No recovery in 2002 and few mergers affected the ranking, which C&EN reorganized to reflect the globalized face of U.S. industry.
### Profitability improved in 2002, while sales remained sluggish

<table>
<thead>
<tr>
<th>RANK</th>
<th>COMPANY</th>
<th>2002 SALES ($ MILLIONS)</th>
<th>CHANGE FROM 2001</th>
<th>2002 OPERATING PROFITS ($ MILLIONS)</th>
<th>CHANGE FROM 2001</th>
<th>CHEMICAL OPERATING ASSETS AS % OF TOTAL OPERATING ASSETS</th>
<th>CHEMICAL OPERATING ASSETS AS % OF TOTAL CHEMICAL ASSETS</th>
<th>OPERATING RETURN ON CHEMICAL ASSETS</th>
<th>PROFIT MARGIN</th>
<th>PROFIT AS % OF TOTAL SALES</th>
<th>SALES AS % OF TOTAL OPERATING SALES</th>
<th>OPERATING PROFIT AS % OF TOTAL OPERATING SALES</th>
<th>HEADQUARTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dow Chemical</td>
<td>$27,609.0</td>
<td>-0.7%</td>
<td>100.0%</td>
<td>Midland, Mich.</td>
<td>$1,165.0</td>
<td>-6.8%</td>
<td>100.0%</td>
<td>4.2%</td>
<td>39,562.0</td>
<td>100.0%</td>
<td>2.9%</td>
<td>Michigan</td>
</tr>
<tr>
<td>2</td>
<td>DuPont</td>
<td>26,728.0</td>
<td>-0.2</td>
<td>100.0%</td>
<td>Wilmington, Del.</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>22,179.0</td>
<td>99.5%</td>
<td>na</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ExxonMobil</td>
<td>16,608.0</td>
<td>2.9</td>
<td>100.0%</td>
<td>Irving, Texas</td>
<td>830.0</td>
<td>-5.3</td>
<td>100.0%</td>
<td>5.3</td>
<td>18,125.0</td>
<td>11.9%</td>
<td>4.6%</td>
<td>Texas</td>
</tr>
<tr>
<td>4</td>
<td>General Electric</td>
<td>7,651.0</td>
<td>8.2</td>
<td>5.8%</td>
<td>Fairfield, Conn.</td>
<td>1,125.0</td>
<td>-29.5</td>
<td>6.0</td>
<td>14.7</td>
<td>13,414.0</td>
<td>2.3%</td>
<td>8.4%</td>
<td>Connecticut</td>
</tr>
<tr>
<td>5</td>
<td>Huntsman Corp.</td>
<td>7,200.0</td>
<td>-15.3</td>
<td>100.0%</td>
<td>Salt Lake City</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>PPS Industries</td>
<td>5,996.0</td>
<td>1.1</td>
<td>74.3%</td>
<td>Pittsburgh</td>
<td>729.0</td>
<td>24.0%</td>
<td>86.2%</td>
<td>12.2%</td>
<td>5,238.0</td>
<td>66.6%</td>
<td>13.9%</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>7</td>
<td>Equistar Chemicals</td>
<td>5,537.0</td>
<td>-6.3</td>
<td>100.0%</td>
<td>Houston</td>
<td>-44.0</td>
<td>0</td>
<td>100.0%</td>
<td>def</td>
<td>5,052.0</td>
<td>100.0%</td>
<td>def</td>
<td>Texas</td>
</tr>
<tr>
<td>8</td>
<td>Chevron Phillips</td>
<td>5,473.0</td>
<td>-8.9</td>
<td>100.0%</td>
<td>The Woodlands, Texas</td>
<td>41.0</td>
<td>nm</td>
<td>100.0%</td>
<td>0.7%</td>
<td>6,109.0</td>
<td>100.0%</td>
<td>0.7%</td>
<td>Texas</td>
</tr>
<tr>
<td>9</td>
<td>Eastman Chemical</td>
<td>5,320.0</td>
<td>-1.2</td>
<td>100.0%</td>
<td>Kingsport, Tenn.</td>
<td>213.0</td>
<td>nm</td>
<td>100.0%</td>
<td>4.0%</td>
<td>6,273.0</td>
<td>100.0%</td>
<td>3.4%</td>
<td>Tennessee</td>
</tr>
<tr>
<td>10</td>
<td>Praxair</td>
<td>5,128.0</td>
<td>-0.6</td>
<td>100.0%</td>
<td>Danbury, Conn.</td>
<td>3,158.0</td>
<td>9.1</td>
<td>100.0%</td>
<td>25.6</td>
<td>7,401.0</td>
<td>100.0%</td>
<td>18.3%</td>
<td>Connecticut</td>
</tr>
</tbody>
</table>

**Note:**
- Operating profit is sales less administrative expenses and cost of sales.
- Chemical operating profit as a percentage of sales.
- Chemical operating profit as a percentage of identifiable assets.
- Sales include a significant amount of nonchemical products.
- Profits and profitability ratios are after tax.
- Fiscal year ended Sept 30.
- def = deficit.
- na = not available.
- nm = not meaningful.
Today, chemical companies are organized differently, with less emphasis placed on regional organizations and more focus on global organizations centered around product lines. In such a climate, it seems unfair to rank BASF behind Huntsman Corp.

The new ranking fixes this problem and has other advantages as well. Now, the U.S. sales as a percentage of a foreign company's total chemical sales will be listed, providing readers with a measure of how important U.S. sales are to the overall company.

Moreover, the foreign list is slightly more inclusive than it used to be. For example, Bayer was never included in the ranking because C&EN doesn't count pharmaceutical sales and the company doesn't separate its U.S. pharmaceutical sales from its U.S. chemical sales. Now, Bayer heads the list. Likewise, companies such as BOC, Air Liquide, Syngenta, and Agrium have been included for the first time.

Also, Canadian companies Potash Corp. of Saskatchewan and Nova Chemicals are included on the foreign list. They used to be treated like U.S. companies. In fact, although Nova is officially registered in Canada, key executives have been working out of Pittsburgh for some time. South Africa's Sasol joins the list because of its acquisition in 2001 of surfactants maker Condea, which has given the company a foothold in the U.S.

One company, Ondeo Nalco, is still a little difficult to classify. The firm used to be Naperville, Ill.-based Nalco Chemical but was purchased by French water treatment giant Suez in 1999. Ondeo Nalco is still headquartered in Illinois, but because it is French owned, it is included on the foreign list. Similarly, Dainippon Ink & Chemicals owns Reichhold Chemical, based in Research Triangle Park, N.C., and Fort Lee, N.J.-based Sun Chemical.

Overall, 2002 wasn’t a great year for the chemical industry. Total sales for the 50 U.S. companies listed decreased by 1.9%, down to $182.9 billion.
$26.7 billion in sales. The gap between the companies should widen if DuPont divests its fibers businesses—with $5.6 billion in 2002 sales—later this year. ExxonMobil, as usual, has come in third, with $16.4 billion in sales.

General Electric has overtaken Huntsman to come in fourth. GE's chemical sales have grown by 8.2%, to $77 billion, largely because of its acquisition of BetzDearborn in 2001. Huntsman's sales have declined by 15.3% to $7.2 billion over the same period.

There are many changes in the rest of the top 10. BASF, which was sixth last year, drops off the main list and is presented as number two on the foreign list. PPG Industries, which overtook Chevron Phillips, takes BASF's place this year. Rounding out the top 10 are Equistar Chemicals, Chevron Phillips, Eastman Chemical, and Praxair—which debuts in the top 10, in part by overtaking Air Products & Chemicals. Shell Oil, 10th last year, moves to the foreign list this year.

Elsewhere on the list, there are few big movers. Hercules dropped from 18 to 26 because of the BetzDearborn sale. OMG moved up from 49 to 19 on the list because of its acquisition of Degussa. Hercules' sales have grown by 8.2%, to $7.7 billion, large-ly because of its acquisition of BetzDearborn. Hercules. Huntsman's sales have declined by 15.3% to $7.2 billion over the same period.

In terms of operating profit margins, Praxair is first, followed by competitor Air Products & Chemicals. Hercules jumped from 10 to three. Dow dropped from 29 to 33. Praxair also comes in first in operating returns on chemical assets, followed by Engelhard and PPG.

On the foreign list, French and German companies appear near the top. Atofina has overtaken Shell Oil at third. ICI is fifth in the list of foreign-owned companies, C&EN uses sales administered by the U.S. headquarters of the companies. These figures are as close to U.S. sales as possible, but companies don't post regional sales consistently. For Shell Oil, U.S. sales are listed, but for BOC, sales in the Americas are given. A comparison of total global operations of chemical producers is scheduled to appear in the July 28 issue of C&EN.

To compile the information for the lists, C&EN uses, for the most part, official company documents such as annual reports and 10-K filings with the Securities & Exchange Commission. In the case of privately held companies and some foreign-owned companies, company interviews are used.

### METHODOLOGY

**Compiling The Lists**

C&EN ranks chemical producers by sales, defined as sales of chemical and allied products, except pharmaceuticals. Ranking the companies by chemical sales is the only way that privately held companies and some diversified producers can be included. If, for example, C&EN used market capitalization, the ranking couldn't include Huntsman Corp., General Electric, or ExxonMobil.

Because chemical sales are derived from company annual reports, nonchemical products often creep in. For instance, DuPont includes sales of seeds along with agro-chemicals in its agricultural and nutrition segment. C&EN does not restate prior-year results, except when a company changes accounting procedures.

Nor does C&EN routinely restate prior-year rankings. So OMG was able to jump from 49th in 2001 to 19th because it had a full year of sales from its 2001 acquisition of dmc2.

In the list of foreign-owned companies, C&EN uses sales administered by the U.S. headquarters of the companies. These figures are as close to U.S. sales as possible, but companies don't post regional sales consistently. For Shell Oil, U.S. sales are listed, but for BOC, sales in the Americas are given. A comparison of total global operations of chemical producers is scheduled to appear in the July 28 issue of C&EN.

To compile the information for the lists, C&EN uses, for the most part, official company documents such as annual reports and 10-K filings with the Securities & Exchange Commission. In the case of privately held companies and some foreign-owned companies, company interviews are used.

The number of nonchemical sales for Bayer in the region are unknown, it is a safe bet that they are over $1.2 billion. Atofina has overtaken Shell Oil at third. ICI is fifth in U.S. chemical sales. It is followed by Degussa, Ondeo Nalco, Dainippon Ink & Chemicals, Akzo Nobel, and French industrial gas maker Air Liquide. Cognis, which was toward the bottom during the two previous years, makes the list at 25.

Sales at the foreign-owned firms also decreased. They declined by 3.9% to $61.5 billion. Only 11 foreign firms reported operating income, but this limited number showed the same trends as the U.S.-owned companies. They increased 35% to $635 million.

The list probably won't change much ever, give the petrochemical makers a lift in the profitability rankings.

But unexpected things happen in this industry. Few people would have expected that natural gas prices would have climbed to record levels this February. And unforeseen events usually sabotage predictions in the chemical industry. Perhaps this is why executives are very reluctant nowadaysto make them. C&EN is, too.

### MORE ONLINE

A table that compares profitability ratios for the Top 50 U.S. chemical companies appears online, though the numbers also appear in the main Top 50 table. See http://www.cen-online.org.