



*CP's top 50  
companies*

*Is bigger better?*

## CP looks at what's ahead for top 50 U.S. chemical producers

**W**hat economic drivers will propel chemical company performance in 1999 and 2000? Where is the industry heading? Will emerging trends transform the chemical landscape in the next few years?

Those questions guided *Chemical Processing's* dissection of the 1998 performance of the top 50 U.S.-based chemical company revenue generators. The editors identified merger and acquisition trends, pondered whether bigger is better, examined environmental performance indicators that could affect stock prices, and looked ahead to the year 2000.

### Outlook

For most chemical companies, 1998 and early 1999 were shaped by tough competition with downward pricing pressure. Demand has declined in some export markets, accompanied by growing overcapacity among producers in the \$391 billion U.S. chemicals and allied products industry.

The surplus has helped reduce profits in industrial chemicals. Pharmaceutical companies and some specialty chemical makers have continued to post gains, however. The petroleum refining sector, hit hard by a glut in 1998, has seen a rebound in oil prices in the first half of 1999.

The Bureau of Labor statistics reports that overall prices of industrial chemicals have been falling since November 1997.

*Economic conditions are improving in North America and Asia but slowing in Europe and Latin America.*

Analysts see the chemical industry outlook as mixed. While they note improvement on the domestic front and in Japan and East Asia, chemical sales in Western Europe are reportedly slowing and conditions in Latin America are worsening.

At the Chemical Manufacturers Association (CMA) annual meeting in June, industry executives seemed cautiously optimistic. They didn't appear pleased with current margins, though.

Despite an upbeat long-term outlook for the industry, uncertainty persists among executives about long-term global chemical demand. Companies are continuing to enhance their portfolios through restructuring, mergers and acquisitions, demergers, and joint ventures. Changes in the institutional investment community are also creating advantages for larger companies.



Table 1. *Chemical Processing's* top 50 companies, ranked by revenue

Company	Revenue (\$, millions)	Rank	Company	Profits as a % of revenue
Exxon	100,697	1	Amgen	32
Mobil	47,678	2	Pfizer	23
E.I. duPont de Nemours	39,130	3	Schering-Plough	22
Proctor & Gamble	37,154	4	Eli Lilly	21
Texaco	31,707	5	Merck	20
Merck	26,898	6	Abbott Laboratories	19
Chevron	26,801	7	American Home Products	18
USX	24,754	8	Bristol-Myers Squibb	17
Johnson & Johnson	23,657	9	Johnson & Johnson	13
Dow Chemical	18,441	10	Warner-Lambert	12
Bristol-Myers Squibb	18,284	11	Rohm & Haas	12
Pfizer	14,704	12	Clorox	11
American Home Products	13,463	13	E.I. Du Pont de Nemours	11
Atlantic Richfield	13,195	14	PPG Industries	11
Abbott Laboratories	12,478	15	Air Products & Chemicals	11
Tosco	12,022	16	Pharmacia & Upjohn	10
Phillips Petroleum	11,845	17	Proctor & Gamble	10
Warner-Lambert	10,214	18	Colgate-Palmolive	9
Eli Lilly	10,051	19	Praxair	9
Colgate-Palmolive	8,972	20	Solutia	9
Monsanto	8,648	21	Morton International	8
Ultram Diamond Shamrock	8,347	22	Dow Chemical	7
Schering-Plough	8,077	23	Union Carbide	7
PPG Industries	7,510	24	Chevron	7
Coastal	7,125	25	Estee Lauder	7
Sunoco	7,024	26	Exxon	6
Ashland	6,933	27	Coastal	6
Pharmacia & Upjohn	6,893	28	Eastman Chemical	6
Amerada Hess	6,618	29	Sherwin-Williams	6
Union Carbide	5,659	30	Avery Dennison	6
Valero Energy	5,539	31	Avon Products	5
Avon Products	5,213	32	Mobil	4
Sherwin-Williams	4,934	33	Sunoco	4
Air Products & Chemicals	4,934	34	Engelhard	4
Praxair	4,833	35	Olin	3
Eastman Chemical	4,481	36	USX	3
FMC	4,378	37	Atlantic Richfield	3
Engelhard	4,175	38	Ashland	3
Rohm & Haas	3,720	39	FMC	2
Clark USA	3,668	40	Texaco	2
Estee Lauder	3,618	41	Phillips Petroleum	2
IMC Global	3,483	42	Tosco	1
Avery Dennison	3,460	43	Hercules	0
Solutia	2,835	44	IMC Global	(0)
Clorox	2,741	45	Ultram Diamond Shamrock	(1)
Amgen	2,718	46	Valero Energy	(1)
Morton International	2,574	47	Clark USA	(1)
Olin	2,289	48	Monsanto	(3)
Revlon	2,252	49	Revlon	(6)
Hercules	2,145	50	Amerada Hess	(7)

■ = Petroleum refining      ■ = Soaps, cosmetics  
■ = Pharmaceuticals      ■ = "Other" chemicals

### Past performance

This year's cut-off point for ranking CP's top 50 U.S.-based chemical producers is \$2.1 billion in revenues for 1998. That's down from \$2.4 billion.

Dividing the top 50 into four categories allows for a look at the performance of each segment. The sectors are pharmaceuticals, soaps and cosmetics, petroleum refining, and "other chemi-

Table 2. Performance of industry segments

Company	Pharmaceuticals													
	Revenues			Profits				Profits as % of...				Employees		
	Top 50 ranking	\$ (mil.)	% change from 1997	\$ (mil.)	Rank	% change from 1997	Rank	Revenues %	Rank	Assets %	Rank	No.	Rank	% change from 1997
Merck	6	26,898	14	5,248	1	14	7	20	5	16	7	57,300	2	7
Johnson & Johnson	9	23,657	5	3,059	4	(7)	10	13	9	12	10	93,000	1	3
Bristol-Myers Squibb	11	18,284	9	3,141	3	(2)	9	17	8	19	3	54,700	4	2
Pfizer	12	14,704	18	3,351	2	51	2	23	2	18	4	46,000	6	(7)
American Home Prods.	13	13,463	(5)	2,474	5	21	6	18	7	12	9	52,984	5	(12)
Abbott Laboratories	15	12,478	5	2,333	6	11	8	19	6	18	5	56,236	3	3
Warner-Lambert	18	10,214	25	1,254	9	44	3	12	10	14	8	41,000	7	3
Eli Lilly	19	10,051	18	2,098	7	—	—	21	4	17	6	29,800	9	(4)
Schering-Plough	23	8,077	19	1,756	8	22	5	22	3	22	2	25,100	10	11
Pharmacia & Upjohn	28	6,893	3	691	11	114	1	10	11	7	11	30,000	8	0
Amgen	46	2,718	13	863	10	34	4	32	1	24	1	5,500	11	4
<b>Total</b>		<b>147,437</b>		<b>26,268</b>								<b>491,620</b>		
<b>Average</b>		<b>13,403</b>	<b>11.3</b>	<b>2,388</b>		<b>30.3</b>		<b>18.8</b>		<b>16.3</b>		<b>44,693</b>		<b>0.9</b>

Company	Soaps, cosmetics													
	Revenues			Profits				Profits as % of...				Employees		
	Top 50 ranking	\$ (mil.)	% change from 1997	\$ (mil.)	Rank	% change from 1997	Rank	Revenues %	Rank	Assets %	Rank	No.	Rank	% change from 1997
Procter & Gamble	4	37,154	4	3,780	1	11	4	10	2	12	1	110,000	1	4
Colgate-Palmolive	20	8,972	(1)	849	2	15	3	9	3	11	3	38,300	2	1
Avon Products	32	5,213	3	270	4	(20)	5	5	5	11	2	33,900	3	(3)
Estee Lauder	41	3,618	7	237	5	20	1	7	4	9	5	15,300	4	4
Clorox	45	2,741	8	298	3	19	2	11	1	10	4	6,600	6	20
Revlon	49	2,252	(6)	(143)	6	(428)	6	(6)	6	(8)	6	13,000	5	19
<b>Total</b>		<b>59,950</b>		<b>5,291</b>								<b>217,000</b>		
<b>Average</b>		<b>9,992</b>	<b>2.5</b>	<b>882</b>		<b>(63.8)</b>		<b>6</b>		<b>7.5</b>		<b>36,183</b>		<b>7.5</b>

Company	Petroleum refining													
	Revenues			Profits				Profits as % of...				Employees		
	Top 50 ranking	\$ (mil.)	% change from 1997	\$ (mil.)	Rank	% change from 1997	Rank	Revenues %	Rank	Assets %	Rank	No.	Rank	% change from 1997
Exxon	1	100,697	(18)	6,370	1	(25)	3	6	2	7	1	79,000	1	(1)
Mobil	2	47,678	(21)	1,704	3	(48)	7	4	5	4	4	41,500	3	(3)
Texaco	5	31,707	(32)	578	5	(78)	11	2	10	2	8	24,628	6	(16)
Chevron	6	26,801	(26)	1,976	2	(39)	6	7	1	5	3	39,191	4	(0)
USX	7	24,754	18	674	4	(32)	5	3	8	3	7	52,279	2	28
Atlantic Richfield	14	13,195	(32)	452	6	(74)	9	3	6	2	10	18,400	9	(23)
Tosco	16	12,022	(9)	106	11	(50)	8	1	11	2	9	26,300	5	(1)
Phillips Petroleum	17	11,845	(23)	237	9	(75)	10	2	9	2	11	17,300	10	1
Ult. Diamond Shamrock	22	8,347	(3)	(78)	14	(150)	13	(1)	14	(1)	12	20,892	8	(9)
Coastal	25	7,125	(24)	444	7	47	1	6	3	4	5	13,300	11	1
Sunoco	26	7,024	(22)	280	8	6	2	4	4	6	2	11,086	12	1
Ashland	27	6,933	(49)	203	10	(27)	4	3	7	3	6	21,200	7	(43)
Amerada Hess	29	6,617	(21)	(459)	15	(6,219)	14	(7)	15	(6)	15	9,777	13	6
Valero Energy	31	5,539	(26)	(47)	13	(149)	12	(1)	13	(2)	13	2,500	15	35
Clark USA	40	3,668	(7)	(30)	12	—	—	(1)	12	(2)	14	6,700	14	(11)
<b>Total</b>		<b>313,952</b>		<b>12,410</b>								<b>384,053</b>		
<b>Average</b>		<b>20,930</b>	<b>(19.6)</b>	<b>827</b>		<b>(494)</b>		<b>2.1</b>		<b>1.9</b>		<b>25,603</b>		<b>(2.3)</b>

table continued on pg 29

cal." The last category includes basic, specialty, diversified and others.

Table 1 compares the top 50 companies, ranked by revenue, and comes with a ranking of the 50 by profits as a

percentage of revenue. The pharmaceutical sector consistently outperformed the other segments by a significant margin, with 10 of the 11 pharmaceutical firms reaching the top of the

list. Amgen, a biotech firm, outpaced all the others with 32% profit as a percent of revenue. Pfizer posted 23% profits, due partly to the success of Viagra.

The Petroleum Refining sector was

Table 2. Performance of industry segments, continued

Company	"Other" chemicals (basic, specialty, diversified, etc.)													
	Revenues			Profits				Profits as % of...				Employees		
	Top 50 ranking	\$ (mil.)	% change from 1997	\$ (mil.)	Rank	% change from 1997	Rank	Revenues %	Rank	Assets %	Rank	No.	Rank	% change from 1997
E.I. DuPont de Nemours	3	39,130	(5)	4,480	1	86	2	11	2	11	2	101,000	1	3
Dow Chemical	10	18,441	(8)	1,310	2	(28)	10	7	5	5	8	39,029	2	(9)
Monsanto	21	8,648	(9)	(250)	17	(153)	17	(3)	12	(1)	13	31,800	4	45
PPG Industries	24	7,510	2	801	3	12	4	11	2	—	3	32,500	3	2
Union Carbide	30	5,659	(13)	403	7	(39)	12	7	5	6	7	11,627	12	(2)
Sherwin-Williams	33	4,934	1	273	8	5	8	6	6	7	6	24,822	6	(1)
Air Products & Chem.	34	4,934	6	547	4	27	3	11	2	7	6	16,700	7	2
Praxair	35	4,833	2	425	6	5	7	9	3	5	8	24,834	5	(2)
Eastman Chemical	36	4,481	(4)	249	9	(13)	9	6	6	4	9	16,000	10	(1)
FMC	37	4,378	(16)	107	13	(34)	11	2	9	3	10	16,216	8	(4)
Engelhard	38	4,175	15	187	12	292	1	4	7	7	6	6,425	18	0
Rohm & Haas	39	3,720	(7)	440	5	7	6	12	1	12	1	11,265	13	(3)
IMC Global	42	3,483	17	(9)	16	(114)	16	(0)	11	0	12	11,000	14	23
Avery Dennison	43	3,460	3	223	10	9	5	6	6	—	3	16,100	9	(1)
Solutia	44	2,835	—	249	9	—	—	9	3	9	4	8,750	17	—
Morton International	47	2,574	(29)	209	11	(39)	13	8	4	8	5	10,600	15	(37)
Olin	48	2,289	(5)	78	14	(49)	14	3	8	5	8	9,400	16	(4)
Hercules	50	2,145	15	9	15	(97)	15	0	10	0	11	12,357	11	99
<b>Total</b>		<b>127,626</b>		<b>9,731</b>								<b>400,425</b>		
<b>Average</b>		<b>7,901</b>	<b>(2.0)</b>	<b>541</b>		<b>(7.2)</b>		<b>6.0</b>		<b>5.5</b>		<b>22,246</b>		<b>6.5</b>

the most challenged segment in 1998 with four of the fifteen firms showing losses rather than profits. Amerada Hess had the poorest performance with 7% in losses.

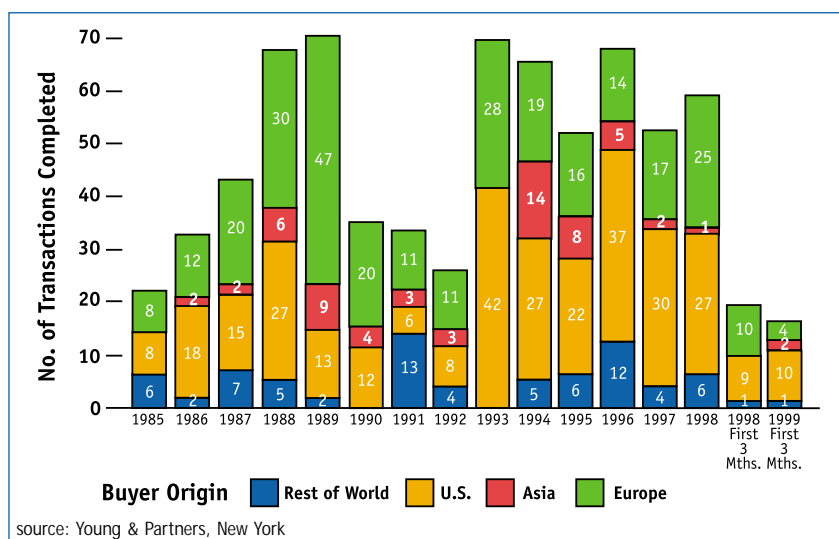
Table 2 compares the performance of each of these segments with the percent change compared to 1997 summarized below for revenues, profits, and number of employees:

	% change in revenues	% change in profits	% change in employees
Pharmaceuticals	11.3	30.3	0.9
Soaps & cosmetics	2.5	(63.8)	7.5
Petroleum refining	(19.6)	(494.0)	(2.3)
Other chemicals	(2.0)	(7.2)	6.6

Some of the above averages are skewed by unusual circumstances at individual companies that are dominant players. For example, if Revlon (losses of 6%) is excluded from the soaps and cosmetics segment averages, and if Amerada Hess (losses of 7%) is excluded from the petroleum refining segment averages, the performance of the sectors improves as follows:

	% change in revenues	% change in profits	% change in employees
Soaps & cosmetics	4.2	9.0	5.8
Petroleum refining	(19.5)	(53.4)	(2.9)

Fig. 1. Chemical company acquisitions



Mergers and acquisitions (M&A) or divestitures are the primary reason for double digit percentage increases or decreases in the number of employees shown on the far right column of Table 2.

Is bigger better?

According to Peter Young of Young & Partners in New York, mergers and acquisitions in CP's "other chemicals" sector may have peaked in 1998, following four years of step change dollar volume increases. On a global level, Young reported that acquisition of worldwide chemical companies rose from \$9.8 billion in 1995 to \$19.7 billion in 1996, to \$33.3 billion in 1997 and to \$37.3 billion in 1999.

As shown in Fig. 1, U.S. buyers have led European buyers in the number of trans-

actions since 1993, which was also true for the first quarter of 1999. Transaction volume, however, decreased in the first three months of 1999, compared to the first three months of 1998.

What's behind the continued trend toward mergers and acquisitions? Is

\$5 billion (Fig. 2).

What's causing the valuation problem and the need for "critical mass"?

Young sees several underpinnings:

- Investing institutions, including pension administrators and mutual funds, are growing much larger;
- Institutions must invest in larger

*Leadership in a market outweighs size. On the financial side, however, bigger can definitely be better.*

there a "perfect" size that makes a chemical company most effective? Is there a financial "critical mass," so to speak, that provides a competitive advantage?

According to the Young & Partners analysis, many public chemical companies are suffering from low P/E ratios for a variety of reasons. One is the lack of equity capital "critical mass." Key factors include:

- The minimum market capitalization and float required by equity capital markets has increased dramatically;
- Chemicals have fallen out of favor with the stock market;
- The P/E penalty for companies below \$1.2 billion in market capitalization is severe, and it's still significant for companies between \$1.2 billion and

companies with greater market capitalization and float;

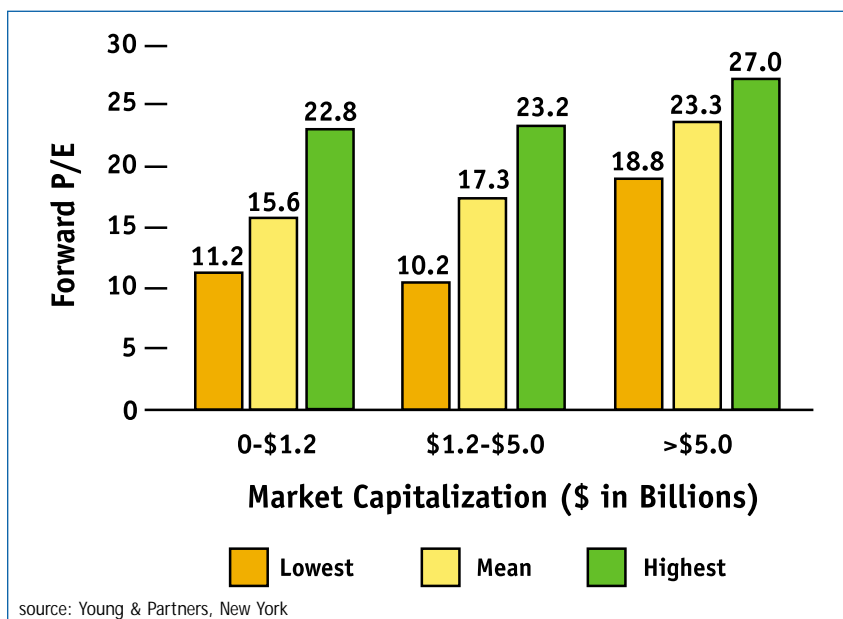
- Investors have to be able to get in and out of a stock position without disrupting the price.

CP's comparison of company size in our four industry segments reveals that:

- All but one of the pharmaceutical firms is above \$5 billion, and eight are above \$10 billion;
- Fourteen of the fifteen petroleum refining firms are above \$5 billion; Three of the six soaps and cosmetics firms are above \$5 billion;
- Only five of the eighteen "other chemicals" firms are above \$5 billion

So, most of the pharmaceutical and petroleum refining firms have already reached financial critical mass. Future

Fig. 2. The \$5 billion critical mass



**Table 3. Additional candidates for critical mass (chemical companies ranging from \$2 billion to \$1.1 billion in revenues)**

Rank by revenue	Company	Revenue (\$, millions)	Profits as a % of revenue
<b>Pharmaceuticals</b>			
75	Allergan	1,262	(7)
<b>Soaps &amp; cosmetics</b>			
54	Alberto-Culver	1,835	5
65	Dial	1,525	7
70	International Flavors & Fragrances	1,407	14
<b>"Other" chemicals</b>			
51	Witco	1,942	3
52	Ecolab	1,888	10
55	Crompton & Knowles	1,796	9
56	Great Lakes Chemical	1,746	5
58	Cabot	1,653	7
59	Lubrizo	1,618	4
60	RPM	1,615	5
61	Millennium Chemicals	1,597	10
62	Nalco Chemical	1,574	2
64	Valhi	1,538	14
66	W.R. Grace	1,512	(12)
68	Lyondell Chemical	1,447	4
69	Cytec Industries	1,445	9
71	Ferro	1,362	5
72	H.B. Fuller	1,347	1
73	Geon	1,284	1
76	Sigma-Aldrich	1,194	14
77	Dexter	1,179	3
78	Valspar	1,155	6
<b>Petroleum refining</b>			
53	Pennzoil-Quaker State	1,850	(2)
57	Murphy Oil	1,699	(1)
63	Kerr-McGee	1,570	3
67	Tesoro Petroleum	1,490	(1)
74	Crown Central	1,264	(2)

M&A in those areas will likely be driven by efforts to establish defensive positioning or attempts to secure new technology platforms.

**So, "is bigger better"?**

Not necessarily. Leadership in a market, rather than size, is more fundamental and important. On the financial side, however, bigger can definitely be better.

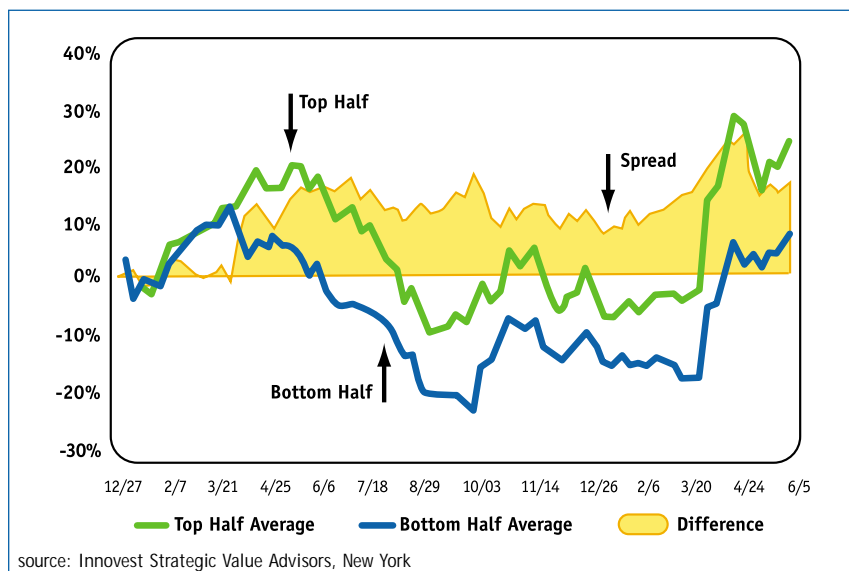
Young outlines four options for the small- and medium-sized companies that have not reached "critical mass":

- Accept the fact that you are "small;"
- Go private;
- Get bigger (increase your financial critical mass);
- Accept your vulnerability to an unsolicited takeover.

Table 3 extends CP's top 50 companies to 78, thus enlarging the list from

companies with revenues above \$2 billion (top 50) to those with revenues of more than \$1.1 billion (top 78).

**Fig. 3. EcoValue stock performance**



source: Innovest Strategic Value Advisors, New York

As we move into the year 2000, financial critical mass will remain an issue for companies listed in Table 3 and for the bottom third of CP's top 50. M&As precipitated by financial critical mass factors will most likely occur in CP's "other chemicals" segment.

**Environmental performance**

New analytical tools could influence chemical company stock prices. These models rate environmental and safety performance and will provide financial community analysts with a new way of predicting performance. They are being developed independently by Sustainable Investment Group, Toronto; Sustainable Asset Management, Switzerland; and Innovest in the United States.

So far, differences in environmental risk exposure, risk management capability and engagement in environmentally driven business opportunities have not been quantified in a strategic way for the financial community even though they have strong implications for stock price performance.

Fig. 3, provided by New York-based Innovest Strategic Value Advisors, provides an example. Their environmental rating methodology, called "EcoValue 21," was used to assess the relative environmental performance of 19 S&P 500 chemical companies in the

## Comparing apples and oranges?

*Chemical Processing's* editors decided to make this the most all-inclusive industry ranking available, encompassing all of the Department of Commerce's Standard Industrial Classification (SIC) 28 (Chemicals and Allied Products) and SIC 2911 (Petroleum Refining) companies, as broken down into four segments: pharmaceuticals, soaps and cosmetics, petroleum refining, and other chemicals.

Although that carries obvious dangers of comparing apples to oranges, it is also the only way to reflect *Chemical Processing's* broad, industrywide coverage.

Thus, while casual readers may be surprised to see petroleum producers like Chevron rubbing shoulders with pharmaceutical companies like Merck, personal-care product giants like Colgate-Palmolive and mainstream chemical companies like Dow, they should keep in mind that *Chemical Processing* does, indeed, have many readers in all four of those companies.

This is not to gloss over their obvious differences, however.

For starters, their revenue pictures are much different, with Top 50 petroleum refiners posting an average \$21 billion in revenues, pharmaceutical companies reporting a \$13.4 billion average revenue, and soaps and cosmetics and other chemicals companies achieving average revenues of \$10 billion and \$8 billion respectively.

Where the companies derive these revenues also points

out their differences.

For instance, Chevron's chemical sales total a respectable \$3.2 billion, but that is only a small portion of the company's overall \$26.8 billion in sales and revenues. Less dramatically, Merck logged sales of \$26.8 billion, of which \$11.6 billion came from its Merck-Medco Managed Care unit.

Finally, while Colgate-Palmolive's tooth pastes, soaps and deodorants can all conceivably be classified as chemicals, the company's \$8.9 billion in revenue was obviously more dependent on packaging and marketing muscle than Dow's \$18.4 billion in sales.

As shown in the tables accompanying this article, the contrasting nature of the four main business types also carries through as profitability is measured, with pharmaceuticals and some soaps and cosmetics companies reporting large profits as percentages of revenue compared to refiners and some mainstream chemical companies.

This is not to mention the similarly dramatic differences between the various sub-segments represented in the Top 50 list, such as industrial gases and paints and coatings.

So, yes, there are profound differences between many of the Top 50 companies. Although this does not impugn the validity of the list, it certainly adds variables that readers should keep in mind.

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*By Mike Hrickiewicz, executive editor*

basic, specialty and diversified classifications. Their analysis reveals that companies receiving above average "EcoValue" ratings outperformed

management. Companies are assessed in a range from AAA to CCC that is intended to project future stock market performance. So what's

waste, resource use efficiency and business sector risk factor;

- Risk mitigation factors are assigned to environmental risk management capacity and performance improvement

- An opportunity factor is assigned to strategic profit opportunities from environmental drivers.

The score is determined by combining the totals from each of the three areas.

Fig. 4 illustrates the EcoValue model. Nalco Chemical Co., ranked third on the list of 19 companies represented in Fig. 3, received a "AAA" rating with a score of 1,490, or 74% of the

### *Consumers have led the United States economic boom into its ninth year, and the expansion's expected to continue into the year 2000.*

companies with below average ratings by approximately 20% over the past year.

The "EcoValue" rating model is based on more than 60 aspects of environmental risk, opportunity and

included in the model and how does it work?

Risk factors are assigned to: Superfund liabilities, other site liabilities, spills and releases, regulatory compliance, toxic emissions, hazardous



points possible. A competitive firm of similar size and product type (identified here with the fictitious name "XYZ Co.," received an EcoValue "CCC" rating of 733, which is 37% of the points possible.

Nalco and XYZ, however, have identical S&P common stock ratings of "A." That's the rating financial analysts use as an indicator of future performance. Clearly, where traditional stock analysis doesn't show the difference between the two companies, the EcoValue rating uncovers "hidden" discrepancies.

Such differences will become increasingly important as the sustainable development movement gains a stronger foothold, and the investor community brings a new level of scrutiny to identify and reward the best-in-class companies.

### Looking to 2000

Consumers led the U.S. economic expansion into its ninth year this spring, and the boom's expected to continue into the year 2000. Here's what to expect:

- Prognosticators see inflation rising to 2.5% for the balance of 1999 and 2000;
- Growth spurred this year by the Y2K problem will lose momentum in 2000;
- Experts predict GDP will grow by 3.75% in 1999, but may fall to a 2% gain for 2000;
- Companies will continue to enhance their portfolios through restructuring, mergers and acquisitions,

- demergers and joint ventures;
- A peak in the dollar volume of U.S. mergers and acquisitions may have occurred in 1998;
- "Critical mass" concerns will intensify for companies with market capitalization of less than \$5 billion;
- Unsolicited offers for public companies will continue, and suitors may become more assertive, especially if share prices decline;

- Chemical industry employment may decline modestly over the next few years as downsizing and outsourcing continue;
- Quantified environmental performance indicators will become more widely used in the financial community.

*By Peter J. Knox, editor-in-chief and associate publisher*

Fig. 4. EcoValue rating comparison of an "AAA" company and a "CCC" company

Company Name:	XYZ Co.	XYZ Co.	Nalco	Nalco
Industry:	Chemicals	Chemicals	Chemicals	Chemicals
Category:	Weighted Score	Relative Performance	Weighted Score	Relative Performance
<b>RISK FACTORS</b>				
Superfund Liabilities	91	Top Tier	109	Top Tier
Other Site Liabilities	47	Top Tier	45	Top Tier
Spills and Releases	79	Top Tier	93	Top Tier
Regulatory Compliance	10	Bottom Tier	54	Top Tier
Toxic Emissions	106	Top Tier	131	Top Tier
Hazardous Waste	92	Top Tier	91	Top Tier
Resource Use Efficiency	22	Middle Tier	31	Middle Tier
Business Sector Risk Factor	100	Specialty Chem	100	Specialty Chem
Total Score of Risk Factors	648	Middle Tier	754	Top Tier
<b>RISK MITIGATION FACTORS</b>				
Environmental Risk Management Capacity	0	Worst in Class	418	Middle Tier
Performance Improvement Vector	0	Worst in Class	83	Top Tier
Total Score of Risk Mitigation Factors	0	Worst in Class	501	Top Tier
<b>OPPORTUNITY FACTORS</b>				
Strategic Profit Opportunities from Environmental Drivers	85	Middle Tier	235	Top Tier
<b>Actual Score</b>	733	733	1490	1490
<b>Maximum Possible Score</b>	2000	2000	2000	2000
<b>Percent of Maximum</b>	37%	37%	74%	74%
<b>EcoValue '21 Rating</b>	CCC	CCC	AAA	AAA
<b>S&amp;P Senior Debt Rating</b>	A		A+	
<b>S&amp;P Common Stock Rating</b>	A		A	

source: Innovest Strategic Value Advisors, New York