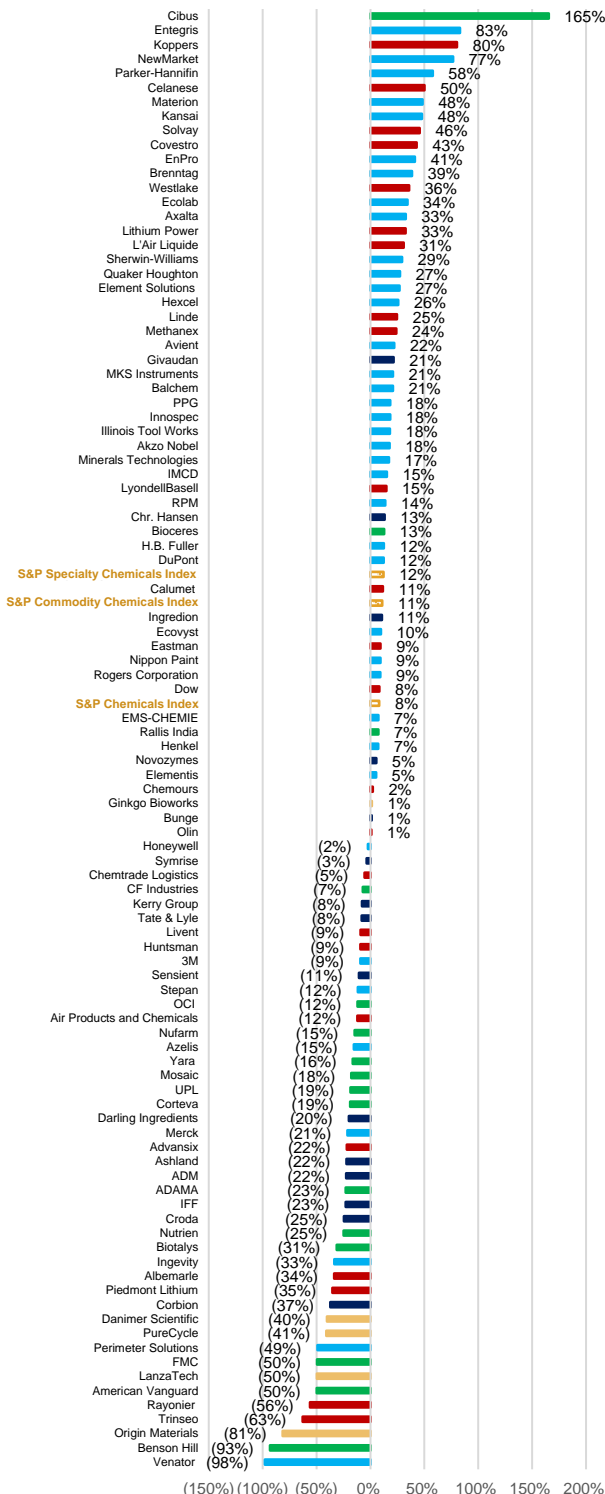
● Agriculture Chemicals ● Commodity & Diversified ● Chemicals Technology ● Ingredients ● Specialties ● Indices

Source: Factset as of December 29th, 2023, third-party providers.

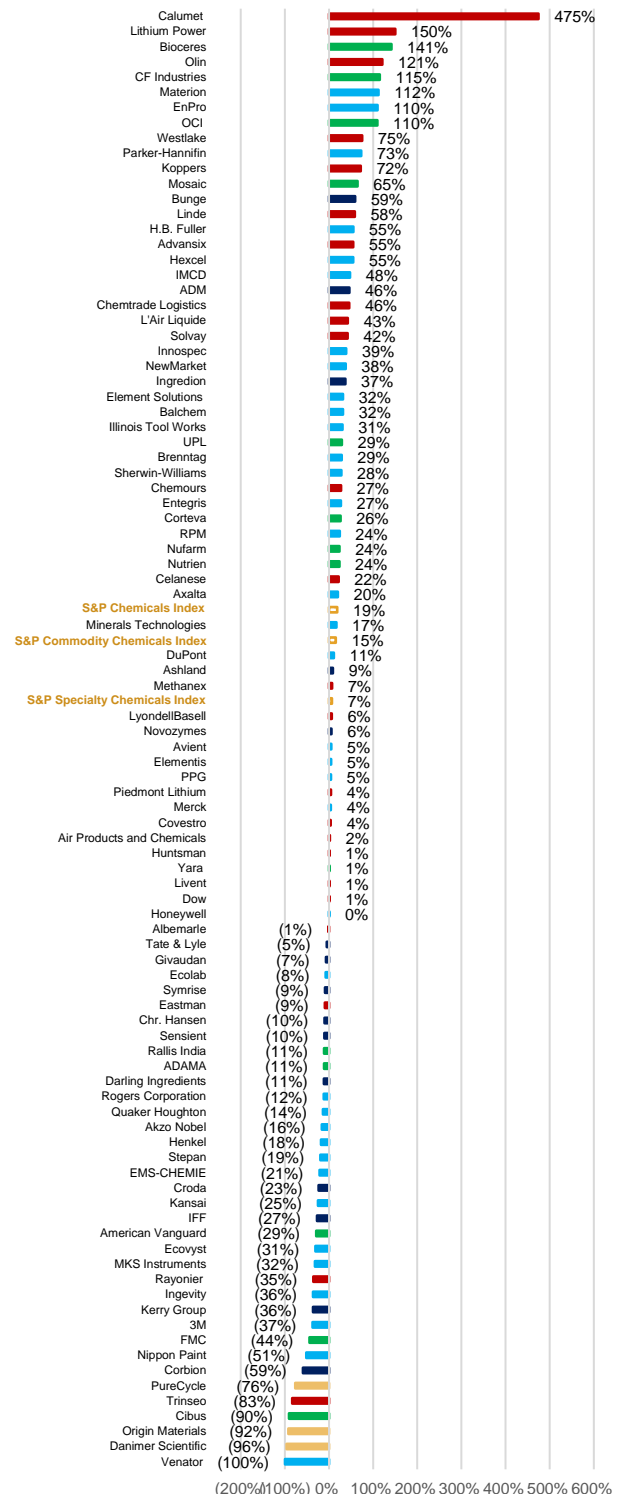
Advanced Materials and Chemicals

Share Price Performance

1 Year



3 Years



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

Source: Factset as of December 29th, 2023, third-party providers.

Disclaimer

This document has been prepared by Nomura Securities International, Inc. ("Nomura") for informational purposes only and is not a product of Nomura's or its affiliates' Research Departments. This material is for the intended recipient and cannot be redistributed, retransmitted or reproduced without written permission from Nomura. Unless otherwise specified, the source for all graphs, charts, and other information is Nomura. Nomura's databases are derived from various internal and external sources. We do not represent that the information provided herein is accurate or complete and it should not be relied upon as such. Past performance is not indicative of future results. Opinions expressed herein are subject to change without notice. All levels, prices and spreads are historical and do not represent current market levels, prices or spreads, some or all of which may have changed since the issuance of this document. Under no circumstances should this document be used or considered as an offer to sell or a solicitation of an offer to buy any financial instrument mentioned in it. The financial instruments mentioned in this document may not be eligible for sale in some states or countries, or suitable for all types of investors; their value and the income they produce may fluctuate and/or be adversely affected by exchange rates, interest rates or other factors. Certain financial instruments securities may be subject to call features or other redemption features, or may be eligible for redemption in whole or in part before maturity. Any such occurrences may affect yield. Clients are advised to make an independent review regarding the economic benefits and risks of purchasing or selling the financial instruments mentioned in this document and reach their own conclusions regarding the legal, tax, accounting and other aspects of any transaction in the financial instrument in relation to their particular circumstances.

Nomura and/or its affiliated companies may make a market or deal as principal in the financial instruments mentioned in this document or in options or other derivatives based thereon. In addition, Nomura, its affiliated companies, and/or its or their respective shareholders, directors, officers and/or employees, including persons involved in preparation or issuance of this material, may from time to time have long or short positions in such financial instruments or in options, futures, or other derivative instruments based thereon. One or more directors, officers, and/or employees of Nomura or its affiliated companies may be a director of the issuer of the financial instruments mentioned in this document. Nomura or its affiliated companies may have managed or co-managed a public offering of securities for any issuer mentioned in this document within the last three years.

"Nomura Greentech" is the marketing name that refers to the division in Nomura's investment banking department that provides products and services to clients in the sustainable technology and infrastructure sectors. All activities of Nomura Greentech in the U.S. are conducted by Nomura Securities International, Inc., a broker-dealer registered with the SEC and member SIPC. Elsewhere, services of Nomura Greentech are conducted by locally registered and/or regulated Nomura entities unless otherwise disclosed or notified. (Please contact us for details of our registrations and licenses in your location). Nomura has policies and guidelines designed to preserve the independence of research analysts. Such policies prohibit, among other things, investment banking employees from offering research coverage, a favorable research rating or a specific price target, or offering to change a research rating or price target, as consideration or inducement to obtain investment banking business.

For registered transactions where a prospectus is available, please call (212) 667-9000 or write to Nomura Securities International, Inc., Worldwide Plaza, 309 West 49th Street, New York, NY 10019- 7316 to obtain a prospectus. A registration statement relating to certain of these securities may have been filed with the Securities and Exchange Commission but may not yet be effective; in such case, these securities may not be sold nor may offers to buy be accepted prior to the time the registration statement becomes effective. For offerings pursuant to Rule 144A of the Securities Act of 1933 (the "Securities Act"), these securities have not been registered under the Securities Act and may not be offered or sold in the United States absent registration or an applicable exemption.

Nomura Securities International, Inc. is a registered broker-dealer and, member, SIPC.