



TOP 50 U.S. CHEMICAL PRODUCERS

The largest chemical firms posted another **STRONG YEAR** in 2013

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THE BATTERY OF DATA in C&EN's annual ranking of the Top 50 U.S. chemical companies shows an industry in excellent health. All the right numbers—sales, profits, profitability, and stock prices—headed upward in 2013, the period covered by the survey.

Cheap shale gas and a robust domestic economy are combining to give U.S. chemical producers a lift. And nothing indicates that the trends will turn against the industry anytime soon.

Combined, the 50 firms posted a 1.1% increase in sales in 2013, to \$321.9 billion. Though higher than 2012, the mark is still short of the record of \$333.6 billion the industry tallied in 2011. Although 20 firms reported a decline in sales, only a handful of the declines were more than 10%. Fertilizer makers Mosaic and CF Industries posted reductions on weak prices. Chemtura and Rockwood Specialties also put up sharply lower revenue numbers, but this is because they have been aggressively selling off businesses to fine-tune their portfolios.

For the 42 firms that publicly report profit figures, combined results showed a 7.0% gain over 2012 for a total of \$41.8 billion. This beats the earnings record of 2011, which totaled \$39.6 billion.

No company reported a loss. But 19 firms posted a decline in profits. Eight firms saw increases of more than 50%. Three of these—Eastman Chemical, Monsanto, and Cytex Industries—more than

doubled profits. Ferro Corp. saw its results swing from losses in 2012 to gains in 2013.

Operating profit margins—profits divided by sales—also climbed for the 42 firms. They reached 14.6%, an improvement from the 13.8% the industry racked up in 2012.

For the past few years, petrochemical firms have been flying high because of shale gas. Cheap ethane and propane feedstocks derived from shale formations have given U.S. petrochemical makers an edge over most foreign competitors, which primarily derive petrochemicals from oil.

A number of risks could bring the good times to an end for U.S. petrochemical makers, but they aren't rising to a level of serious challenges, says Frederick M. Peterson, president of Probe Economics, a consulting firm that focuses on the chemical industry.

Peterson says the main risks to the chemical boom come from feedstock availability, excess petrochemical capacity, and a sharp decline in oil prices. Feedstock availability will depend on geology and how quickly new capacity will absorb the hydrocarbons coming out of the ground. Whether chemical makers will be able to

FLATLAND

Chevron Phillips Chemical is starting construction on a new ethylene cracker at its Cedar Bayou plant in Baytown, Texas.

sell all their new production when they start up their capacity will depend on the extent export markets will present matching demand.

An oil price decline could undermine the advantage that U.S. producers are now enjoying. Peterson says there is a 25% chance in the coming years that the price of oil will drop to about \$75 per barrel. "There's also a 25% risk that the price could go up to \$150," he notes.

BUT SHALE ISN'T the only game in the U.S. chemical town. A relatively strong U.S. economy is ensuring that petrochemical makers don't have a monopoly on profitability. Pure petrochemical makers such as Westlake Chemical and PetroLogistics are racking up profit margins in excess of 15%, but so are fertilizer makers such as Mosaic and CF, diversified players such as Eastman, industrial gas makers such as Praxair and Air Products & Chemicals, and specialty chemical producers such as FMC Corp., Cytec, and Albemarle.

Stock prices also reflect prosperity shared across the chemical industry. This year, C&EN ranked some 33 firms by market capitalization. As a group, value jumped by 25.7%, to \$349.8 billion. DuPont, which led the market capitalization ranking for three years, posted a 43.5% increase this year to maintain its lead over number-two-ranked Dow Chemical, which posted a 37.6% increase.

Bets on a couple of firms paid off enormously. Axiall's value more than doubled during the year. Ferro's stock price tripled.

Speaking in March at the IHS World Petrochemical Conference, Paul A. Smith, who heads chemical investment banking at Citi, said Wall Street has been rewarding three types of chemical firms. "The companies with the strongest stock price performance over the last couple of years are those with the most exposure to the shale gas advantage," he said, noting that the category includes LyondellBasell Industries, Westlake, and Huntsman Corp.

Cheap shale gas and a robust domestic economy are combining to give U.S. chemical producers a lift.

TOP 50 U.S. CHEMICAL FIRMS

Companies posted solid results in 2013

RANK 2013 2012	COMPANY	CHEMICAL SALES	CHANGE	CHEMICAL SALES AS	HEADQUARTERS	CHEMICAL OPERATING PROFITS ^a	CHANGE	CHEMICAL OPERATING PROFITS AS	OPERATING	IDENTIFIABLE	CHEMICAL ASSETS	AS % OF	CHEMICAL OPERATING RETURN
		(\$ MILLIONS)	FROM 2012	% OF TOTAL SALES		(\$ MILLIONS)	FROM 2012	% OF TOTAL OPERATING PROFIT	PROFIT MARGIN ^b	ASSETS (\$ MILLIONS)	TOTAL ASSETS	ON CHEMICAL ASSETS ^c	
1	1	Dow Chemical	\$57,080	0.5%	100.0%	Midland, Mich.	\$4,715	6.6%	100.0%	8.3%	\$69,501	100.0%	6.8%
2	2	ExxonMobil	39,048	0.8	9.3	Irving, Texas	5,180	6.0	9.1	13.3	27,475	7.9	18.9
3	3	DuPont ^d	31,044	2.7	86.9	Wilmington, Del.	5,234	11.6	97.5	16.9	18,113	66.2	28.9
4	4	PPG Industries ^d	14,044	-0.9	93.0	Pittsburgh	2,134	-3.0	97.4	15.2	11,900	75.0	17.9
5	5	Chevron Phillips	13,147	-1.2	100.0	The Woodlands, Texas	na	na	na	na	10,533	100.0	na
6	6	Praxair ^d	11,925	6.2	100.0	Danbury, Conn.	3,734	7.9	100.0	31.3	20,255	100.0	18.4
7	7	Huntsman Corp.	11,079	-1.0	100.0	Salt Lake City	671	-27.9	100.0	6.1	9,188	100.0	7.3
8	8	Mosaic ^e	9,974	-10.2	100.0	Plymouth, Minn.	2,333	-12.8	100.0	23.4	18,086	100.0	12.9
9	9	Air Products ^f	9,729	5.8	95.6	Allentown, Pa.	1,518	-4.0	95.9	15.6	16,162	90.5	9.4
10	10	Eastman Chemical	9,350	15.4	100.0	Kingsport, Tenn.	1,938	110.7	100.0	20.7	11,845	100.0	16.4
11	13	Honeywell ^d	6,764	9.4	17.3	Morristown, N.J.	1,271	10.1	20.0	18.8	6,827	15.0	18.6
12	12	Celanese	6,510	1.4	100.0	Irving, Texas	969	66.2	100.0	14.9	9,018	100.0	10.7
13	19	Ecolab	6,476	25.5	48.9	St. Paul	na	na	na	na	na	na	na
14	17	Lubrizol	6,400	4.9	100.0	Wickliffe, Ohio	na	na	na	na	na	na	na
15	14	Ashland ^f	5,817	-5.8	74.5	Covington, Ky.	429	-31.7	59.3	7.4	9,374	77.5	4.6
16	15	Dow Corning	5,711	-6.7	100.0	Midland, Mich.	na	na	na	na	12,302	100.0	na
17	16	CF Industries	5,475	-10.3	100.0	Deerfield, Ill.	2,354	-20.5	100.0	43.0	10,678	100.0	22.0
18	18	Trinseo	5,307	-3.5	100.0	Berwyn, Pa.	141	-8.7	100.0	2.7	2,575	100.0	5.5
19	—	Momentive Specialty Chemicals	4,890	2.8	100.0	Columbus, Ohio	212	-22.6	100.0	4.3	2,866	100.0	7.4
20	20	Occidental Petroleum	4,673	2.0	19.1	Los Angeles	743	3.2	7.7	15.9	3,947	5.7	18.8
21	22	Monsanto ^g	4,521	21.7	30.4	St. Louis	1,048	119.7	30.3	23.2	4,418	21.4	23.7
22	28	Axiall	4,042	50.5	86.6	Atlanta	464	53.7	99.4	11.5	5,221	88.8	8.9
23	21	FMC Corp.	3,875	3.4	100.0	Philadelphia	707	1.5	100.0	18.2	5,235	100.0	13.5
24	23	Westlake Chemical	3,760	5.3	100.0	Houston	954	54.9	100.0	25.4	4,061	100.0	23.5
25	24	Cabot Corp. ^f	3,463	4.9	100.0	Boston	263	-9.3	100.0	7.6	4,233	100.0	6.2
26	25	W.R. Grace	3,061	-3.0	100.0	Columbia, Md.	571	1.2	100.0	18.7	5,396	100.0	10.6
27	27	Albemarle	2,616	-4.7	100.0	Baton Rouge, La.	616	19.0	100.0	23.6	3,585	100.0	17.2
28	—	Momentive Performance Materials ^d	2,398	1.7	100.0	Waterford, N.Y.	223	16.8	100.0	9.3	2,694	100.0	8.3
29	30	NewMarket Corp.	2,280	3.1	100.0	Richmond, Va.	352	-3.7	100.0	15.4	1,327	100.0	26.5
30	29	Chemtura	2,231	-15.1	100.0	Philadelphia	241	-30.7	100.0	10.8	2,704	100.0	8.9
31	32	H.B. Fuller ^h	2,047	8.5	100.0	St. Paul	196	20.3	100.0	9.6	1,873	100.0	10.4
32	31	Kronos Worldwide	1,943	-1.7	100.0	Dallas	553	46.8	100.0	28.5	2,027	100.0	27.3
33	35	Cytec Industries	1,935	13.3	100.0	Woodland Park, N.J.	330	108.9	100.0	17.0	2,681	100.0	12.3
34	33	Stepan	1,881	4.3	100.0	Northfield, Ill.	110	-14.4	100.0	5.9	1,167	100.0	9.4
35	34	Ferro Corp. ^d	1,635	-7.5	100.0	Mayfield Heights, Ohio	153	nm	100.0	9.4	1,008	100.0	15.2
36	36	Sigma-Aldrich	1,622	3.1	60.0	St. Louis	na	na	na	na	na	na	na
37	38	Olin	1,412	0.1	56.2	Clayton, Mo.	204	-22.6	57.1	14.4	1,696	60.5	12.0
38	26	Rockwood Specialties	1,378	-51.1	100.0	Princeton, N.J.	216	-40.4	100.0	15.7	5,532	100.0	3.9
39	37	Kraton Polymers	1,292	-9.2	100.0	Houston	88	-13.3	100.0	6.8	1,195	100.0	7.4
40	41	Tamirco	1,200	7.5	100.0	Allentown, Pa.	138	15.0	100.0	11.5	1,856	100.0	7.4
41	—	PQ Corp. ⁱ	1,090	0.5	100.0	Malvern, Pa.	na	na	na	na	na	na	na
42	40	Reichhold	1,084	-6.7	100.0	Durham, N.C.	na	na	na	na	na	na	na
43	43	MeadWestvaco	980	4.4	18.2	Richmond, Va.	229	2.2	42.4	23.4	555	10.3	41.3
44	42	Koppers	906	-18.1	61.3	Pittsburgh	44	-47.2	43.8	4.8	536	74.9	8.2
45	49	PolyOne ^d	852	9.5	22.6	Avon Lake, Ohio	104	55.7	33.1	12.2	962	32.7	10.8
46	46	Innophos	844	-2.1	100.0	Cranbury, N.J.	84	-23.7	100.0	9.9	745	100.0	11.3
47	47	Innospec	819	5.5	100.0	Englewood, Colo.	92	-7.6	100.0	11.2	795	100.0	11.6
48	39	Goodyear	782	-38.0	4.0	Akron, Ohio	na	na	na	na	na	na	na
49	44	Omnova ^h	773	-10.6	75.9	Fairlawn, Ohio	64	-28.5	80.4	8.3	548	64.1	11.7
50	48	PetroLogistics	758	0.9	100.0	Houston	223	54.4	100.0	29.4	770	100.0	28.9

^a Operating profit is sales less administrative expenses and cost of sales. ^b Operating profit as a percentage of sales. ^c Chemical operating profit as a percentage of identifiable assets. ^d Sales include a significant amount of nonchemical products. ^e Fiscal year ended on May 31. ^f Fiscal year ended on Sept. 30. ^g Fiscal year ended on Aug. 31. ^h Fiscal year ended on Nov. 30. ⁱ C&EN estimates based on nine-month results. **na** = not available. **nm** = not meaningful.

TOP 25 FOREIGN-OWNED FIRMS

Companies from the developing world were big gainers in 2013

RANK		COMPANY	U.S. CHEMICAL SALES (\$ MILLIONS) 2013	CHANGE FROM 2012	U.S. CHEMICAL SALES AS % OF TOTAL U.S. SALES	COUNTRY
2013	2012					
1	1	BASF	\$19,353	0.9%	100.0%	Germany
2	2	LyondellBasell Industries	13,089	1.2	59.7	Netherlands
3	3	Agrium ^a	10,181	-5.5	100.0	Canada
4	4	Bayer	6,155	0.9	47.9	Germany
5	6	Linde	4,363	34.5	84.3	Germany
6	5	Air Liquide	4,283	3.8	94.1	France
7	7	Evonik Industries	3,121	-3.0	100.0	Germany
8	8	AkzoNobel	3,037	-5.2	100.0	Netherlands
9	12	Indorama	2,851	3.6	100.0	Thailand
10	10	Alpek	2,848	-5.9	100.0	Mexico
11	9	Solvay	2,782	-9.9	100.0	Belgium
12	14	Syngenta	2,762	7.2	71.8	Switzerland
13	11	Arkema	2,753	-5.4	100.0	France
14	18	Braskem	2,643	25.8	100.0	Brazil
15	15	Nova Chemicals	2,642	14.4	100.0	Canada
16	13	Potash Corp.	2,580	-2.6	100.0	Canada
17	19	DSM	2,267	16.3	100.0	Netherlands
18	20	Sasol ^b	2,120	12.6	100.0	South Africa
19	16	Yara	1,965	-11.9	100.0	Norway
20	22	Shin-Etsu Chemical ^c	1,951	19.3	100.0	Japan
21	17	Lanxess	1,769	-17.3	100.0	Germany
22	21	Lonza	1,626	-10.9	100.0	Switzerland
23	23	Israel Chemical	1,207	-3.6	100.0	Israel
24	24	Wacker Chemie	986	-9.2	100.0	Germany
25	—	Clariant	954	5.4	100.0	Switzerland

NOTE: Figures from companies that report in native currencies were converted to dollars at average annual exchange rates from the Federal Reserve. **a** Sales include a significant amount of non-chemical products. **b** Fiscal year ended on June 30. **c** Fiscal year ended on March 31.

Companies with high exposure to the housing recovery, such as paint maker PPG Industries, have also been strong. Additionally, specialty chemical makers that have been able to demonstrate strong and consistent profit growth are also being sought after by investors. Smith mentioned Ecolab and FMC as examples.

C&EN's Top 50 ranking this year showed little evidence of merger and acquisition activity. The list has the same top 10 players—headed by Dow—in the same order as it did a year ago. No deal among this group left much of a mark.

Further down in the list, examples of major changes are scarce. Axiall, formed from the merger in early 2013 of Georgia Gulf with PPG's chlorine business, posted a greater than 50% sales gain and a jump in the ranking from 28th to 22nd. Ecolab got a bump from its purchase of oil chemical supplier Champion Technologies. OM Group was dropped from the list because

divestitures made it too small.

Only one other company dropped from the list this year, Emerald Performance Materials, which was 50th last year. Its \$755 million in sales were just not enough to meet the bar.

There were only a few additions. C&EN considered Momentive as two separate companies—Momentive Specialty Chemicals and Momentive Performance Materials because the latter declared bankruptcy. Silicas supplier PQ Corp. filed for an initial public offering and is now publicly disclosing its financial results.

Merger and acquisition activity could pick up pace, driven in large measure by activist investor hedge funds that have the chemical industry in their sights. Jana Partners has instigated some of Ashland's portfolio moves, such as the sale of its

MARKET CAPITALIZATION

DuPont led the pack for the fourth year in a row

RANK		COMPANY	MARKET CAP (\$ MILLIONS) 2013	CHANGE FROM 2012
2013	2012			
1	1	DuPont	\$60,227	43.5%
2	2	Dow Chemical	53,515	37.6
3	3	Praxair	38,242	18.0
4	5	PPG Industries	26,287	26.4
5	6	Air Products	23,664	35.7
6	4	Mosaic	20,137	-16.5
7	7	CF Industries	13,004	1.6
8	8	Eastman Chemical	12,299	17.4
9	9	Sigma-Aldrich	11,187	26.7
10	10	FMC Corp.	10,029	24.5
11	11	Celanese	8,678	22.1
12	14	Westlake Chemical	8,142	53.5
13	15	W.R. Grace	7,613	49.8
14	12	Ashland	7,550	18.8
15	17	Huntsman Corp.	5,914	56.1
16	16	Rockwood Specialties	5,653	45.6
17	13	Albemarle	5,078	-8.1
18	18	NewMarket Corp.	4,377	24.6
19	25	Axiall	3,316	132.8
20	20	Cabot Corp.	3,310	30.0
21	19	Cytec Industries	3,307	7.0
22	22	Chemtura	2,694	29.3
23	23	H.B. Fuller	2,618	50.7
24	24	Olin	2,291	32.3
25	21	Kronos Worldwide	2,208	-2.3
26	—	PetroLogistics	1,622	-13.8
27	26	Stepan	1,464	19.8
28	28	Innospec	1,123	39.8
29	32	Ferro Corp.	1,112	207.6
30	27	Innophos	1,064	5.0
31	29	Koppers	929	18.2
32	30	Kraton Polymers	749	-3.5
33	33	Omnova	430	30.8

NOTE: Based on share prices on Dec. 31, 2013, and Dec. 30, 2012. These 33 companies are firms on the Top 50 list that generate more than half of their revenues through chemical manufacturing.

water treatment business. Dow, under pressure from Third Point, has put up for sale its chlorine-related businesses. This is a \$5 billion enterprise that would be in the upper half of C&EN's ranking. So would DuPont's performance chemicals unit, which the company is spinning off. DuPont is being pushed to restructure by Triam Fund Management.

Citi's Smith said the 20% average returns that activist funds earn for their investors will mean that they will increasingly attract more capital and target more companies. "This will continue to be a theme through 2014 and possibly beyond," he said. ■