JOBS DECREASE IN MOST REGIONS

Japan was the only country to see major **EMPLOYMENT** growth, U.S. continued decline

EMPLOYMENT AT MAJOR chemical companies around the world declined in 2007, in contrast to 2006, when acquisitions at firms such as Georgia Gulf and BASF caused company ranks to swell a bit. Overall chemical employment in the U.S. continued its long downward trend, while in Europe, earlier gains were generally reversed. The one standout was Japan, where employment at major firms increased.

Total hourly and salaried employment in the U.S. chemical industry declined 0.3% last year to 863,000. This contraction was much smaller than the 1.9% drop in total employment for manufacturing overall. But it continues the decline in chemical employment that has been going on steadily for more than a decade.

Similarly, all manufacturing lost 1.6% of its hourly production workers for a yearly average of 9.98 million, whereas the chemical industry reduced employment in this category by just 0.4% to 506,000. However, hourly wages declined 0.2% to $19.56 in the chemical industry but increased 2.7% to $17.26 for all manufacturing.

These resulted in productivity increases for the chemical industry and manufacturing overall. Productivity, or output per workhour, for all manufacturing increased 3.2% in 2007, a percentage slightly beat by the 3.3% improvement in chemical productivity. The largest increase, 9.4%, was in agricultural chemicals.

The increase in productivity combined with the modest drop in hourly wages provided the scenario for a welcome cut in unit labor costs. These costs declined by 3.3% in all manufacturing and by 3.4% in chemicals.

Net employment at the four major Canadian chemical firms dropped by 400 to 15,200 positions. The decline is largely due to a reduction of 500 positions at Nova Chemicals. Those jobs were transferred to its Ineos Nova styrenic polymers joint venture.

In Europe, after a spike in 2006, employment at 19 top companies fell by 17,100 positions to 566,500. This level of employment, however, is still much higher than the levels of the first half of this decade. The greatest reduction not due to divestment came from Linde. Having acquired BOC and an additional 13,300 staff in 2006, it reduced its payroll in 2007 by 5,000 employees.

The only European company to significantly expand staffing in 2007 was France's Rhodia. Like many of Europe's large chemical firms, it has not rebounded to the staffing levels of the later part of the 1990s.

In Japan, employment rose overall by 5% at the 12 firms tracked by C&EN.

AIR PRODUCTS & CHEMICALS

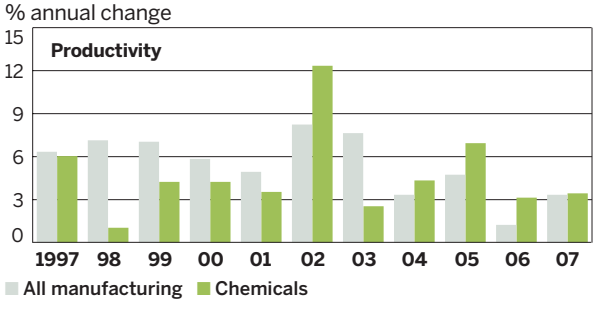
AT WORK Employment at Air Products increased in 2007, while overall U.S. chemical employment decreased.

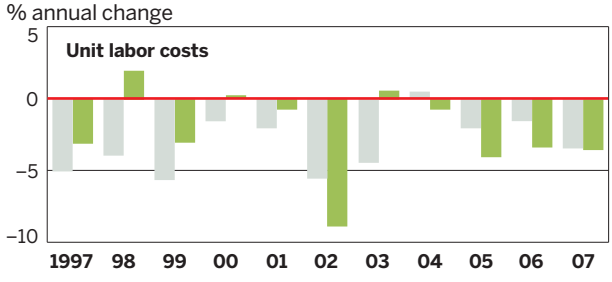
Accounting for most of the increase is Mitsubishi Chemical, where staffing shot up more than 17% as a result of its merger with a pharmaceutical affiliate. Toray Industries placed second in terms of payroll increase. Headcount at the fibers, plastics, and textiles maker rose by 2,000 people, or 5%, compared with 2006.

DIC (formerly Dainippon Ink & Chemicals) was the only Japanese company to reduce headcount in 2007, as was the case in 2006. Other firms either increased their workforces or kept them stable.

U.S. PRODUCTIVITY

Output per hour rose for all chemical sectors, and unit labor costs continued to fall





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

OVERALL U.S. EMPLOYMENT

Although U.S. chemical employment declined for the ninth straight year ...

THOUSANDS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE 2006-07	ANNUAL CHANGE 1997-07
Manufacturing	**17,419**	**17,560**	**17,322**	**17,263**	**16,441**	**15,259**	**14,510**	**14,315**	**14,226**	**14,155**	**13,884**	**-1.9%**	**-2.2%**
Chemicals	**987**	**993**	**983**	**980**	**959**	**928**	**906**	**887**	**872**	**866**	**863**	**-0.3**	**-1.3**
Basic chemicals	219	213	195	188	181	170	162	156	150	147	150	1.7	-3.7
Resins, synthetic rubber & fibers	141	140	137	136	126	115	112	110	108	105	105	0.3	-2.9
Agricultural chemicals	49	50	51	48	46	45	42	42	40	38	37	-4.2	-2.8
Pharmaceuticals	236	247	261	274	283	291	292	290	288	292	297	1.6	2.3
Paints, coatings & adhesives	77	78	78	80	75	72	69	68	68	67	65	-2.3	-1.6
Soaps & toiletries	128	131	131	13	127	121	119	115	114	111	109	-2.1	-1.6
Other chemicals	137	135	128	127	120	114	111	107	104	105	100	-4.8	-3.1

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

U.S. COMPANY EMPLOYMENT

... many U.S. chemical companies increased their workforce in 2007

THOUSANDS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Air Products & Chemicals	16.4	16.7	17.4	17.5	17.8	17.2	18.5	19.9	20.2	20.7	22.1
Albemarle	2.7	2.7	2.6	2.5	3.0	3.0	3.0	3.7	3.7	3.6	4.1
Cabot	4.8	4.8	4.5	4.5	4.3	4.5	4.4	4.3	4.4	4.3	4.3
Chemtura (a)	5.6	5.4	8.6	8.3	7.3	6.8	5.5	4.8	6.6	6.2	5.1
Cytec Industries (b)	5.2	5.1	4.9	4.8	4.5	4.3	4.5	4.5	7.3	6.7	6.8
Dow Chemical (c)	42.9	39.0	39.2	41.9	52.7	50.0	46.4	43.2	42.4	42.6	45.9
DuPont	98.0	101.0	94.0	93.0	79.0	79.0	81.0	60.0	60.0	59.0	60.0
Eastman Chemical	16.1	15.9	14.7	14.6	15.8	15.7	15.0	12.0	12.0	11.0	10.8
H.B. Fuller	6.0	6.0	5.4	5.2	4.9	4.6	4.5	4.5	4.0	3.7	3.2
Georgia Gulf (d)	1.1	1.1	1.4	1.3	1.2	1.2	1.2	1.2	1.1	6.7	5.2
W.R. Grace	6.3	6.6	6.3	6.3	6.4	6.4	6.3	6.4	6.4	6.4	6.5
Hercules	6.2	12.4	11.4	9.8	9.7	5.1	5.1	5.0	4.7	4.4	4.7
Lubrizol (e)	4.3	4.3	4.1	4.4	4.5	5.2	5.0	7.8	7.5	6.7	6.9
NewMarket Corp. (f)	1.5	1.5	1.5	1.5	1.1	1.1	1.1	1.1	1.1	1.1	1.2
PPG Industries	31.9	32.5	33.8	35.6	34.9	34.1	32.9	31.8	30.8	32.2	34.9
Praxair	25.4	24.8	24.1	23.4	24.3	25.0	25.4	27.0	27.3	27.0	28.0
Rohm and Haas	11.6	11.3	21.5	18.5	18.2	17.6	17.3	16.7	16.5	15.8	15.7
Solutia (g)	8.8	8.7	10.6	10.2	9.2	7.3	6.3	5.7	5.4	5.1	6.0
Stepan	1.3	1.4	1.4	1.4	1.5	1.5	1.4	1.4	1.5	1.5	1.5
TOTAL EMPLOYEES (h)	**296.1**	**301.2**	**307.4**	**304.7**	**300.3**	**289.6**	**285.0**	**261.0**	**262.9**	**264.7**	**272.9**

NOTE: Data are not restated for acquisitions, divestitures, or similar developments. **a** Crompton and Great Lakes Chemical merged in 2005 to form Chemtura; earlier figures are for Crompton. **b** Acquired Surface Specialties in 2005. **c** Merged in 2001 with Union Carbide. **d** Acquired Royal Group in 2006. **e** Acquired Noveon in 2004. **f** Formerly Ethyl Corp. **g** Spun off from Monsanto in 1997. **h** For companies reporting. **SOURCE:** Company data

CANADA COMPANY EMPLOYMENT

Nova's formation of a polystyrene joint venture caused its payroll to fall

THOUSANDS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Agrium (a)	4.4	4.5	4.5	4.0	4.0	4.8	4.7	4.6	4.7	6.6	6.6
Methanex	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.9	0.8	0.8	0.8
Nova Chemicals (b)	3.4	3.3	4.7	4.7	4.6	4.3	4.3	4.1	3.6	3.3	2.8
Potash Corp.	5.7	5.7	5.5	5.3	5.0	5.2	4.9	4.9	4.9	4.9	5.0
TOTAL EMPLOYEES (c)	**14.3**	**14.4**	**15.5**	**14.8**	**14.4**	**15.1**	**14.6**	**14.5**	**14.0**	**15.6**	**15.2**

a Purchased Royster-Clark in 2006. **b** Formed a styrenics joint venture with Ineos in 2007. **c** For companies reporting. **SOURCE:** Company data

EUROPE COMPANY EMPLOYMENT

Total positions dropped back after spike in 2006

THOUSANDS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Air Liquide (France)	27.6	28.6	29.0	30.3	30.8	30.8	31.9	35.9	35.9	36.9	40.3
AkzoNobel (Netherlands) (a)	85.9	68.9	70.7	69.8	70.4	60.7	64.6	61.5	61.3	61.9	42.6
Altana (Germany) (b)	ne	ne	ne	ne	ne	ne	ne	ne	ne	4.5	4.6
Arkema (France) (c)	ne	ne	ne	ne	ne	ne	ne	18.6	17.7	17.0	15.2
BASF (Germany)	105.0	105.9	104.6	103.3	92.5	89.4	87.2	82.0	80.9	95.2	95.2
Bayer (Germany)	144.6	145.1	120.4	122.1	116.9	122.6	94.9	93.3	93.7	106	106.2
Ciba (Switzerland)	21.4	24.5	20.1	20.3	19.7	19.0	18.7	19.3	19.1	14.1	13.3
Clariant (Switzerland) (d)	30.9	29.3	29.0	31.5	28.9	27.8	27.0	24.8	23.4	21.7	20.3
DSM (Netherlands)	17.5	23.0	21.8	21.8	21.5	18.5	26.1	24.5	22.8	22.2	23.3
Givaudan (Switzerland) (e)	ne	ne	4.9	5.1	5.3	5.8	6.0	5.9	5.9	6.1	8.8
Kemira (Finland)	10.4	10.8	10.7	9.6	10.2	10.4	10.5	9.7	7.7	9.3	10.1
Lanxess (Germany) (f)	ne	ne	ne	ne	ne	ne	20.5	19.7	18.3	16.5	14.6
Linde (Germany)	32.1	33.4	35.6	47.1	46.4	46.0	46.2	41.4	42.2	55.5	50.5
Lonza (Switzerland) (g)	ne	5.7	5.7	4.6	6.2	6.2	5.7	5.7	6.0	6.1	7.7
Merck (Germany)	28.9	28.9	32.7	33.5	34.3	34.5	34.2	28.9	29.1	30.0	31.0
Rhodia (France) (h)	25.1	24.5	24.8	29.4	26.9	24.5	23.0	20.6	19.4	17.1	24.0
Solvay (Belgium)	34.4	33.1	32.8	32.3	29.4	30.3	30.1	29.3	28.7	29.3	28.3
Syngenta (Switzerland) (i)	ne	ne	23.5	21.0	20.5	20.0	19.1	19.5	19.0	19.5	15.5
Wacker (Germany) (j)	ne	ne	ne	ne	ne	ne	ne	14.7	14.4	14.7	15.0
TOTAL EMPLOYEES (k)	**563.8**	**561.7**	**566.3**	**581.7**	**559.9**	**546.5**	**545.7**	**555.3**	**545.5**	**583.6**	**566.5**

a Divested pharmaceuticals in 2007. **b** Divested pharmaceuticals in 2006. **c** Spun off from Total in 2006; prior figures are pro forma. **d** Spun off from Sandoz in 1995; merged with Hoechst Specialty Chemicals in 1997. **e** Spun off from Roche in 2000; prior figures are pro forma. **f** Spun off from Bayer in January 2005; prior figures are pro forma. **g** Became an independent, publicly traded company in 1999; prior figures are pro forma. **h** Spun off from Rhône-Poulenc in 1998; prior figures are pro forma. **i** Became an independent company in 2000; prior figures are pro forma. **j** Became a publicly traded company in 2005. **k** For companies reporting. **ne** = nonexistent. **SOURCE:** Company data

JAPAN COMPANY EMPLOYMENT

Headcount rose sharply, mostly because Mitsubishi Chemical absorbed a pharmaceutical affiliate

THOUSANDS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Asahi Kasei	27.8	29.3	26.6	26.7	26.2	25.7	25.0	23.8	23.0	23.7	23.9
DIC (a)	24.9	25.7	31.0	30.3	28.4	27.0	26.5	26.8	25.6	25.4	25.2
JSR Corp. (b)	na	na	4.4	4.4	4.4	4.3	4.3	4.4	4.6	4.7	5.1
Kaneka	na	na	6.6	7.0	6.7	6.7	6.6	6.6	7.3	7.4	7.5
Mitsubishi Chemical	na	na	33.5	33.0	38.6	37.6	33.5	33.3	33.0	33.4	39.3
Mitsui Chemicals (c)	13.6	12.6	11.7	12.8	13.2	12.7	12.3	12.2	12.5	12.5	12.8
Shin-Etsu Chemical	19.2	18.4	18.8	19.4	16.5	16.6	17.4	18.2	18.9	19.2	20.2
Showa Denko	13.6	13.5	12.5	13.2	12.0	10.9	10.6	11.2	11.1	11.2	11.3
Sumitomo Chemical	15.9	15.8	17.5	17.4	17.0	17.9	19.0	20.2	24.2	24.7	25.6
Taiyo Nippon Sanso (d)	1.7	na	7.0	6.3	5.5	4.8	4.6	7.1	7.3	8.3	8.7
Teijin	17.6	17.2	22.0	22.3	24.0	23.3	20.6	19.0	18.8	19.1	19.1
Toray	32.9	34.3	35.5	35.7	34.9	33.8	32.9	33.7	34.7	36.6	38.6
TOTAL EMPLOYEES (e)	**167.2**	**173.9**	**218.9**	**227.2**	**225.7**	**219.7**	**211.7**	**216.4**	**220.9**	**226.1**	**237.3**

NOTE: Fiscal year ends March 31 of the folllowing year at all companies, except Showa Denko, for which it ends Dec. 31. **a** Formerly Dainippon Ink & Chemicals. **b** Initiated a consolidated headcount in 1999. **c** Formed in 1997 from the merger of Mitsui Toatsu and Mitsui Petrochemical. **d** Nippon Sanso became Taiyo Nippon Sanso in 2004 when it acquired Taiyo Toyo Sanso. **e** For companies reporting. **na** = not available. **SOURCE:** Company data

GOT A THING FOR DATA?

If you're itching to do your own calculations with all these numbers, let yourself go ... to **www.cen-online.org,** that is, where you can access downloadable versions of these tables, starting on July 21.

U.S. PRODUCTION WORKERS

The number of plant workers declined in all sectors except basic chemicals and pharmaceuticals

THOUSANDS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE 2006-07	ANNUAL CHANGE 1997-07
Manufacturing	**12,673**	**12,729**	**12,524**	**12,428**	**11,677**	**10,768**	**10,190**	**10,072**	**10,060**	**10,137**	**9,979**	**-1.6%**	**-2.4%**
Chemicals	**593**	**601**	**595**	**588**	**562**	**532**	**525**	**520**	**510**	**508**	**506**	**-0.4**	**-1.6**
Basic chemicals	137	136	126	122	115	104	100	95	86	83	88	5.5	-4.4
Resins, synthetic rubber & fibers	99	98	96	96	89	81	78	75	71	70	70	-0.3	-3.4
Agricultural chemicals	33	34	34	32	30	30	29	29	29	29	25	-11.5	-2.6
Pharmaceuticals	116	123	129	132	132	128	133	139	144	149	154	3.3	2.9
Paints, coatings & adhesives	40	40	41	42	39	38	37	40	41	39	38	-1.5	-0.5
Soaps & toiletries	81	84	85	82	80	76	77	74	73	72	68	-5.4	-1.7
Other chemicals	88	87	83	82	77	75	72	69	67	65	61	-5.8	-3.5

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

U.S. PAY

Workers in the resins and rubber sector got big increases

	HOURLY EARNINGS 2004	2005	2006	2007	WEEKLY EARNINGS 2004	2005	2006	2007
Manufacturing	**$16.15**	**$16.56**	**$16.81**	**$17.26**	**$658.59**	**$673.37**	**$691.02**	**$711.36**
Chemicals	**19.17**	**19.67**	**19.60**	**19.56**	**819.73**	**831.76**	**833.67**	**819.99**
Basic chemicals	23.15	23.80	23.20	23.24	1,036.01	1,038.71	1,033.35	1,010.38
Resins, synthetic rubber & fibers	18.24	19.03	19.87	21.03	800.73	844.01	868.94	911.79
Agricultural chemicals	18.93	20.87	21.04	21.62	865.68	947.49	978.64	959.73
Pharmaceuticals	20.90	21.31	21.34	20.35	891.99	894.35	890.75	840.86
Paints, coatings & adhesives	16.26	16.31	16.06	15.97	684.66	676.16	676.51	668.21
Soaps & toiletries	14.73	15.37	15.03	15.22	588.27	610.99	604.75	601.91
Other chemicals	17.16	17.15	16.72	16.23	708.42	702.37	695.51	668.99

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

U.S. PRODUCTIVITY

All chemical sectors showed some increase in output per hour ...

PRODUCTIVITY (a), 1997 = 100	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE, 2006-07
Manufacturing	**100.0**	**107.0**	**114.4**	**120.9**	**126.6**	**136.9**	**147.2**	**152.0**	**159.0**	**160.7**	**165.9**	**3.2%**
Chemicals	**100.0**	**100.9**	**105.1**	**109.3**	**113.1**	**126.9**	**129.9**	**135.4**	**144.6**	**149.0**	**153.9**	**3.3**
Basic chemicals	100.0	99.5	116.9	118.5	113.8	134.5	145.4	167.0	192.3	196.3	196.6	0.1
Resins, synthetic rubber & fibers	100.0	105.4	109.1	108.9	108.9	123.5	124.5	129.8	143.6	144.2	147.9	2.6
Agricultural chemicals	100.0	98.2	88.3	93.2	93.9	100.9	106.6	110.5	115.2	122.7	134.2	9.4
Pharmaceuticals	100.0	101.3	98.4	99.5	104.7	111.2	110.4	107.6	109.4	113.4	113.9	0.5
Paints, coatings & adhesives	100.0	99.9	97.6	97.1	104.9	105.2	109.9	102.5	102.2	99.7	103.0	3.3
Soaps & toiletries	100.0	94.6	90.4	99.1	102.5	123.3	116.8	135.5	149.4	155.6	160.7	3.2

... as unit labor costs dropped for all but basic chemicals and polymers

UNIT LABOR COSTS (b), 1997 = 100	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE, 2006-07
Manufacturing	**100.0**	**96.2**	**90.9**	**89.6**	**87.9**	**83.2**	**79.6**	**79.9**	**78.4**	**77.3**	**74.7**	**-3.3%**
Chemicals	**100.0**	**101.9**	**98.9**	**99.1**	**98.5**	**89.8**	**90.2**	**89.7**	**86.2**	**83.4**	**80.5**	**-3.4**
Basic chemicals	100.0	103.3	86.6	88.5	93.8	80.9	75.8	69.0	61.6	58.8	58.9	0.0
Resins, synthetic rubber & fibers	100.0	97.3	96.4	100.0	102.1	91.7	91.5	89.5	84.4	87.7	90.5	3.2
Agricultural chemicals	100.0	104.9	121.1	120.8	129.0	130.8	120.3	119.3	126.2	119.4	112.2	-6.0
Pharmaceuticals	100.0	102.7	107.3	110.8	108.4	104.0	114.3	124.1	124.3	120.2	114.1	-5.1
Paints, coatings & adhesives	100.0	102.1	107.2	110.9	107.6	113.6	111.3	121.1	121.9	123.1	118.4	-3.8
Soaps & toiletries	100.0	110.6	122.7	120.4	119.2	100.1	105.0	94.1	89.1	83.6	82.0	-1.9

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