

# GLOBAL TOP 50

C&EN's **2013 SURVEY** shows leading chemical firms are pausing after a period of growth

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**OVER THE PAST DECADE,** C&EN's Global Top 50 ranking of the world's largest chemical companies has chronicled the rise of Asia and the Middle East as chemical production juggernauts. As these emerging economies prospered, regional industry champions such as Sinopec and Saudi Basic Industries Corp. (SABIC) have shot up the ranking.

Those companies are now taking a breather, according to C&EN's latest survey. After a strong 2011, the chemical industry stalled across the globe in 2012. China's normal appetite for chemicals was sated, and no region saw swift enough economic growth for local firms to distinguish themselves. Merger and acquisition activity was muted, although experts say deal-making ought to pick up soon.

The 50 firms combined for \$961.8 billion in 2012 sales, a drop of 1.8% versus 2011. The same group of companies posted a 13.7% increase in sales in 2011.

Profits for the 45 firms that report them dropped 15.8% in 2012 to \$87.4 billion. In 2011, they had risen 13.9%. Profit margins, or profits divided by sales, fell from 11.5% in 2011 to 9.8% last year. This is a slip, to be sure, but margins are still stronger than in most of the past 20 years.

The failure of the industry's main drivers—Asia and, more recently, North America—to rally in 2012 was a drag on performance. U.S. chemical shipments declined by 1.5% last year. Results in Asia were mixed. Japanese chemical production was down, and Taiwan and South Korea posted output gains. China provides fewer data, but production of both ethylene and benzene, the most basic of chemicals, was down. Over the preceding decade, Chinese output of both those chemicals had tripled.

Europe, at which many harsh economic words have been directed of late, actually posted positive results. Shipments in the European Union increased by 2.7% last year.

The German chemical giant BASF once again tops C&EN's Top 50 ranking with \$79.8 billion in sales, a slim 0.9% improvement over 2011. In his remarks at the firm's annual shareholders meeting in April,

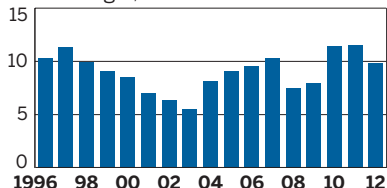


**ON THE LIST** Arkema, one of the top 50 firms, operates this plant in Calvert City, Ky.

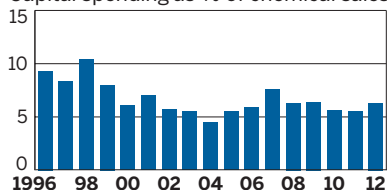
ARKEMA

## DIVERGENCE Capital and R&D spending both increased as margins slipped.

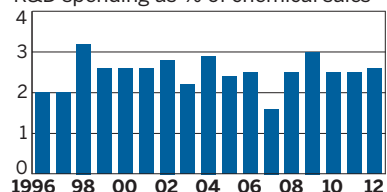
Profit margin, %



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.

BASF Chairman Kurt Bock expressed little enthusiasm about this year.

"We expect global economic growth to pick up only slightly in 2013," he said. "The chemical industry will increase production again compared to 2012 because the emerging markets are growing." He added that the economic situation will be tenuous, given the lingering European debt crisis and the overall delicate state of the global economy.

**AS FOR THE LARGE FIRMS** from the developing world that are now among the world's most important chemical producers, the results were uncharacteristic. Chinese giant Sinopec saw chemical revenues decline by 3.4% to \$56.4 billion. Its ranking stood pat at number three, but it actually came closer to becoming the second-largest chemical producer in the world, nearly overtaking Dow Chemical, which posted a 5.3% decrease in revenues.

## SPENDING

Capital and R&D budgets mostly increased in 2012

|                           | CHEMICAL CAPITAL SPENDING |                          |                           | CHEMICAL R&D SPENDING |                          |                           |
|---------------------------|---------------------------|--------------------------|---------------------------|-----------------------|--------------------------|---------------------------|
|                           | 2012<br>(\$ MILLIONS)     | % CHANGE<br>FROM<br>2011 | % OF<br>CHEMICAL<br>SALES | 2012<br>(\$ MILLIONS) | % CHANGE<br>FROM<br>2011 | % OF<br>CHEMICAL<br>SALES |
| Air Liquide               | \$2,531                   | 12.6%                    | 13.5%                     | \$330                 | 1.9%                     | 1.8%                      |
| Air Products & Chemicals  | 1,521                     | 12.5                     | 16.5                      | 126                   | 5.9                      | 1.4                       |
| AkzoNobel                 | 1,062                     | 16.7                     | 5.4                       | 498                   | 8.7                      | 2.5                       |
| Alpek                     | 116                       | 158.8                    | 1.6                       | na                    | na                       | na                        |
| Arkema                    | 616                       | 13.0                     | 7.5                       | 190                   | 12.1                     | 2.3                       |
| Asahi Kasei               | 891                       | 22.2                     | 7.5                       | na                    | na                       | na                        |
| BASF                      | 5,389                     | 76.7                     | 6.8                       | 2,204                 | 8.3                      | 2.8                       |
| Bayer                     | 1,290                     | 12.8                     | 5.0                       | 1,317                 | 6.7                      | 5.1                       |
| Borealis                  | 401                       | 28.9                     | 4.1                       | 123                   | 5.5                      | 1.3                       |
| Braskem                   | 1,430                     | 24.0                     | 7.9                       | 54                    | 7.2                      | 0.3                       |
| DIC                       | 328                       | -1.5                     | 3.7                       | 110                   | -3.3                     | 1.3                       |
| Dow Chemical              | 2,614                     | -2.7                     | 4.6                       | 1,708                 | 3.8                      | 3.0                       |
| DSM                       | 777                       | 42.8                     | 6.6                       | 492                   | 0.5                      | 4.2                       |
| DuPont                    | 1,793                     | -2.7                     | 5.9                       | 2,067                 | 5.7                      | 6.8                       |
| Eastman Chemical          | 465                       | 1.8                      | 5.7                       | 198                   | 25.3                     | 2.4                       |
| Eni                       | 221                       | -20.4                    | 2.9                       | na                    | na                       | na                        |
| Evonik Industries         | 1,309                     | 34.7                     | 7.6                       | 505                   | 7.7                      | 2.9                       |
| ExxonMobil                | 997                       | -13.4                    | 2.6                       | na                    | na                       | na                        |
| Huntsman Corp.            | 412                       | 24.8                     | 3.7                       | 152                   | -8.4                     | 1.4                       |
| Lanxess                   | 895                       | 2.5                      | 7.7                       | 247                   | 33.3                     | 2.1                       |
| Linde                     | 2,444                     | 32.1                     | 15.1                      | 95                    | 2.8                      | 0.6                       |
| Lotte Chemical            | 531                       | -35.9                    | 3.8                       | na                    | na                       | na                        |
| LyondellBasell Industries | 924                       | 17.4                     | 2.8                       | 172                   | -12.2                    | 0.5                       |
| Mitsubishi Chemical       | 1,265                     | 12.1                     | 4.4                       | na                    | na                       | na                        |
| Mitsui Chemicals          | 710                       | 26.4                     | 4.0                       | 401                   | -3.6                     | 2.3                       |
| Momentive                 | 240                       | -4.0                     | 3.4                       | 138                   | -6.8                     | 1.9                       |
| Mosaic                    | 1,639                     | 29.8                     | 14.8                      | na                    | na                       | na                        |
| PotashCorp                | 2,133                     | -2.0                     | 26.9                      | na                    | na                       | na                        |
| PPG Industries            | 411                       | 5.4                      | 2.9                       | 455                   | 5.8                      | 3.2                       |
| Praxair                   | 2,180                     | 21.3                     | 19.4                      | 98                    | 8.9                      | 0.9                       |
| Reliance Industries       | 1,524                     | 269.9                    | 8.6                       | na                    | na                       | na                        |
| Royal Dutch Shell         | 875                       | 38.0                     | 2.0                       | na                    | na                       | na                        |
| Sasol                     | 1,293                     | -14.8                    | 12.0                      | na                    | na                       | na                        |
| Shin-Etsu Chemical        | 1,040                     | -4.8                     | 8.1                       | 472                   | 5.6                      | 3.7                       |
| Showa Denko               | 405                       | 14.2                     | 5.9                       | na                    | na                       | na                        |
| Sinopec                   | 3,010                     | 26.5                     | 5.3                       | na                    | na                       | na                        |
| Solvay                    | 1,009                     | 30.4                     | 6.1                       | 336                   | 67.3                     | 2.0                       |
| Sumitomo Chemical         | 1,139                     | -30.2                    | 6.0                       | na                    | na                       | na                        |
| Toray Industries          | 1,137                     | 0.9                      | 6.6                       | na                    | na                       | na                        |
| Tosoh                     | 328                       | 35.7                     | 3.9                       | 153                   | -5.4                     | 1.8                       |
| Yara                      | 613                       | 23.1                     | 4.2                       | 19                    | -10.6                    | 0.1                       |

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

A mere \$344 million in sales now separates the two firms.

SABIC saw only a 1.1% increase in revenues to \$42.2 billion. It remains the fifth-largest chemical maker.

These firms gave much more dynamic performances during the previous decade. In 2002, SABIC was the 13th-largest chemical company in the world with only \$8.0 billion in sales, and Sinopec was number 14 with sales of \$7.9 billion. Both firms have seen rapid organic growth since then.

Additionally, SABIC purchased GE Plastics as well as two large European petrochemical businesses.

Judging from their future-oriented spending, a number of companies believe that better days lie ahead, although they seem to be more interested in building plants than laboratories. As a percentage of sales, capital spending increased from 5.5% in 2011 to 6.3% last year. The 41 companies that reported capital spending figures laid out a total of \$49.9 billion in 2012, a

**"Shale is creating an environment of change."**



# GLOBAL TOP 50

Chemical sales and profits slumped in a difficult 2012

| RANK |      | COMPANY                           | CHEMICAL SALES (\$ MILLIONS) | CHANGE FROM 2011 | CHEMICAL SALES AS % OF TOTAL SALES | HEAD-QUARTERS COUNTRY | CHEMICAL OPERATING PROFITS <sup>a</sup> (\$ MILLIONS) | CHANGE FROM 2011 | CHEMICAL PROFITS AS % OF TOTAL OPERATING PROFITS | OPERATING PROFIT MARGIN <sup>b</sup> | IDENTIFIABLE CHEMICAL ASSETS (\$ MILLIONS) | CHEMICAL ASSETS AS % OF TOTAL ASSETS | OPERATING RETURN ON CHEMICAL ASSETS <sup>c</sup> |
|------|------|-----------------------------------|------------------------------|------------------|------------------------------------|-----------------------|---|------------------|--|--------------------------------------|--|--------------------------------------|--|
| 2012 | 2011 |                                   | 2012                         | 2011             | 2011                               |                       | 2011  | 2011             | 2011   | 2011                                 | 2011                                       | 2011                                 | 2011   |
| 1    | 1    | BASF                              | \$79,760                     | 0.9%             | 78.8%                              | Germany               | \$6,522   | -21.7%           | 56.5%  | 8.2%                                 | \$68,403                                   | 82.7%                                | 9.5%   |
| 2    | 2    | Dow Chemical                      | 56,786                       | -5.3             | 100.0                              | U.S.                  | 4,425   | -2.1             | 100.0  | 7.8                                  | 69,605                                     | 100.0                                | 6.4  |
| 3    | 3    | Sinopec                           | 56,442                       | -3.4             | 12.7                               | China                 | 58  | -98.6            | 0.4  | 0.1                                  | 23,117                                     | 12.3                                 | 0.3  |
| 4    | —    | Shell                             | 42,715                       | 0.2              | 9.1                                | Netherlands           | na  | na               | na   | na                                   | na   | na                                   | na   |
| 5    | 5    | SABIC                             | 42,201                       | 1.1              | 83.7                               | Saudi Arabia          | 12,481  | -13.6            | 86.2   | 29.6                                 | 72,322                                     | 80.2                                 | 17.3   |
| 6    | 4    | ExxonMobil                        | 38,726                       | -7.7             | 8.5                                | U.S.                  | 4,885   | -16.9            | 6.4  | 12.6                                 | 26,124                                     | 7.8                                  | 18.7   |
| 7    | 6    | Formosa Plastics <sup>d</sup>     | 36,412                       | -2.7             | 60.3                               | Taiwan                | 1,466   | -63.8            | 95.9   | 4.0                                  | 39,600                                     | 66.3                                 | 3.7  |
| 8    | 8    | LyondellBasell Industries         | 32,847                       | -6.8             | 72.4                               | Netherlands           | 4,329   | 21.8             | 92.6   | 13.2                                 | na   | na                                   | na   |
| 9    | 7    | DuPont <sup>e</sup>               | 30,216                       | -13.1            | 86.8                               | U.S.                  | 4,688   | -15.5            | 97.0   | 15.5                                 | 16,243                                     | 64.0                                 | 28.9   |
| 10   | 9    | Mitsubishi Chemical               | 28,427                       | -4.1             | 70.7                               | Japan                 | 281   | -65.1            | 24.8   | 1.0                                  | 26,707                                     | 64.4                                 | 1.1  |
| 11   | 11   | Bayer                             | 25,570                       | 9.9              | 50.0                               | Germany               | 2,747   | 78.7             | 53.9   | 10.7                                 | 24,832                                     | 37.6                                 | 11.1   |
| 12   | 12   | Ineos Group Holdings <sup>f</sup> | 23,387                       | 19.1             | 100.0                              | Switzerland           | 633   | -53.7            | 100.0  | 2.7                                  | na   | na                                   | na   |
| 13   | 15   | LG Chem                           | 20,897                       | 2.6              | 88.8                               | South Korea           | 1,696   | -32.2            | 100.0  | 8.1                                  | 14,724                                     | 100.0                                | 11.5   |
| 14   | 13   | AkzoNobel                         | 19,789                       | -2.0             | 100.0                              | Netherlands           | 1,197   | -10.0            | 100.0  | 6.0                                  | 23,098                                     | 100.0                                | 5.2  |
| 15   | 19   | Sumitomo Chemical                 | 19,042                       | 0.4              | 78.0                               | Japan                 | 355   | -46.5            | 63.0   | 1.9                                  | 19,448                                     | 62.8                                 | 1.8  |
| 16   | 18   | Air Liquide                       | 18,698                       | 5.7              | 94.9                               | France                | 3,419   | 5.2              | 97.1   | 18.3                                 | 28,412                                     | 95.6                                 | 12.0   |
| 17   | 16   | Braskem                           | 18,179                       | 7.0              | 100.0                              | Brazil                | 630   | -35.5            | 100.0  | 3.5                                  | 21,072                                     | 100.0                                | 3.0  |
| 18   | 20   | Reliance Industries               | 17,646                       | 8.9              | 26.3                               | India                 | 1,341   | -21.0            | 29.3   | 7.6                                  | 9,160                                      | 14.9                                 | 14.6   |
| 19   | 14   | Mitsui Chemicals                  | 17,617                       | -3.3             | 96.7                               | Japan                 | 54  | -80.1            | 100.0  | 0.3                                  | 16,763                                     | 100.0                                | 0.3  |
| 20   | 21   | Toray Industries                  | 17,289                       | 3.7              | 86.9                               | Japan                 | 1,150   | -20.1            | 110.0  | 6.7                                  | 18,549                                     | 93.6                                 | 6.2  |
| 21   | 17   | Evonik Industries                 | 17,217                       | -5.2             | 98.2                               | Germany               | 3,073   | -6.2             | 92.3   | 17.8                                 | na   | na                                   | na   |
| 22   | 31   | Solvay                            | 16,499                       | 58.2             | 100.0                              | Belgium               | 1,502   | 56.1             | 100.0  | 9.1                                  | 23,567                                     | 100.0                                | 6.4  |
| 23   | 22   | Linde                             | 16,190                       | 13.8             | 82.4                               | Germany               | 4,376   | 11.9             | 90.0   | 27.0                                 | na   | na                                   | na   |
| 24   | 23   | Yara                              | 14,525                       | 5.2              | 100.0                              | Norway                | 2,580   | 11.9             | 100.0  | 17.8                                 | 13,966                                     | 100.0                                | 18.5   |
| 25   | 25   | PPG Industries                    | 14,168                       | 2.5              | 93.2                               | U.S.                  | 2,199   | 13.9             | 97.2   | 15.5                                 | 10,990                                     | 69.2                                 | 20.0   |
| 26   | 48   | Lotte Chemical <sup>g</sup>       | 14,121                       | 1.3              | 100.0                              | South Korea           | 330   | -74.7            | 100.0  | 2.3                                  | 9,210                                      | 100.0                                | 3.6  |
| 27   | 24   | Chevron Phillips                  | 13,307                       | -4.5             | 100.0                              | U.S.                  | na  | na               | na   | na                                   | 9,409                                      | 100.0                                | na   |
| 28   | 27   | Shin-Etsu Chemical <sup>h</sup>   | 12,847                       | -2.1             | 97.9                               | Japan                 | 1,967   | 5.0              | 100.0  | 15.3                                 | 24,065                                     | 100.0                                | 8.2  |
| 29   | 30   | Asahi Kasei                       | 11,880                       | -1.2             | 58.0                               | Japan                 | 373   | -44.9            | 26.1   | 3.1                                  | 11,699                                     | 65.6                                 | 3.2  |
| 30   | 28   | DSM                               | 11,741                       | -0.7             | 100.0                              | Netherlands           | 638   | -38.2            | 100.0  | 5.4                                  | 15,386                                     | 100.0                                | 4.1  |
| 31   | 29   | Lanxess                           | 11,693                       | 3.6              | 100.0                              | Germany               | 1,047   | 0.6              | 100.0  | 9.0                                  | 9,668                                      | 100.0                                | 10.8   |
| 32   | 32   | Praxair                           | 11,224                       | -0.2             | 100.0                              | U.S.                  | 3,460   | -0.1             | 100.0  | 30.8                                 | 18,090                                     | 100.0                                | 19.1   |
| 33   | 33   | Huntsman Corp.                    | 11,187                       | -0.3             | 100.0                              | U.S.                  | 931   | 23.6             | 100.0  | 8.3                                  | 8,884                                      | 100.0                                | 10.5   |
| 34   | 26   | SK Innovation                     | 11,163                       | -16.5            | 17.1                               | South Korea           | 667   | -2.9             | 44.2   | 6.0                                  | 2,788                                      | 9.3                                  | 23.9   |
| 35   | 36   | Mosaic                            | 11,108                       | 11.8             | 100.0                              | U.S.                  | 2,675   | -2.7             | 100.0  | 24.1                                 | 16,690                                     | 100.0                                | 16.0   |
| 36   | 34   | Sasol                             | 10,748                       | 14.8             | 52.0                               | South Africa          | 793   | -25.4            | 17.7   | 7.4                                  | 5,586                                      | 35.1                                 | 14.2   |
| 37   | 35   | Syngenta                          | 10,208                       | 1.3              | 71.9                               | Switzerland           | na  | na               | na   | na                                   | na   | na                                   | na   |
| 38   | 37   | Borealis                          | 9,702                        | 6.3              | 100.0                              | Austria               | 203   | -44.6            | 100.0  | 2.1                                  | 8,944                                      | 100.0                                | 2.3  |
| 39   | 39   | Air Products & Chemicals          | 9,192                        | -5.1             | 95.6                               | U.S.                  | 1,582   | -2.6             | 97.3   | 17.2                                 | 15,574                                     | 91.9                                 | 10.2   |
| 40   | 38   | DIC                               | 8,817                        | -9.3             | 90.7                               | Japan                 | 482   | -1.2             | 100.0  | 5.5                                  | 8,682                                      | 100.0                                | 5.6  |
| 41   | 43   | Tosoh <sup>e</sup>                | 8,375                        | -2.7             | 97.3                               | Japan                 | 306   | 3.1              | 100.0  | 3.7                                  | 9,209                                      | 100.0                                | 3.3  |
| 42   | 45   | Arkema                            | 8,223                        | 8.4              | 100.0                              | France                | 872   | -11.0            | 100.0  | 10.6                                 | 7,125                                      | 100.0                                | 12.2   |
| 43   | 50   | Eastman Chemical                  | 8,102                        | 12.9             | 100.0                              | U.S.                  | 920   | -9.2             | 100.0  | 11.4                                 | 11,619                                     | 100.0                                | 7.9  |
| 44   | 41   | PotashCorp                        | 7,927                        | -9.0             | 100.0                              | Canada                | 3,011   | -23.2            | 100.0  | 38.0                                 | 18,206                                     | 100.0                                | 16.5   |
| 45   | 42   | Eni                               | 7,724                        | -3.1             | 4.7                                | Italy                 | -878  | nm               | def  | def                                  | 4,052                                      | 2.8                                  | def  |
| 46   | 40   | Styrolution                       | 7,715                        | -8.4             | 100.0                              | Germany               | na  | na               | na   | na                                   | na   | na                                   | na   |
| 47   | 10   | Total <sup>h</sup>                | 7,329                        | 7.0              | 2.8                                | France                | 494   | -9.2             | 3.4  | 6.7                                  | na   | na                                   | na   |
| 48   | 49   | Alpek                             | 7,283                        | 5.5              | 47.9                               | Mexico                | 568   | -1.5             | 45.9   | 7.8                                  | 4,690                                      | 40.1                                 | 12.1   |
| 49   | 46   | Momentive                         | 7,113                        | -9.3             | 100.0                              | U.S.                  | 465   | -39.7            | 100.0  | 6.5                                  | 6,229                                      | 100.0                                | 7.5  |
| 50   | 47   | Showa Denko                       | 6,855                        | -12.2            | 64.1                               | Japan                 | 419   | -26.4            | 118.9  | 6.1                                  | 7,704                                      | 65.9                                 | 5.4  |

**NOTE:** Some figures converted at 2012 average exchange rates of \$1.00 U.S. = 1.9535 Brazilian reais, 6.31 Chinese renminbi, 0.7777 euros, 53.37 Indian rupees, 79.82 Japanese yen, 1,126.16 Korean won, 5,8181 Norwegian krone, 3.75 Saudi riyals, 0.9377 Swiss francs, 29,558 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** C&EN estimates. **e** Sales include a significant amount of nonchemical products. **f** Chemical figures include only Ineos' chemical intermediates and olefins and polymers segments. **g** Formerly Honam Petrochemical. **h** Chemical figures include only specialty chemicals. **def** = deficit. **na** = not available. **nm** = not meaningful.

substantial 17.0% increase versus the year before.

R&D spending increased from 2.5% to 2.6% as a percentage of sales. The 26 chemical firms reporting such data combined for \$12.7 billion in R&D spending, a 1.1% increase from the year before.

There was a remarkable lack of churn in this year's Global Top 50: 49 of the com-

## “Overall, the market is showing signs of recovery in terms of deals in the pipeline.”

panies also made the list last year. C&EN added only one firm, Shell, and that's because it didn't provide chemical sales figures in 2011. The Swiss specialty chemical

maker Clariant was the sole company that dropped off the list. It posted an 18% decline in sales in 2012 largely because of the pending divestment of textile chemicals and other businesses to private equity firm SK Capital Partners.

**ACQUISITIONS NORMALLY** drive changes in the ranking, but their impact was limited this year. Belgian specialty chemical maker Solvay saw sales increase by nearly 60% because of its purchase of France's Rhodia in 2011. It rocketed up to number 22, from 31 the year before. Eastman Chemical purchased specialty chemical maker Solutia last year, helping it climb from 50 in last year's ranking to 43.

Alasdair Nisbet, chief executive of the strategic advisory firm Natrium Capital, predicts that the lull in merger and acquisition activity is temporary. “Overall, the market is showing signs of recovery in terms of deals in the pipeline,” he says. “There will be a reasonable flow of deals coming out over the next 12 to 18 months.”

Strong balance sheets mean that most chemical firms are in a position to borrow money. In turn, the bond market is rife with investors willing to provide financing. “Over the last six to 12 months, the level of perceived risk has decreased, and therefore people's preparedness to lend more money to individual situations has risen,” Nisbet explains.

The growing availability of cheap natural gas from shale might motivate deal-making in North America. Given the massive amounts of capital necessary to build chemical plants that take advantage of this raw material—more than \$5 billion in some individual cases—Nisbet says it might make sense for companies to team up to achieve economies of scale, dilute risk, and get their hands on new technology. “Shale is creating an environment of change, which some people will react to through acquisitions or disposals,” he observes.

The year is already half over, so it is probably too late for a deal that will change the next Global Top 50 ranking. Perhaps that will have to wait for the 2015 edition. But should the economy become more buoyant, particularly in the developing world, C&EN's 2014 survey might reveal some surprises. ■

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