



**BLUE CHIP** The Tarragona, Spain, plant of Dow Chemical, the second-largest chemical firm in the world in this year's ranking.

# GLOBAL TOP 50

The 50 largest **CHEMICAL COMPANIES** in the world are chugging along, even if the global economy is not

ALEXANDER H. TULLO, C&EN NORTHEAST NEWS BUREAU

**DESPITE A LOT** of economic uncertainty, nearly all the measures of chemical industry performance are on the rise, according to C&EN's latest survey of the Global Top 50 chemical companies. Sales are up, profits have increased, and profit margins are approaching record levels.

The relative positions of the companies that make the ranking haven't changed much. Nearly all the names are familiar,

and the few shifts are hardly surprising. On the rise are companies from emerging markets and those that have acquired other chemical firms.

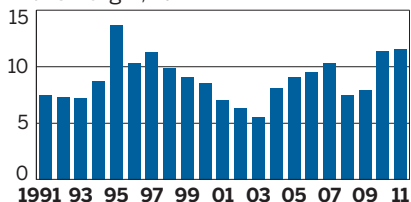
The world's Top 50 chemical companies posted strong growth in 2011, and their combined revenues are approaching the \$1 trillion mark. In 2011, the combined sales for the group were \$979 billion, a 13.7% increase compared with 2010. This

broke the record of \$892 billion record set in 2008.

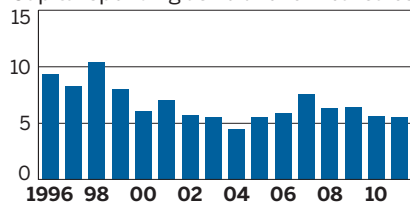
Sales declined for only seven of the 50 firms. Five of these companies—Sumitomo Chemical, Toray Industries, Shin-Etsu Chemical, Asahi Kasei, and DIC—hail from Japan, which suffered an earthquake and tsunami on March 11, 2011. Many Japanese chemical makers had serious outages. At Shin-Etsu, for instance, production

## STRONG RESULTS Profit margins improved again, and spending held steady.

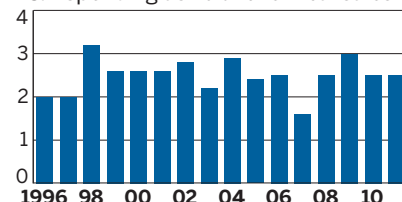
Profit margin, %



Capital spending as % of chemical sales<sup>a</sup>



R&D spending as % of chemical sales<sup>b</sup>



**NOTE:** Based on C&EN's annual listing of the Global Top 50 chemical producers. **a** For companies reporting chemical capital spending. **b** For companies reporting chemical R&D.

was down for months at two of its major facilities.

The two other firms that posted declines were Arkema and Ineos. Arkema sold its vinyl products business to the Klesch Group; Arkema didn't count those operations in its 2011 results. Ineos contributed its refining unit to a joint venture with PetroChina last July. Although C&EN didn't count the refining operation as a chemical business, the disposal likely had an effect on how the company accounts for chemical results.

The 48 firms in the survey that reported operating profits posted a combined increase of 13.9% for 2011 to \$110 billion. The group's overall profit margin—profits measured against sales—was 11.5%, the strongest it has been since 1995.

**THE RESULTS EXPOSE** a contradiction. Economic growth around the world has been disappointing since the Great Recession began in December 2007. However, chemical profitability is near record levels. It is enough to make one wonder what chemical profits would be like if the global economy were humming along at a brisk pace.

Speaking at the IHS Chemical Financial Forum in New York City last month, IHS Chief Economist Nariman Behravesht noted that the global economy hasn't progressed much beyond fits and starts in recent years. "This is the third year running in which the economy, not just in the U.S. but at the global level, started off not with a bang, but just fairly strongly, and then faltered," he said.

Behravesht ticked off several economic uncertainties, among them oil prices, the European debt crisis, emerging markets, and U.S. growth.

Oil prices, he observed, are easing and turning out to be a stimulus for the economy. The European crisis, he said, is getting worse, and the region, "for all intents and purposes," is in a recession. In China, manufacturing growth has been sluggish, but the so-called hard landing that worries many is not likely to materialize. Overall, he rated the likelihood of another recession in the U.S. or globally at one in five.

In recent months, forecasters from chemical industry trade groups have grown more pessimistic. Earlier this month, the American Chemistry Council reduced its forecast for U.S. chemical output growth in 2012 to 0.5% from the 1.2% it predicted late last year. Globally, the group forecasts 2.3% growth. In June, the European Chemical Industry Council reduced its outlook for Eu-

<b>SPENDING</b>						
<b>Most firms upped outlays for capital expenditures and research in 2011</b>						
	<b>CHEMICAL CAPITAL SPENDING</b>			<b>CHEMICAL R&amp;D SPENDING</b>		
	<b>2011 (\$ MILLIONS)</b>	<b>% CHANGE FROM 2010</b>	<b>% OF CHEMICAL SALES</b>	<b>2011 (\$ MILLIONS)</b>	<b>% CHANGE FROM 2010</b>	<b>% OF CHEMICAL SALES</b>
Air Liquide	\$2,435	21.4%	12.7%	\$351	7.1%	1.8%
Air Products & Chemicals	1,352	4.2	14.0	119	3.5	1.2
AkzoNobel	986	32.6	4.5	496	6.6	2.3
Alpek	61	-28.7	0.8	na	na	na
Arkema	591	34.6	7.2	184	-5.0	2.2
Asahi Kasei	730	23.6	6.1	na	na	na
BASF	3,305	-44.9	3.9	2,204	7.1	2.6
Bayer	1,239	2.1	4.9	1,337	0.7	5.3
Borealis	337	149.5	3.4	127	8.3	1.3
Braskem	1,347	33.4	6.8	59	25.8	0.3
Clariant	418	65.2	5.0	199	30.4	2.4
DIC	334	-96.1	3.4	114	-22.9	1.2
Dow Chemical	2,687	26.2	4.5	1,646	-0.8	2.7
DSM	589	14.3	4.6	531	12.7	4.1
DuPont	1,843	22.8	5.3	1,956	18.5	5.6
Eastman Chemical	457	88.1	6.4	158	3.9	2.2
Eni	301	-13.9	3.5	na	na	na
Evonik Industries	1,053	23.7	5.4	508	8.0	2.6
ExxonMobil	1,151	-41.9	2.7	na	na	na
Huntsman Corp.	330	39.8	2.9	166	9.9	1.5
Lanxess	946	35.5	7.7	201	24.1	1.6
Linde	2,005	8.5	13.0	100	5.9	0.7
LyondellBasell Industries	785	51.0	2.4	196	27.3	0.6
Mitsubishi Chemical	1,130	5.1	3.8	na	na	na
Mitsui Chemicals	562	-0.6	2.6	417	-8.3	1.9
Momentive	250	16.8	3.2	148	6.5	1.9
Mosaic	1,263	38.7	12.7	na	na	na
PotashCorp	2,176	10.0	25.0	na	na	na
PPG Industries	390	14.4	2.8	430	5.4	3.1
Praxair	1,797	29.5	16.0	90	13.9	0.8
Reliance Industries	472	300.0	2.5	na	na	na
Sasol	1,716	-3.3	16.2	na	na	na
Shin-Etsu Chemical	1,094	-23.5	8.3	448	-4.3	3.4
Showa Denko	355	-46.5	4.5	na	na	na
Sinopec	2,324	16.4	4.1	na	na	na
Solvay	839	110.5	7.4	217	24.8	1.9
Sumitomo Chemical	1,634	76.7	8.6	na	na	na
Syngenta	na	na	na	624	12.4	6.2
Toray Industries	1,129	1.1	6.8	na	na	na
Tosoh	242	-21.9	2.8	162	-3.7	1.9
Total	1,180	32.1	4.3	na	na	na
Yara	517	-6.2	3.6	22	20.6	0.2

**NOTE:** Results are for companies reporting capital and/or R&D expenditures. na = not available.

ropean chemical growth from 1.5% to zero.

Once again, BASF leads C&EN's Global Top 50 ranking, with \$85.6 billion in chemical revenues. BASF is followed by Dow Chemical and Sinopec. The Chinese petrochemical maker posted a stunning 29.1% increase in sales last year to \$57.1 billion. It now trails Dow by only \$2.9 billion and could become the second-largest chemical

company in the world when C&EN tabulates the ranking again in 2013.

Like Sinopec, large regional chemical makers tended to inch up in the ranking this year. Saudi Basic Industries Corp. (SABIC) posted a sales increase of 23.8%, propelling it from number seven to number five. Brazil's Braskem, which purchased Dow's polypropylene unit last Septem-

## GLOBAL TOP 50

Chemical companies saw strong growth in sales and operating profits again in 2011

RANK		COMPANY	CHEMICAL SALES	CHANGE	CHEMICAL SALES AS	HEAD-QUARTERS COUNTRY	CHEMICAL OPERATING PROFITS <sup>a</sup>	CHANGE	CHEMICAL PROFITS AS	OPERAT-	IDENTIFIABLE	CHEMICAL ASSETS	OPERATING
2011	2010		(\$ MILLIONS) 2011	FROM 2010	% OF TOTAL SALES		(\$ MILLIONS)	FROM 2010	% OF TOTAL OPERATING PROFITS	ING PROFIT MARGIN <sup>b</sup>	ASSETS (\$ MILLIONS)	AS % OF TOTAL ASSETS	RETURN ON CHEMICAL ASSETS <sup>c</sup>
1	1	BASF	\$85,603	15.8%	83.6%	Germany	\$9,021	19.3%	75.4%	10.5%	\$70,971	83.3%	12.7%
2	2	Dow Chemical	59,985	11.8	100.0	U.S.	4,522	24.7	100.0	7.5	69,224	100.0	6.5
3	3	Sinopec	57,068	29.1	15.0	China	3,915	71.3	24.8	6.9	22,095	12.6	17.7
4	4	ExxonMobil <sup>d</sup>	41,942	18.1	9.0	U.S.	4,383	-10.8	10.7	10.5	27,107	8.2	16.2
5	7	SABIC	41,730	23.8	82.4	Saudi Arabia	14,452	25.8	87.2	34.6	72,027	81.2	20.1
6	6	Formosa Plastics <sup>e</sup>	37,612	1.2	63.0	Taiwan	4,120	-22.3	86.9	11.0	38,914	64.9	10.6
7	8	DuPont <sup>f</sup>	34,763	15.6	91.6	U.S.	5,547	22.8	98.8	16.0	18,819	67.9	29.5
8	9	LyondellBasell Industries	32,214	16.4	63.1	Netherlands	3,301	23.8	82.6	10.2	na	na	na
9	10	Mitsubishi Chemical	29,687	3.6	73.8	Japan	806	-55.5	49.2	2.7	26,243	65.9	3.1
10	12	Total	27,134	11.4	10.5	France	917	-31.7	2.7	3.4	na	na	na
11	13	Bayer	25,198	6.5	49.5	Germany	1,665	14.8	28.8	6.6	25,057	34.1	6.6
12	11	Ineos Group Holdings <sup>g</sup>	24,500	-6.0	100.0	Switzerland	2,430	5.4	100.0	9.9	12,940	100.0	18.8
13	14	AkzoNobel	21,868	7.2	100.0	Netherlands	1,442	-13.0	100.0	6.6	27,680	100.0	5.2
14	15	Mitsui Chemicals	21,383	4.8	100.0	Japan	289	-46.5	100.0	1.4	14,589	100.0	2.0
15	18	LG Chem	20,818	16.3	100.0	South Korea	2,561	0.5	100.0	12.3	13,809	100.0	18.5
16	22	Braskem	19,839	30.1	100.0	Brazil	1,142	-17.5	100.0	5.8	22,337	100.0	5.1
17	17	Evonik Industries	19,682	9.5	97.2	Germany	3,551	17.2	92.1	18.0	na	na	na
18	19	Air Liquide	19,158	8.0	95.1	France	3,521	7.0	97.1	18.4	28,918	95.7	12.2
19	16	Sumitomo Chemical	18,996	-0.7	77.7	Japan	665	-34.8	87.3	3.5	18,216	62.1	3.6
20	20	Reliance Industries	18,562	27.7	39.5	India	1,945	-5.0	35.3	10.5	9,109	13.8	21.4
21	21	Toray Industries	16,693	-4.0	83.7	Japan	1,442	9.3	106.7	8.6	17,048	85.9	8.5
22	23	Linde	15,410	8.1	80.2	Germany	4,237	9.9	94.7	27.5	na	na	na
23	29	Yara	14,343	22.9	100.0	Norway	2,395	36.9	100.0	16.7	13,191	100.0	18.2
24	28	Chevron Phillips	13,935	24.4	100.0	U.S.	na	na	na	na	8,634	100.0	na
25	24	PPG Industries	13,824	11.1	92.9	U.S.	1,930	17.1	95.2	14.0	10,557	73.4	18.3
26	—	SK Innovation	13,601	368.3	22.0	South Korea	699	1,024.1	27.2	5.1	3,155	10.0	22.2
27	25	Shin-Etsu Chemical <sup>f</sup>	13,146	-1.0	100.0	Japan	1,877	0.3	100.0	14.3	22,708	100.0	8.3
28	26	DSM	12,807	1.6	100.0	Netherlands	1,117	-8.7	100.0	8.7	15,543	100.0	7.2
29	31	Lanxess	12,225	23.2	100.0	Germany	1,127	19.1	100.0	9.2	9,582	100.0	11.8
30	27	Asahi Kasei	12,044	-2.8	58.7	Japan	678	-34.8	47.4	5.6	10,656	59.7	6.4
31	33	Solvay	11,297	36.1	100.0	Belgium	1,042	44.1	100.0	9.2	27,079	100.0	3.8
32	30	Praxair	11,252	11.2	100.0	U.S.	3,465	12.2	100.0	30.8	16,356	100.0	21.2
33	32	Huntsman Corp.	11,221	21.3	100.0	U.S.	753	67.7	100.0	6.7	8,657	100.0	8.7
34	34	Sasol	10,593	17.5	53.9	South Africa	1,201	58.5	29.1	11.3	9,750	40.2	12.3
35	35	Syngenta	10,077	13.5	77.0	Switzerland	2,058	11.9	90.2	20.4	na	na	na
36	46	Mosaic	9,938	47.0	100.0	U.S.	2,749	106.2	100.0	27.7	15,787	100.0	17.4
37	38	Borealis	9,886	13.2	100.0	Austria	397	-18.3	100.0	4.0	8,537	100.0	4.7
38	36	DIC	9,739	-6.1	100.0	Japan	489	-5.5	100.0	5.0	8,149	100.0	6.0
39	37	Air Products & Chemicals	9,681	13.2	96.0	U.S.	1,624	13.9	96.3	16.8	13,035	97.3	12.5
40	—	Styrolution	9,125	2.3	100.0	Germany	na	na	na	na	na	na	na
41	47	PotashCorp	8,715	33.3	100.0	Canada	3,922	69.0	100.0	45.0	16,257	100.0	24.1
42	40	Eni	8,640	5.2	5.7	Italy	591	nm	2.4	6.8	4,271	2.5	13.8
43	41	Tosoh <sup>f</sup>	8,621	0.4	100.0	Japan	298	-29.2	100.0	3.5	8,892	100.0	3.3
44	45	Clariant	8,316	3.5	100.0	Switzerland	695	-8.7	100.0	8.4	10,247	100.0	6.8
45	39	Arkema	8,220	-0.1	100.0	France	1,062	51.5	100.0	12.9	7,428	100.0	14.3
46	42	Momentive	7,844	5.9	100.0	U.S.	771	-12.6	100.0	9.8	6,273	100.0	12.3
47	43	Showa Denko	7,819	1.3	73.0	Japan	570	40.1	95.9	7.3	7,782	65.9	7.3
48	48	Honam Petrochemical	7,646	17.7	100.0	South Korea	963	13.0	100.0	12.6	7,479	100.0	12.9
49	—	Alpek	7,306	48.4	49.7	Mexico	650	68.9	52.6	8.9	4,592	41.6	14.2
50	—	Eastman Chemical	7,178	22.9	100.0	U.S.	1,013	13.7	100.0	14.1	6,184	100.0	16.4

**NOTE:** Some figures converted at 2011 average exchange rates of \$1.00 U.S. = 1.6723 Brazilian reals, 6.463 Chinese renminbi, 0.7178 euros, 46.58 Indian rupees, 79.70 Japanese yen, 1,106.94 Korean won, 5.6022 Norwegian krone, 3.75 Saudi riyals, 0.8862 Swiss francs, 29,382 new Taiwan dollars. **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** Profits and profitability ratios are after tax. **e** C&EN estimates. **f** Sales include a significant amount of nonchemical products. **g** Chemical figures include only Ineos' chemical intermediates and olefins and polymers segments. **na** = not available. **nm** = not meaningful.

ber, jumped from number 22 to number 16. India's Reliance Industries posted a 27.7% gain in revenues but remained at number 20.

Fertilizer makers also climbed in the ranking. Norway's Yara moved from number 29 to 23 with a 22.9% increase in sales. The U.S. fertilizer maker Mosaic posted an eye-popping 47.0% increase in revenues, cata-

puting it from number 46 to 36. PotashCorp of Saskatchewan achieved a 33.3% increase in sales and is now number 41, up from 47.

Only four of the firms that appeared last year are not in this year's Global Top 50 ranking. Royal Dutch Shell no longer breaks out the results of its chemicals business, reporting them instead with other "downstream" operations such as refining.

The company was number five last year.

Rhodia, number 44 last year, was purchased by number 31 Solvay for \$4.8 billion. This is the biggest impact that mergers and acquisitions had on the Global Top 50 ranking this year. The two other firms that dropped off the list, Dow Corning and Celanese, numbers 49 and 50, respectively, last year, were merely overtaken by faster-growing firms.

**FOUR FIRMS DEBUTED** this year. The largest is South Korean petrochemical maker SK Innovation, at number 26. In 2011 the company started to break out all of its chemical results, revealing \$13.6 billion in chemical sales. Styrolution, a styrenic polymers joint venture between Ineos and BASF formed late last year, joins the list at number 40 with \$9.1 billion in pro forma revenues.

Two other newcomers to the list are Mexico's Alpek and Eastman Chemical, at numbers 49 and 50, respectively. Alpek grew by acquiring two rivals in polyethylene terephthalate. Eastman also has been acquisitive. Last year, it purchased Sterling Chemicals. This year, it made the much larger \$4.7 billion acquisition of Solutia, a move that will be sure to bump it up in the ranking next year.

Blockbuster deals such as the Eastman-Solutia transaction happen only occasionally in the chemical industry, points out Telly Zachariades, a partner with the investment bank The Valence Group, which advised on Solutia's side of the transaction. These deals are much more common in sectors such as media, technology, and pharmaceuticals, he notes. The mainstays of chemical industry deal-making are purchases by big chemical firms worth \$100 million to \$500 million.

Larger businesses, Zachariades notes, tend to go to private equity firms. Often this is because they are too big to fit well within any one chemical company. For instance, DuPont's automotive coatings business, which is up for sale, will likely be sold to a private equity firm because it is several billion dollars in value and because regulatory constraints come in to play in a relatively consolidated subsector.

Overall, Zachariades says the mergers and acquisitions environment has been strong. After a lull from 2008 to 2010 because of the financial crisis, activity picked up in 2011. "We saw a lot of activity in 2011, and we are seeing the same level of intensity in 2012," he says.

If so, then a few acquisitive companies should be climbing up the ranking in 2013. ■

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