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# GLOBAL TOP 50

Top three companies retain their positions, but 'other region' producers increase their presence

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**N**OT MUCH SURPRISE TO THE TOP THREE IN C&EN'S survey of the global Top 50 chemical companies this year: For the second year running, it was Dow Chemical, BASF, and DuPont, the trio that for four years has dominated this magazine's rankings of the world's top companies. As before, these three make up a "super league," with chemical sales of more than \$30 billion each, based on financial results reported in calendar-year 2004.

This year's survey, however, reflects two major trends marking the world's chemical industry: the impact on petrochemical sales

from rising oil prices and the increasing globalization of the industry.

Rising prices and strong currencies relative to the U.S. dollar pushed the sales cut-off for C&EN's list to just over \$5 billion. It was \$3.7 billion in last year's survey, which in turn showed a 15% threshold increase over the previous year.

In this year's ranking, four spots were taken up by the chemical arms of petroleum giants Royal Dutch/Shell, ExxonMobil Total, and BP, which are vying to expand that superleague. Shell and ExxonMobil, in particular, showed sales rapidly approaching that \$30 billion-a-year mark. Shell's 2004 sales, in fact, were only 2% lower than DuPont's.

Those four oil companies' chemical

# GLOBAL TOP 50

Dow, BASF, and DuPont lead the pack yet again

RANK		COMPANY	CHEMICAL SALES	CHANGE	CHEMICAL SALES AS	HEADQUARTERS COUNTRY	CHEMICAL OPERATING PROFITS <sup>a</sup>	CHANGE	PROFITS AS	OPERATING	IDENTIFIABLE	CHEMICAL	OPERATING
2004	2003		(\$ MILLIONS) 2004	FROM 2003	% OF TOTAL SALES		(\$ MILLIONS)	FROM 2003	% OF TOTAL OPERATING PROFIT	PROFIT MARGIN <sup>b</sup>	CHEMICAL ASSETS (\$ MILLIONS)	% OF TOTAL ASSETS	RETURN ON CHEMICAL ASSETS <sup>c</sup>
1	1	Dow Chemical	\$40,161.0	23.1%	100.0%	U.S.	\$3,459.0	66.1%	100.0%	8.6%	\$45,885.0	100.0%	7.5%
2	2	BASF	38,189.1	12.9	81.8	Germany	4,375.6	130.5	72.4	11.5	26,860.7	63.7	16.3
3	3	DuPont <sup>d</sup>	30,130.0	-0.4	99.9	U.S.	na	—	—	—	19,074.0	98.0	—
4	8	Royal Dutch/Shell	29,497.0	41.7	11.1	U.K./Netherlands	930.0	nm	2.9	3.2	18,330.0	9.5	5.1
5	6	ExxonMobil <sup>e</sup>	27,781.0	37.6	9.5	U.S.	3,428.0	139.4	13.5	12.3	21,154.0	10.8	16.2
6	5	Total	24,927.9	16.1	16.3	France	1,350.7	94.6	6.8	5.4	6,452.7	6.2	20.9
7	7	BP	21,209.0	31.9	7.2	U.K.	-337.0	nm	def	def	10,660.0	8.4	def
8	4	Bayer <sup>f</sup>	18,088.3	10.0	61.3	Germany	1,409.2	nm	65.3	7.8	24,046.0	57.7	5.9
9	13	China Petroleum & Chemical	16,730.0	39.4	22.4	China	2,261.0	428.3	29.7	13.5	12,685.0	25.0	17.8
10	9	Mitsubishi Chemical	16,274.0	14.8	80.4	Japan	1,116.0	60.6	81.2	6.9	12,849.0	70.5	8.7
11	12	SABIC	15,901.0	53.7	86.8	Saudi Arabia	5,252.1	123.4	83.6	33.0	21,647.0	64.8	24.3
12	10	Degussa	13,985.1	-1.6	100.0	Germany	1,058.5	29.3	100.0	7.6	16,956.5	100.0	6.2
13	16	Formosa Plastics Group <sup>g</sup>	12,627.0	40.1	53.9	Taiwan	2,715.0	81.1	65.4	21.5	19,432.0	60.7	14.0
14	11	Akzo Nobel	11,806.0	0.0	73.6	Netherlands	1,333.3	42.0	70.2	11.3	7,277.4	49.0	18.3
15	24	Huntsman Corp.	11,437.9	63.6	100.0	U.S.	159.4	132.0	25.8	1.4	9,436.5	100.0	1.7
16	15	Mitsui Chemicals	11,350.0	12.7	100.0	Japan	744.0	49.1	100.0	6.6	11,144.0	100.0	6.7
17	19	Air Liquide	10,713.8	11.6	91.9	France	1,680.8	7.6	105.8	15.7	7,978.6	44.5	21.1
18	14	ICI	10,258.2	-4.2	100.0	U.K.	877.3	21.6	100.0	8.6	9,040.3	100.0	9.7
19	20	Sumitomo Chemical	9,883.0	14.6	82.5	Japan	604.0	87.6	62.1	6.1	10,054.0	65.9	6.0
20	21	Toray Industries	9,869.0	24.5	82.2	Japan	599.0	42.6	80.0	6.1	10,203.0	78.7	5.9
21	25	DSM	9,641.8	28.1	100.0	Netherlands	608.2	66.3	100.0	6.3	11,114.4	100.0	5.5
22	27	Equistar Chemicals	9,316.0	42.3	100.0	U.S.	498.0	nm	100.0	5.3	5,074.0	100.0	9.8
23	17	Dainippon Ink & Chemicals	9,273.0	2.9	100.0	Japan	445.0	9.9	100.0	4.8	9,235.0	100.0	4.8
24	23	Chevron Phillips	9,238.0	33.7	100.0	U.S.	707.0	830.3	100.0	7.7	6,872.0	100.0	10.3
25	22	Shin-Etsu	8,946.0	16.2	100.0	Japan	1,403.0	20.7	100.0	15.7	13,650.0	100.0	10.3
26	18	General Electric <sup>d</sup>	8,290.0	17.1	5.4	U.S.	710.0	15.3	3.4	8.6	12,318.0	1.6	5.8
27	—	Lanxess <sup>h</sup>	7,528.6	4.8	100.0	Germany	92.0	nm	100.0	1.2	5,364.4	100.0	1.7
28	26	PPG Industries	7,309.0	10.6	76.8	U.S.	1,068.0	13.7	89.5	14.6	5,720.0	64.0	18.7
29	36	Asahi Kasei	7,142.0	18.6	56.1	Japan	589.0	96.3	55.0	8.2	6,523.0	55.5	9.0
30	32	BOC	7,095.2	5.3	84.2	England	929.7	19.9	88.0	13.1	5,709.2	90.0	16.3
31	31	Air Products	7,050.7	16.9	95.1	U.S.	916.5	40.6	98.8	13.0	9,372.0	93.3	9.8
32	42	Ineos Group <sup>i</sup>	7,000.0	40.0	100.0	U.K.	na	—	—	na	na	—	—
33	29	Clariant	6,862.4	0.2	100.0	Switzerland	509.3	3.6	100.0	7.4	6,279.2	100.0	8.1
34	41	ENI	6,737.6	20.7	9.3	Italy	337.1	nm	2.2	5.0	4,070.4	7.6	8.3
35	37	Praxair	6,594.0	17.5	100.0	U.S.	1,661.0	15.0	100.0	25.2	9,878.0	100.0	16.8
36	34	Eastman Chemical	6,580.0	13.4	100.0	U.S.	374.0	67.7	100.0	5.7	5,872.0	100.0	6.4
37	28	Reliance Industries	6,572.0	27.0	44.7	India	831.0	11.7	35.9	12.6	2,118.0	14.9	39.2
38	30	Rhodia	6,568.4	def	100.0	France	-432.8	nm	100.0	def	6,801.0	100.0	nm
39	33	Sasol	6,557.8	-6.8	50.4	South Africa	144.4	-36.6	10.0	2.2	6,568.3	57.8	2.2
40	39	Solvay	6,523.6	8.3	66.6	Belgium	665.4	52.9	67.8	10.2	4,072.1	32.6	16.3
41	35	Rohm and Haas	6,471.0	15.1	88.6	U.S.	na	—	—	—	6,997.0	69.3	—
42	—	Yara <sup>j</sup>	6,417.3	12.4	100.0	Norway	531.8	30.6	100.0	8.3	4,078.1	100.0	13.0
43	45	LG Chem <sup>k</sup>	6,309.0	38.4	78.9	South Korea	704.0	89.2	90.6	9.6	2,324.0	74.1	30.3
44	38	Syngenta	6,030.0	11.2	83.0	Switzerland	713.0	26.0	131.8	11.8	8,325.0	69.3	8.6
45	49	Lyondell Chemical	5,968.0	57.0	100.0	U.S.	105.0	nm	100.0	1.8	15,736.0	98.5	0.7
46	47	Borealis	5,756.2	26.0	100.0	Denmark	345.8	612.8	100.0	6.0	3,905.5	100.0	8.9
47	43	Ciba Specialty Chemical	5,653.3	5.7	100.0	Switzerland	417.5	-9.1	100.0	7.4	8,854.4	100.0	4.7
48	46	Teijin	5,287.0	15.0	62.9	Japan	274.0	95.7	57.1	5.2	5,313.0	67.4	5.2
49	48	Nova Chemicals	5,270.0	33.5	100.0	Canada	264.0	def	100.0	5.9	5,047.0	100.0	5.2
50	44	Celanese	5,069.0	10.1	100.0	U.S.	130.0	10.1	100.0	2.6	7,410.0	100.0	1.8

**NOTE:** Financial figures converted at the 2004 average exchange rates of \$1.00 U.S. = 0.804 euros; 0.546 British pounds; 1.243 Swiss francs; 3.74 Saudi riyals; 108.15 Japanese yen; 1,145.24 South Korean won; 33.373 Taiwan dollars; 45.26 Indian rupees; 8.28 Chinese yuan; 6.44 South African rand; 6.74 Norwegian crowns; and 1.302 Canadian dollars. **a** Operating profit is sales less administrative expenses and cost of sales. **b** Chemical operating profit as a percentage of chemical sales. **c** Chemical operating profit as a percentage of identifiable chemical assets. **d** Sales include a significant amount of nonchemical products. **e** Profits and profitability rates are after-tax. **f** Excludes Lanxess. **g** Data represents the sums of Formosa Plastics Corp. and Formosa Chemicals & Fiber Corp., plus 40% of Nan Ya Plastics, and 25% of Formosa Petrochemical. **h** Spun off in January 2005; pro forma data. **i** C&EN estimate. **j** Demerged from Norsk Hydro in March 2004. **k** Company changed consolidated financial statements to include subsidiaries' activities in 2004. **def** = deficit. **na** = not available. **nm** = not meaningful.

## TOP 50 OPERATIONS

## Rise In Profits Fails To Lift Investments

Profits at the world's major chemical companies may have recovered, but that recovery has failed to boost aggregate capital spending and R&D spending, according to C&EN's ranking of the global Top 50 companies.

Based on company financial reports for 2004, spending on R&D has slipped to 2.1% of total chemical sales for those companies that report the figure. C&EN reported a similar slippage in the year-ago survey, when R&D spending was 2.2% of total chemical sales, following four years in which R&D spending as a per-

centage of chemical sales ranged from 2.5 to 2.6%.

In fact, this year's results confirm a depressing trend: In last year's global Top 50 survey, C&EN pointed out that the level then was the lowest for the seven years that the figures have been included in the C&EN rankings.

At that time, industry observers thought the R&D share decline reflected the attendant decline in operating profit margins shown by the global Top 50 chemical companies. So it may be that investment in R&D lags profitability and that

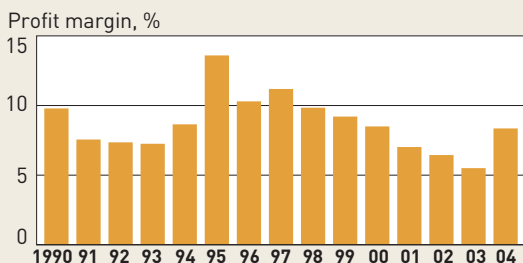
next year's results will show a more encouraging picture.

That is crucial to the industry's health, according to BASF Chairman Jürgen Hambrecht, currently president of the German Chemical Industry Association (VCI). Speaking about the chemical industry at VCI's midyear press conference recently, he argued that "our research provides the ideas. We simply must have more innovation—we must innovate to cause the market to grow."

Chemical capital spending also continued to slide. In this year's survey, capital spending as a percentage of chemical sales was 4.9% for the companies reporting. That's down from a year ago, when capital spending was only 5.5% of the chemical

## REBOUND

## Profits break downward trend



NOTE: Based on C&EN's annual listing of the global Top 50 chemical producers.

units knocked Bayer out of the top five for the first time since C&EN began conducting its analysis of the global Top 50 chemical companies in 1990, basing its analysis on reported results for 1989. Part of Bayer's drop in position reflects, of course, its spin-off last year of the bulk of its chemical operations as Lanxess. Lanxess, in its debut on the rankings, weighed in at number 27. But even had its sales been amalgamated with those of Bayer, Bayer nonetheless would have dropped to the number six slot.

Rounding out the top 10 are two companies that underscore the global nature of the chemical industry. The chemical operations of China Petroleum & Chemical (Sinopec), China's leading petroleum producer, jumped four positions to number nine, while Japan's Mitsubishi Chemical retained its presence in the top 10, although it was pushed back to the last spot.

As the chemical industry's selling prices increased in 2004, profitability zoomed upward, too. In fact, the aggregate profit margin—chemical operating profits as a

percentage of chemical sales—in this year's survey snapped back after six years of decline to 8.1%, up from a record low of 5.5% a year ago.

That level was not quite as good, perhaps, as that drawn from the reported results for 2000, but it was still a decided improvement—particularly for companies with petrochemical and basic chemical operations.

The chemical industry continues to raise prices in the face of high raw material costs. But as BASF Chairman Jürgen Hambrecht pointed out at the midyear press conference of the German Chemical Industry Association in Frankfurt earlier this month, "It was possible to bring about price increases only in sectors closely connected with crude oil: petrochemistry and polymers." Other sectors of the industry still faced stubborn resistance to price increases, he said.

Nonetheless, as pointed out in C&EN's Facts & Figures report earlier this month (C&EN, July 11, page 42), price indexes rose in many countries in which the global Top 50 chemical companies are active. "Statistics indicate that price growth was a factor in improving company fortunes," the report concludes.

The reshaping of the worldwide chemical industry into what is indeed a global marketplace and production network also continued to develop during 2004.

The proportion of the Global Top 50's total sales made up by companies in countries outside the historical powerhouse

regions of the U.S., Western Europe, and Japan, continued to rise—a development welcomed by BASF's Hambrecht: "As Asian countries develop, they will have more demand for specialties, and these will come from outside their regions. The companies in the 'new regions' will provide more competition, but competition is good," he said.

Countries represented in this segment include Canada, China, India, Saudi Arabia, South Africa, and Taiwan. Companies from those countries accounted for 11.9% of the surveyed companies' aggregate sales, up from 10.6% a year ago. Seven companies from this group showed up in this year's survey, a marked change from the first global Top 50 ranking that C&EN compiled in 1990, when "other regions" was represented solely by Saudi Basic Industries Corp. (SABIC), at number 34. Its sales accounted for 1.2% of the total for the 50 world leaders.

In addition to increasing their share of the global Top 50's sales, companies from other regions reported an overall increase in sales of 34%, paced by surges at six of the seven. Only Sasol showed a decline in sales.

Some 14 companies from the U.S. made the list, up one from the 2004 ranking. U.S. companies on the list had aggregate sales of \$181.4 billion, up 25.8% over the previous year. But their share of the overall sales was 30.8%, just a hair more than the proportion a year ago. The U.S. share was 32.5% in the 2003 survey and 33.4% in 2002. Ironically, the appearance in the U.S. ranks of the "new" company Celanese shows a reversal of history, as Celanese has reemerged as an independent company, but based in Texas rather than in Germany.



sales of the global Top 50 companies. And the 2004 survey figure, in turn, was down from 6.3% in 2003 and 7.0% in 2002.

There are some prospects of a pickup in capital spending, however. This year, of the 46 companies specifically reporting chemical capital spending, some 22 reported an increase from the 2004 survey. That was almost double the number that reported increasing chemical capital spending in the 2004 survey. The increases sometimes were small, however, and were outweighed by cuts at other companies that have concluded major expansion programs. Nonetheless, they provide some encouragement that the industry has recovered enough that it can resume investment at more than levels of depreciation.

That reassignment, in turn, held the number of European companies in the ranking at 21 for the third year in a row. The aggregate sales of those companies were \$260.5 billion, up 17.4% from a year ago, and they accounted for 44.2% of the total, down slightly from 44.6% in the 2004 survey. That slip continues a four-year trend: European companies made up 46.1% of the 2003 survey and 48.3% of the 2002 survey.

This year's ranking includes eight Japanese companies, down one from the previous year. Their sales accounted for 13.2% of the total, down slightly from 14.2% last year, but up from 13.0% in the 2003 survey and 12.6% in 2002. Aggregate sales of the Japanese companies were \$78.0 billion in this year's survey, up 8.1% over a year ago.

There are two newcomers to this year's ranking: Lanxess, the chemical operations carved out of Bayer into an independent company in mid-2004 and officially spun off at the beginning of this year, and Yara, demerged from Norsk Hydro in March 2004. Norsk Hydro dropped off the 2005 list.

**THE INCREASE** in sales and prices has brought about a substantial improvement in the profit health of the global Top 50. Compared with the ranking last year, when six companies reported operating losses, this year shows a deficit only at BP, which is restructuring its chemical operations into the new company Innovene, and at Rhodia. Rhodia's loss reflects the continuing legacy of an ambitious expansion program in the late 1990s that turned sour; its managers predict, though, that the company will return to profit in 2006.

Next year's ranking, for companies' performance in 2005, however, may reflect some of the latest reshaping in the global

## SPENDING

R&D and capital spending showed mixed picture

	CHEMICAL CAPITAL SPENDING			CHEMICAL R&D SPENDING		
	2004 (\$ MILLIONS)	CHANGE FROM 2003	% OF CHEMICAL SALES	2004 (\$ MILLIONS)	CHANGE FROM 2003	% OF CHEMICAL SALES
Dow Chemical	\$1,333.0	21.2%	3.3%	\$1,022.0	4.1%	2.5%
BASF	2,400.5	-15.8	6.3	1,459.0	6.2	3.8
DuPont	1,232.0	-28.1	4.1	1,333.0	-1.2	4.4
Shell Chemicals	705.0	17.7	2.4	na	—	—
ExxonMobil	690.0	-0.3	2.5	na	—	—
Total	1,125.6	-18.8	4.5	621.9	0.0	2.5
BP	929.0	19.9	4.4	na	—	—
Bayer	672.9	-38.3	3.7	1,138.1	-6.1	6.3
Mitsubishi Chemical	407.4	-3.1	2.5	na	—	—
SABIC	1,157.8	-43.6	7.3	na	—	—
Degussa	896.8	-0.1	6.4	432.8	4.2	3.1
China Petroleum & Chemical	1,332.0	20.9	19.5	na	43.5	—
Akzo Nobel	486.3	7.1	4.1	360.7	-2.0	3.1
Huntsman Corp.	226.0	18.3	2.0	83.0	26.5	0.7
Mitsui Chemicals	435.8	3.0	3.8	322.7	6.1	2.8
Air Liquide	1,088.3	17.1	10.2	128.5	9.5	1.2
ICI	293.0	3.9	2.9	269.2	-2.0	2.6
Sumitomo Chemical	902.7	30.4	9.1	417.9	—	4.2
Toray Industries	419.5	-15.5	4.3	na	—	—
DSM	415.4	-17.9	4.3	355.7	6.7	3.7
Equistar Chemicals	101.0	-4.7	1.1	34.0	-10.5	0.4
Dainippon Ink & Chemicals	422.8	0.0	4.6	147.2	6.3	1.6
Chevron Phillips	201.0	-9.9	2.2	42.0	-23.6	0.5
Shin-Etsu	982.2	4.3	11.0	258.2	6.1	2.9
BOC	469.0	8.6	5.6	76.2	4.3	0.9
General Electric	638.0	-19.9	7.7	na	—	—
Lanxess	347.0	-10.6	4.6	156.7	-25.0	2.1
PPG Industries	244.0	12.4	3.3	303.0	-1.0	4.1
Asahi Kasei	427.3	-17.3	6.0	na	—	—
Air Products	706.0	15.2	10.0	127.0	5.0	1.8
Clariant	232.5	-4.0	3.4	220.4	-11.0	3.2
ENI	123.1	-29.8	1.8	na	—	—
Praxair	668.0	-32.0	10.1	77.0	2.7	1.2
Eastman Chemical	248.0	7.8	3.8	154.0	-11.0	2.3
Rhodia	247.5	-14.6	3.8	194.0	-16.6	3.0
Sasol	751.7	19.3	11.5	61.3	5.1	0.9
Solvay	411.7	7.5	6.3	126.9	21.4	1.9
Rohm and Haas	322.0	-5.0	5.0	265.0	11.3	4.1
Yara	144.5	5.9	2.3	20.3	7.9	0.3
Syngenta	128.0	-23.8	2.1	499.0	10.2	8.3
Lyondell Chemical	83.0	-69.0	1.4	41.0	10.8	0.7
Borealis	238.8	61.3	4.1	51.0	-4.7	0.9
Ciba Specialties	236.5	26.2	4.2	231.7	2.5	4.1
Teijin	334.6	3.2	6.3	na	—	—
Nova Chemicals	242.0	86.2	4.6	48.0	6.7	0.9
Celanese	210.0	-0.5	4.1	90.0	1.1	1.8

na = not available.

chemical industry. For example, the ranking will feature the loss of the Equistar joint venture, following Lyondell Chemical's acquisition of Millennium Chemicals and thus the stake in Equistar that Lyondell did

not already own. And the new fertilizers company Mosaic, formed by the merger of IMC Global with Cargill's fertilizers business, will undoubtedly make its debut in the rankings. ■