

EMPLOYMENT: FALLS ONCE MORE

Chemical workforces decline again in most countries as companies continue to cut costs

CHEMICAL COMPANIES AROUND the world were still not hiring new employees in 2003; they were continuing to cut jobs in an effort to offset rising raw material costs and boost their bottom lines.

In the U.S., for instance, average annual chemical employment in 2003 declined 2.1%, or 19,600, from 2002 to 907,900,

other chemicals fell 2.0% to 111,300.

The number of hourly chemical production workers declined 1.2% in 2003 to 525,400. Here, too, manufacturing industries as a whole had a much greater percentage decline, falling 5.3% to 10,200,000 workers.

Again within the chemical industry, agricultural chemicals had the largest percent-

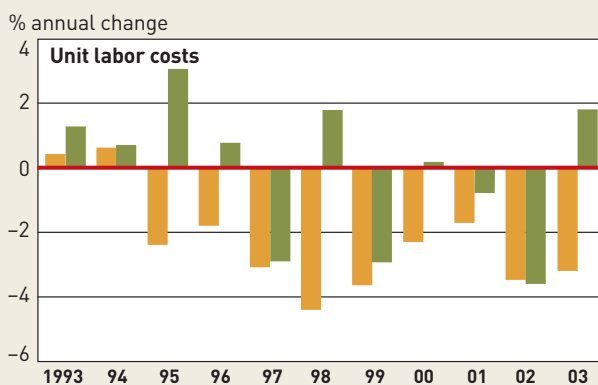
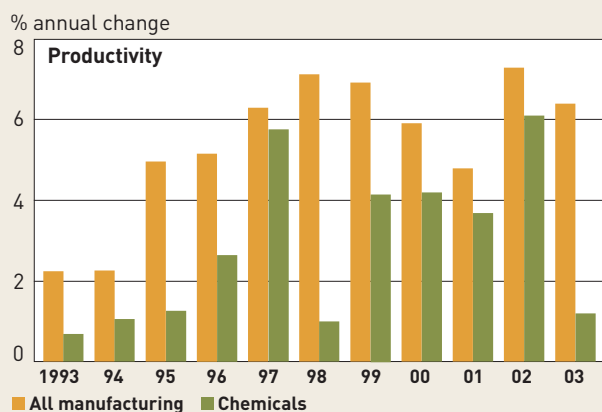
major companies—Agrium, Methanex, Nova Chemicals, and Potash Corp. of Saskatchewan—fell by 500 employees, or 3.3%, to 14,600. The 2003 decline followed an increase in 2002 of 4.9%, unlike the U.S., which had lower employment in both years.

Although many economists say Europe is lagging the U.S. in terms of economic recovery, European chemical companies were not as ruthless in shedding employees last year as were companies in other parts of the world. For 17 European companies, total employment declined just 2.2% from the year before, to 630,300.

There were some increases, though, at a few European firms. The largest increase among these companies was at DSM, which added some 7,600 employees in

U.S. METRICS

Measures weakened as chemical productivity gains slowed and unit labor costs increased



SOURCES: Federal Reserve Board, Bureau of Labor Statistics, C&EN estimates

marking the fifth straight year of downturn. Among the chemical sectors, according to government data, only pharmaceuticals scored an increase, rising just 1.0% to 294,100.

This compares with a 4.8% decline in employment for all manufacturing industries to 14,525,000 employees—a total of 734,000 lost jobs.

Among the chemical sectors, agricultural chemicals saw the largest percentage drop: 9.6% from 2002 to 40,400 employees. Basic chemicals lost 6,900 employees, falling to 163,300—the largest decline in terms of numbers. Among the other chemical sectors, resins, synthetic rubber, and fibers was down 2.9% to 112,000; paints, coatings, and adhesives fell 4.3% to 68,800; soaps and toiletries declined 1.9% to 118,300; and all

age decline, down 5.4% to 28,100, while pharmaceuticals was the only sector that showed growth, rising 5.0% to 134,300.



FACTS & FIGURES

If there is any good news for production workers, it is that, for the first time since the decline in total employment began in 1999, fewer hourly workers were let go in the chemical industry than were salaried employees. While total employment was falling by 19,600 in 2003, the number of salaried employees fell by 13,100 and hourly production workers, by 6,500.

In other countries where the governments do not publish total industry employment figures, the data must be inferred from chemical company reports. In most cases, this information shows the same trend as that for the U.S.

In Canada, employment among the four

2003 to bring total employment to 26,100. This increase, however, was mainly due to the company's acquisition of Roche's vitamins and fine chemicals division.

Only two other European companies added employees: Air Liquide, up 1,100 to 31,900, and Kemira, up just 100 to 10,500.

At 12 Japanese companies, total employment declined 3.6%, or 8,000, to 211,700 employees. Two of the firms showed an increase for the year. Sumitomo added about 1,100 employees to bring its total to 19,000. And Shin-Etsu's 2003 total of 17,400 was 800 above that of 2002. The company with the biggest decline was Mitsubishi Chemical, which lowered its employment rolls by 4,100 to 33,500. Teijin also had a significant decline, cutting 2,700 workers to bring its year-end total to 20,600.

In the U.S., while the government was reporting a 2.1% decline in employment, major chemical companies were cutting

EMPLOYMENT

even faster. For 20 large and medium-size chemical companies, total employment declined by 7,500, or 3.3%, to a total of 219,000. The largest drop was at Dow Chemical, where a large cost-reduction program cut employment by 3,600, to 46,400.

The cost-cutting programs among many U.S. chemical companies increased labor productivity for the industry. Productivity, or output per hour, increased 1.2% in 2003 over the previous year. This, however, is much slower than the 6.1% increase in 2002.

But wages for chemical production workers, which are some of the highest in manufacturing, continued to increase. For 2003, the Labor Department reports that wages for chemical manufacturing rose an average of 3.1% from the previous year to \$18.52 per hour. At the same time, the average hourly wage for all manufacturing increased a moderately slower 2.9% to \$15.74.

There were, however, a couple of declines in hourly pay within the chemical industry sectors. For agricultural chemi-

cal workers, the average hourly wage fell 3.0% to \$18.40 per hour, while the hourly wage for workers in the soaps and toiletries sector declined 0.8% to \$14.15. This is the lowest hourly wage in the chemical industry.

The largest increase was the 9.2% rise to \$19.78 for pharmaceutical workers.

And as a result of productivity not keeping up with wage increases, unit labor costs—labor costs per unit of output—for the industry rose 1.8% last year. In 2002, unit labor costs were down 3.6% from 2001.

OVERALL U.S. EMPLOYMENT

U.S. chemical employment declined for the fourth straight year

THOUSANDS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	ANNUAL CHANGE	
												2002-03	1993-03
Manufacturing	16,774	17,021	17,241	17,237	17,419	17,560	17,322	17,263	16,441	15,259	14,525	-4.8%	-1.4%
Chemicals	1,025	1,005	988	985	987	993	983	980	959	928	908	-2.1	-1.2
Basic chemicals	244	235	228	224	219	213	195	188	181	170	163	-4.1	-3.9
Resins, synthetic rubber & fibers	147	142	140	141	141	140	137	136	126	115	112	-2.9	-2.6
Agricultural chemicals	52	51	50	47	49	50	51	48	46	45	40	-9.6	-2.5
Pharmaceuticals	232	231	228	229	236	247	261	274	283	291	294	1.0	2.4
Paints, coatings & adhesives	81	80	79	76	77	78	78	80	75	72	69	-4.3	-1.6
Soaps & toiletries	129	126	126	127	128	131	131	129	127	121	118	-1.9	-0.8
Other chemicals	142	141	137	137	137	135	128	127	120	114	111	-2.0	-2.4

NOTE: Average annual domestic employment. SOURCE: Department of Labor

U.S. CHEMICAL EMPLOYMENT

Major chemical companies shed jobs again in 2003

THOUSANDS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Air Products & Chemicals	14.1	13.3	14.8	15.2	16.4	16.7	17.4	17.5	17.8	17.2	18.5
Albemarle ^a	—	3.7	3.0	2.8	2.7	2.7	2.6	2.5	3.0	3.0	3.0
Cabot	5.4	5.4	4.1	4.7	4.8	4.8	4.5	4.5	4.3	4.5	4.4
Cambrex	0.8	1.3	1.3	1.3	1.8	1.8	1.9	1.9	2.1	2.2	1.9
Crompton	2.3	2.5	2.8	5.7	5.6	5.4	8.6	8.3	7.3	6.8	5.5
Cytec Industries	5.2	5.0	5.0	5.0	5.2	5.1	4.9	4.8	4.5	4.3	4.5
Dow Chemical ^b	55.4	53.7	39.5	40.3	42.9	39.0	39.2	41.9	52.7	50.0	46.4
Eastman Chemical	18.0	17.5	17.7	17.5	16.1	15.9	14.7	14.6	15.8	15.7	15.0
Ethyl	5.5	1.5	1.8	1.8	1.5	1.5	1.5	1.5	1.1	1.1	1.1
H.B. Fuller	6.0	6.4	6.4	5.9	6.0	6.0	5.4	5.2	4.9	4.6	4.5
Georgia Gulf	1.1	1.1	1.1	1.0	1.1	1.1	1.4	1.3	1.2	1.2	1.2
W.R. Grace	34.0	37.9	21.2	17.4	6.3	6.6	6.3	6.3	6.4	6.4	6.3
Hercules	14.1	12.0	7.9	7.1	6.2	12.4	11.4	9.8	9.7	5.1	5.1
Lubrizol	4.6	4.5	4.6	4.4	4.3	4.3	4.1	4.4	4.5	5.2	5.0
Monsanto	30.0	29.4	28.5	28.0	21.9	31.8	29.9	14.7	14.6	13.7	13.2
PPG Industries	31.4	30.8	31.2	31.3	31.9	32.5	33.8	35.6	34.9	34.1	32.9
Praxair	16.8	17.8	18.2	25.3	25.4	24.8	24.1	23.4	24.3	25.0	25.4
Rohm and Haas	13.0	12.2	11.7	11.6	11.6	11.3	21.5	18.5	18.2	17.6	17.3
Solutia ^c	—	—	—	—	8.8	8.7	10.6	10.2	9.2	7.3	6.3
Stepan	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.4
TOTAL EMPLOYEES ^d	259.0	257.3	222.1	227.6	221.8	233.8	245.2	228.3	238.0	226.5	219.0
ANNUAL CHANGE ^d	-5.8%	-2.1%	-13.7%	2.5%	-6.4%	5.4%	4.9%	-6.9%	4.3%	-4.8%	-3.3%
SALES PER EMPLOYEE ^d											
(\$ thousands)	\$235.0	\$256.1	\$311.0	\$311.4	\$319.4	\$302.0	\$305.7	\$356.8	\$350.7	\$355.5	\$410.9

NOTE: Data are not restated for acquisitions, divestitures, or similar developments. ^a Spun off from Ethyl in 1994. ^b Merged in 2001 with Union Carbide. ^c Spun off from Monsanto in 1997. ^d For companies reporting.

CANADA EMPLOYMENT

Overall workforce at four companies slipped in 2003

THOUSANDS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Agrium	na	na	3.5	4.4	4.4	4.5	4.5	4.0	4.0	4.8	4.7
Methanex	na	na	0.9	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.7
Nova Chemicals ^a	—	—	5.7	3.4	3.4	3.3	4.7	4.7	4.6	4.3	4.3
Potash Corp. ^b	1.8	1.7	4.6	4.5	5.7	5.7	5.5	5.3	5.0	5.2	4.9
TOTAL EMPLOYEES^c	1.8	1.7	14.7	13.2	14.3	14.4	15.5	14.8	14.4	15.1	14.6

a Spun off from Nova. Corp. in 1995. b Acquired Texas Gulf in 1995. c For companies reporting. na = not available.

EUROPE EMPLOYMENT

Total employment continued to fall at European chemical firms

THOUSANDS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Air Liquide (France)	24.8	24.6	26.1	27.8	27.6	28.6	29.0	30.3	30.8	30.8	31.9
Akzo Nobel (Netherlands)	67.9	66.3	68.4	68.0	85.9	68.9	70.7	69.8	70.4	67.9	66.4
BASF (Germany)	112.0	106.3	106.6	105.6	105.0	105.9	104.6	103.3	92.5	89.4	87.2
Bayer (Germany)	150.4	146.7	142.9	142.2	144.6	145.1	120.4	122.1	116.9	122.6	115.4
BOC International (U.K.)	40.3	39.4	40.1	40.9	41.4	37.1	33.4	42.7	43.2	46.3	44.5
Celanese ^a (Germany)	—	—	17.2	17.9	17.5	15.8	14.9	13.2	12.5	10.7	9.5
Ciba Specialty Chemicals ^b (Switzerland)	—	—	—	—	21.4	24.5	20.1	20.3	19.7	19.0	18.7
Clariant ^c (Switzerland)	—	—	8.4	32.5	30.9	29.3	29.0	31.5	28.9	27.8	27.0
Degussa (Germany)	32.1	27.3	27.1	26.0	25.7	27.0	62.5	62.9	53.4	47.6	46.6
DSM (Netherlands)	20.6	19.4	17.0	18.4	17.5	23.0	21.8	21.8	21.5	18.5	26.1
ICI (U.K.)	87.1	67.5	64.8	64.0	69.5	60.6	53.6	45.9	39.8	38.0	36.2
Kemira (Finland)	11.4	11.2	10.5	10.6	10.4	10.8	10.7	9.6	10.2	10.4	10.5
Lonza ^d (Switzerland)	—	—	—	—	—	5.7	5.7	4.6	6.2	6.2	5.7
Merck ^e (Germany)	26.0	26.0	27.8	28.7	28.9	28.9	32.7	33.5	34.3	34.5	34.2
Rhodia ^f (France)	—	—	31.7	29.1	25.1	24.5	24.8	29.4	26.9	24.5	23.0
Solvay (Belgium)	43.2	39.9	38.6	35.4	34.4	33.1	32.8	32.3	29.4	30.3	30.1
Syngenta ^g (Switzerland)	—	—	—	—	—	—	23.5	21.0	20.5	20.0	19.1
TOTAL EMPLOYEES^h	615.8	574.6	627.2	647.1	685.8	641.8	690.2	694.2	657.1	644.5	630.3

a Spun off from Hoechst in 1999; prior figures are pro forma. b Spun off from Novartis in 1997. c Spun off from Sandoz in 1995; merged with Hoechst Specialty Chemicals in 1997. d Became independently listed company in 1999; prior figures are pro forma. e Privately held until 1996. f Spun off from Rhône-Poulenc in 1998; prior figures are pro forma. g Became independent company in 2000; prior figures are pro forma. h For companies reporting.

JAPAN EMPLOYMENT

Workforce was cut at major companies

THOUSANDS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Asahi Kasei	28.4	28.6	28.2	26.7	27.8	29.3	26.6	26.7	26.2	25.7	25.0
Dainippon Ink & Chemicals	23.9	24.8	25.6	25.9	24.9	25.7	31.0	30.3	28.4	27.0	26.5
JSR Corp.	3.1	2.8	2.9	3.0	3.0	3.0	3.0	3.1	2.7	2.7	2.7
Kaneka	0.0	0.0	0.0	0.0	0.0	7.2	6.6	7.0	6.7	6.7	6.6
Mitsubishi Chemical ^a	—	—	na	na	na	na	33.5	33.0	38.6	37.6	33.5
Mitsui Chemicals ^b	—	—	—	—	13.6	12.6	11.7	12.8	13.2	12.7	12.3
Nippon Sanso	2.1	2.0	2.0	1.8	1.7	na	7.0	6.3	5.5	4.8	4.6
Shin-Etsu	11.7	16.1	17.1	18.9	19.2	18.4	18.8	19.4	16.5	16.6	17.4
Showa Denko	6.3	6.1	9.0	8.9	13.6	13.5	12.5	13.2	12.0	10.9	10.6
Sumitomo Chemical	17.4	17.2	16.8	16.3	15.9	15.8	17.5	17.4	17.0	17.9	19.0
Teijin	15.1	15.9	16.2	17.3	17.6	17.2	22.0	22.3	24.0	23.3	20.6
Toray	31.5	31.9	32.9	33.8	32.9	34.3	35.5	35.7	34.9	33.8	32.9
TOTAL^c	139.6	145.4	150.6	152.6	170.2	176.9	218.9	227.2	225.7	219.7	211.7

NOTE: Fiscal year ends March 31 of following year at all companies, except Showa Denko, where it ends Dec. 31. a Formed in 1994 from the merger of Mitsubishi Kasei and Mitsubishi Petrochemical. b Formed in 1997 from the merger of Mitsui Toatsu and Mitsui Petrochemical. c For companies reporting. na = not available.

EMPLOYMENT

U.S. PRODUCTION WORKERS

Only pharmaceuticals saw a rise in production employees

THOUSANDS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	ANNUAL CHANGE	
												2002-03	1993-03
Manufacturing	12,070	12,361	12,566	12,532	12,673	12,729	12,524	12,428	11,677	10,768	10,200	-5.3%	-1.7%
Chemicals	590	596	598	595	593	601	595	588	562	532	525	-1.2	-1.2
Basic chemicals	139	139	139	139	137	136	126	122	115	104	101	-3.7	-3.2
Resins, synthetic rubber & fibers	98	101	99	98	99	98	96	96	89	81	78	-3.8	-2.3
Agricultural chemicals	34	33	33	33	33	34	34	32	30	30	28	-5.4	-1.9
Pharmaceuticals	111	115	119	118	116	123	129	132	132	128	134	5.0	2.0
Paints, coatings & adhesives	41	41	41	40	40	40	41	42	39	38	37	-3.7	-1.1
Soaps & toiletries	80	80	80	80	81	84	85	82	80	76	76	-0.7	-0.6
Other chemicals	87	87	87	88	88	87	83	82	77	75	72	-3.4	-1.9

NOTE: Average annual domestic employment. SOURCE: Department of Labor

U.S. PAY

Wages were up for all but agricultural workers

	HOURLY EARNINGS				WEEKLY EARNINGS			
	2000	2001	2002	2003	2000	2001	2002	2003
Manufacturing	\$14.32	\$14.76	\$15.29	\$15.74	\$590.65	\$595.19	\$618.75	\$636.07
Chemicals	17.09	17.57	17.97	18.52	721.90	735.54	759.53	784.56
Basic chemicals	21.06	21.43	21.84	22.11	949.09	959.90	980.58	988.46
Resins, synthetic rubber & fibers	17.09	17.45	17.78	17.90	724.65	722.48	738.79	749.14
Agricultural chemicals	16.17	17.39	18.96	18.40	768.18	799.96	848.10	836.87
Pharmaceuticals	17.27	17.77	18.12	19.78	693.10	729.44	776.67	850.64
Paints, coatings & adhesives	14.09	14.78	15.64	16.01	597.93	609.76	644.01	656.44
Soaps & toiletries	13.79	14.11	14.26	14.15	549.43	560.43	566.43	562.68
Other chemicals	15.54	16.02	16.41	17.02	642.40	647.79	665.84	694.26

NOTE: For production workers in domestic employment. SOURCE: Department of Labor

U.S. PRODUCTIVITY

Of chemical sectors, only pharmaceuticals showed a decline in output per hour ...

PRODUCTIVITY ^a , 1997 = 100	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	ANNUAL CHANGE
												2002-03
Manufacturing	83.2	85.2	89.4	94.0	100.0	107.1	114.5	121.2	127.0	136.3	145.0	6.4%
Chemicals	89.9	90.9	92.1	94.5	100.0	101.0	105.2	109.5	113.6	120.5	121.9	1.2
Basic chemicals	94.0	93.4	92.9	92.4	100.0	100.5	117.4	119.7	118.1	135.2	138.9	2.7
Resin, rubber & synthetic fibers	87.9	91.9	94.5	94.1	100.0	105.5	109.4	109.1	108.1	123.6	125.7	1.7
Agricultural chemicals	92.4	93.1	94.5	95.8	100.0	99.0	88.7	91.3	94.8	99.9	103.0	3.1
Pharmaceuticals	87.0	87.5	85.9	93.3	100.0	100.6	98.3	98.7	103.3	103.7	99.2	-4.4
Paint, coatings & adhesives	93.5	95.3	94.5	100.1	100.0	100.1	98.0	97.7	104.9	111.0	118.1	6.4
Soaps, cleaning compounds & toilet preparations	87.0	87.8	94.0	96.4	100.0	95.2	90.1	100.9	104.8	104.9	105.4	0.4

... and also a big increase in unit labor costs

UNIT LABOR COSTS ^b , 1997 = 100	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	ANNUAL CHANGE
												2002-03
Manufacturing	107.0	107.5	105.0	103.2	100.0	95.6	92.1	89.9	88.4	85.4	82.6	-3.2%
Chemicals	98.5	99.2	102.2	103.0	100.0	101.8	98.8	98.9	98.0	94.5	96.2	1.8
Basic chemicals	92.7	96.5	101.8	105.3	100.0	102.3	86.3	87.6	90.4	80.4	79.3	-1.4
Resin, rubber & synthetic fibers	99.0	96.1	97.6	103.1	100.0	97.2	96.2	99.8	102.9	91.6	90.7	-1.0
Agricultural chemicals	97.6	98.8	100.3	101.7	100.0	104.1	120.5	123.4	127.7	132.1	124.4	-5.8
Pharmaceuticals	96.7	97.0	101.7	97.3	100.0	97.2	101.0	105.1	103.3	104.8	119.7	14.2
Paint, coatings & adhesives	96.8	97.6	98.9	96.6	100.0	101.8	106.7	110.2	107.6	107.6	103.6	-3.8
Soaps, cleaning compounds & toilet preparations	105.8	108.0	102.2	101.2	100.0	109.9	123.1	118.4	116.6	117.7	116.3	-1.2

^a Productivity is output per workhour, calculated by dividing indexes for production by indexes for workhours of production workers. ^b Unit labor costs are calculated by dividing indexes for hourly wages by indexes for output per hour. SOURCES: Federal Reserve Board, Department of Labor, C&EN estimates