

GAINS IN CHEMICAL OUTPUT LEVEL OFF

PRODUCTION growth tapered in Europe but increased in Asia

CHEMICAL PRODUCTION increases showed some signs of slowing in 2007 in Europe and the U.S. compared with 2006, a strong growth year for the global chemical industry. Asia had most of the year's double-digit growth sectors.

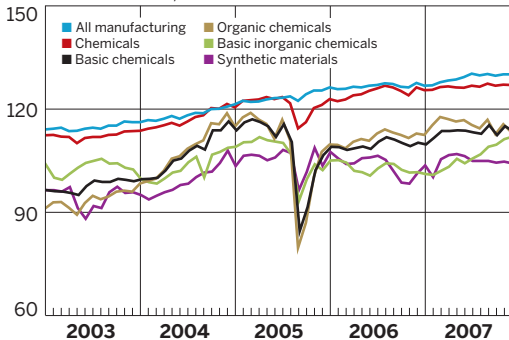
According to the European Chemical Industry Council (CEFIC), 2007 was a "hang-over" year. Although many production figures looked good, that appearance was illusory. Much of the growth, economists at CEFIC say, was actually an overhang from 2006 and reflected strong production growth in the last months of that year. By the end of 2007, CEFIC's data indicate, production had tapered off sharply.

Most European sectors benefited from the strong economy in 2006, and momentum carried into 2007, particularly in basic inorganic chemicals. A few sectors, however—especially synthetic rubber and synthetic fibers—showed an overall decline, according to CEFIC data.

U.S. PRODUCTION

Output escalated in all chemical sectors

Production index, 1997 = 100



NOTE: Seasonally adjusted. SOURCE: Federal Reserve Board

In the U.S., the output of chemical makers rose by 1.4% in 2007. This number lagged behind the percentage increase for manufacturing overall, which rose 1.9%, but it outpaced the index for nondurable manufacturing, which was up only 0.9%.

Within the category of chemical prod-

ucts, which rose only 1.5%, the index for pharmaceuticals and medicines continued a long-term upward trend and rose 3.3%. The category of organic chemicals displayed the strongest growth, increasing 3.4%. This is well ahead of the sector's 10-year average annual growth of just 1.4%.

Production in the basic inorganic chemicals category grew at 2.8%. This too is well ahead of the category's 10-year growth pattern of just 0.6% annually. Within the category, the index for alkalis and chlorine rose 4.7% and the index for other basic inorganic chemicals jumped 6.6%. Only synthetic dyes and pigments declined, by 9.9%.

A few other production indexes registered declines. Soap, cleaning compounds, and toiletries posted a 3.9% drop, as did paint and coatings. As in Europe, synthetic fibers continued on a long-term downward trend, with the index slipping 5.0%.

And despite heavy demand from the farm sector, the U.S. production index for pesticides, fertilizers, and other agricultural chemicals fell 7.4% in 2007. That could be explained in part by the high cost of natural gas, which has limited the output of nitrogen-based fertilizers in recent years. Also affecting the index is lower output from U.S. phosphate mines, which has curbed phosphate fertilizer production in recent years.

Canada's chemical industry and its overall manufacturing sector both saw declines in 2007, with chemical output dropping by 3.8%. Basic chemicals declined by 11.7%, and pharmaceuticals retreated by 4.9%. In organics, some categories like benzene and propylene were sharply up,

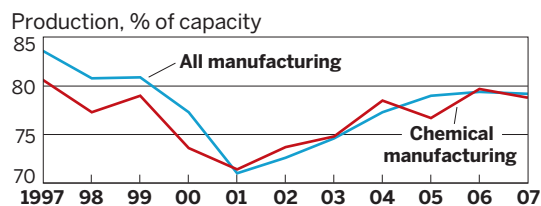
while butadiene, formaldehyde, and toluene saw steady declines.

Among notable changes in inorganic chemicals in Canada are the sharp declines in chlorine and sodium hydroxide—also known as caustic soda—production. Dow Chemical closed its large chlor-alkali complex in Fort Saskatchewan, Alberta, at the end of 2006.

Although Canada's production of its largest resin product, polyethylene, increased a healthy 4.0%, other resins, such as unsaturated polyester and polystyrene, saw sharp production decreases. Dow also

U.S. PLANT USE

Chemical manufacturing capacity use slipped in 2007



NOTE: As of December. SOURCE: Federal Reserve Board

closed a polystyrene plant in Sarnia, Ontario, at the end of 2006.

In Asia, Japan's production indexes all edged up in 2007 compared with 2006, but the overall picture was one of stagnation for Japan's chemical industry. Taken as a whole, chemical production in Japan has barely increased for the past 10 years. Production of inorganic chemicals and dyes, sodium-based chemicals, cyclic intermediates and dyes, plastics, and fertilizers was lower last year than in 1997.

In South Korea, the industry experienced more dynamic growth, with production of many chemicals up sharply. South Korean output of the basic building block ethylene went up 12.1% last year. Production of butadiene, another important basic chemical, went up by nearly 14%.

Taiwan saw significant growth in a number of organic chemicals—including styrene, propylene, and benzene—as new facilities came on-line.

China, as usual, released few numbers, but the available data showed that the chemical industry there continued to grow phenomenally. Output of ethylene went up almost 20% in 2007 compared with 2006, and methanol production increased by a spectacular 41.2% to more than 10 million metric tons. Production of sulfuric acid surged by 10.9% to 54 million metric tons.

PRODUCTION

U.S. PRODUCTION INDEX

Spurred by basic inorganics, total chemical output rose for the sixth straight year

PRODUCTION INDEX, 1997 = 100	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Total index	100.0	105.9	110.4	115.1	111.2	111.0	112.4	115.2	119.0	121.6	123.7	1.7%	2.1%
All manufacturing	100.0	106.7	112.2	117.4	112.8	113.0	114.7	118.2	123.2	126.6	129.0	1.9	2.6
Nondurable manufacturing	100.0	101.5	102.2	102.7	99.4	100.5	100.6	102.4	105.3	106.1	107.1	0.9	0.7
Chemicals	100.0	101.7	103.6	105.2	103.3	110.7	112.2	116.9	121.0	124.7	126.5	1.4	2.4
Basic chemicals	100.0	96.6	101.4	97.9	88.1	94.8	97.6	106.8	108.4	109.6	113.2	3.3	1.2
Basic inorganic chemicals	100.0	104.1	105.8	98.3	94.2	103.3	103.3	103.1	106.9	103.3	106.2	2.8	0.6
Alkalis & chlorine	100.0	98.8	129.0	119.3	100.3	159.6	150.2	173.6	195.6	164.4	172.2	4.7	5.6
Synthetic dyes & pigments	100.0	98.7	95.3	98.2	91.1	103.8	104.3	99.5	103.7	105.7	95.2	-9.9	-0.5
Other basic inorganic chemicals	100.0	104.1	109.8	99.8	95.5	101.5	98.8	100.2	102.6	96.0	102.3	6.6	0.2
Organic chemicals	100.0	91.5	98.4	97.2	83.9	89.0	93.5	107.6	108.1	111.5	115.3	3.4	1.4
Synthetic materials (a)	100.0	104.3	105.2	103.3	93.2	95.9	94.0	98.6	104.6	103.3	104.4	1.1	0.4
Plastic materials & resins	100.0	108.2	112.3	111.5	101.1	106.5	102.1	109.8	119.9	118.8	120.6	1.5	1.9
Artificial & synthetic fibers	100.0	100.7	90.8	84.7	79.0	69.9	73.2	70.3	63.2	62.4	59.3	-5.0	-5.1
Chemical products	100.0	105.0	106.4	110.3	116.0	126.7	128.7	132.7	139.1	146.9	149.1	1.5	4.1
Pharmaceuticals & medicines	100.0	108.7	113.0	117.4	126.3	136.2	140.8	141.6	147.2	156.5	161.7	3.3	4.9
Soap, cleaning compounds & toiletries	100.0	98.5	94.6	97.6	99.3	113.0	108.7	121.7	130.9	137.3	132.0	-3.9	2.8
Paint & coatings	100.0	100.2	98.3	98.0	95.8	96.0	94.7	100.4	98.0	92.2	88.6	-3.9	-1.2
Pesticides, fertilizers & other agricultural chemicals	100.0	102.1	92.0	86.9	79.9	82.7	86.6	90.9	94.6	100.6	93.2	-7.4	-0.7

a Includes synthetic rubber. SOURCE: Federal Reserve Board

CANADA PRODUCTION INDEX

Figures were down across the board

PRODUCTION INDEX, 1997 = 100	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
All manufacturing	100.0	105.0	113.5	126.2	120.0	121.0	120.0	122.9	124.9	123.7	122.5	-1.0%	2.0%
Chemicals	100.0	100.9	105.1	116.8	119.5	124.7	128.1	130.5	132.4	136.8	131.6	-3.8	2.8
Basic chemicals	100.0	98.2	97.8	112.5	112.4	111.1	109.4	111.5	111.5	117.3	103.5	-11.7	0.3
Pharmaceuticals & medicines	100.0	95.3	111.2	133.8	174.5	199.5	209.1	189.3	196.2	204.0	194.0	-4.9	6.9

SOURCE: Statistics Canada

EUROPE PRODUCTION INDEX

Growth was particularly robust in France, Germany, and the U.K.

CHEMICAL PRODUCTION INDEX, 1997 = 100	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Belgium	100.0	101.2	108.1	119.9	116.5	127.2	127.0	131.3	135.0	139.7	140.0	0.2%	3.4%
France	100.0	105.1	107.5	112.5	109.9	108.7	107.5	108.1	109.9	111.3	116.8	4.9	1.6
Germany	100.0	100.2	104.5	107.5	104.9	107.5	107.5	109.0	113.4	117.4	122.4	4.3	2.0
Italy	100.0	100.2	100.4	101.8	99.2	100.5	104.9	107.1	108.4	110.8	112.9	1.9	1.2
Netherlands	100.0	100.0	107.0	116.0	117.0	124.0	124.0	124.0	126.1	134.3	139.0	3.5	3.3
Spain	100.0	103.6	107.7	106.2	107.1	110.3	113.5	116.1	119.0	128.3	133.2	3.8	2.9
U.K.	100.0	101.6	104.9	109.3	113.2	112.3	112.9	117.8	118.6	120.1	127.8	6.4	2.5

SOURCES: European Chemical Industry Council, national agencies and associations

ASIA PRODUCTION INDEX

South Korea and Taiwan posted strong results for manufacturing and chemicals

PRODUCTION INDEX, 1997 = 100	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
JAPAN													
Mining & manufacturing	100.0	92.9	93.6	99.1	94.1	90.1	93.0	98.1	99.2	103.7	106.5	2.8%	0.6%
All chemicals (a)	100.0	94.9	98.3	98.9	95.8	95.8	97.3	98.7	99.3	98.9	100.8	1.9	0.1
Petrochemicals	100.0	94.5	99.3	99.1	94.5	95.5	98.4	101.0	102.0	97.3	100.4	3.2	0.0
Aromatics	100.0	93.9	100.9	100.1	97.7	100.8	106.5	109.9	115.0	99.0	102.1	3.1	0.2
Industrial sodium chemicals	100.0	95.7	97.2	98.2	91.0	92.6	93.8	93.8	94.6	96.6	96.7	0.1	-0.3
Inorganic chemicals & dyes	100.0	97.7	103.3	106.8	101.8	103.9	106.3	108.8	110.1	97.5	98.6	1.1	-0.1
Organic chemicals	100.0	96.6	101.9	100.6	94.3	94.6	100.0	100.7	102.1	96.7	100.5	3.9	0.0
Cyclic intermediates & dyes	100.0	95.1	98.2	97.7	93.9	95.6	96.6	98.9	96.0	97.5	98.6	1.1	-0.1
Plastics	100.0	92.2	94.8	96.4	91.0	91.0	91.4	94.3	94.3	98.8	99.3	0.5	-0.1
Synthetic rubber	100.0	95.5	99.1	99.9	92.0	96.1	99.6	102.1	102.7	98.0	100.9	2.9	0.1
Fertilizers	100.0	90.9	88.1	87.1	80.6	75.0	69.5	69.8	68.5	97.6	96.7	-0.9	-0.3
SOUTH KOREA													
All manufacturing	100.0	93.4	116.8	136.8	137.1	148.3	156	172.4	183.3	199.1	213.0	7.0%	7.9%
Chemicals & chemical products	100.0	96.6	106.6	113	116	123.4	128.1	134.5	138.6	142.8	153.2	7.3	4.4
Rubber & plastic products	100.0	79.2	93.1	99.4	101.9	108.5	111.3	115	117.3	124.3	132.1	6.2	2.8
TAIWAN													
All manufacturing	100.0	103.2	111.2	119.9	109.1	118.4	129.3	140.9	148.7	146.0	152.6	8.3%	5.2%
Chemicals	100.0	102.8	111.3	118.7	128.0	138.7	150.5	160.4	147.9	159.6	162.8	12.0	6.2
Basic chemicals	100.0	98.9	107.5	119.8	121.9	124.4	136.6	154.5	151.1	156.7	183.7	2.8	6.6
Petrochemicals	100.0	101.2	118.5	131.0	158.4	175.2	199.6	216.6	228.0	222.1	226.1	18.6	10.4
Fertilizers	100.0	92.3	85.0	81.7	76.2	73.0	72.8	70.6	76.6	75.6	76.6	1.4	-2.5
Man-made fibers	100.0	105.5	107.6	111.8	108.2	116.7	115.0	116.4	103.9	101.8	98.2	-3.8	-0.6
Plastics & resins	100.0	103.3	113.2	118.1	118.3	127.1	133.6	139.4	134.3	136.8	137.5	8.7	4.1
Synthetic rubber	100.0	103.3	109.0	102.4	105.5	115.9	121.0	129.0	127.7	127.7	133.0	9.6	3.8

a Excludes pharmaceuticals.

SOURCES: Japan Ministry of Economy, Trade & Industry; Korea National Statistical Office, South Korea; Department of Statistics, Taiwan Ministry of Economic Affairs

U.S. ORGANICS

Ethylbenzene, vinyl acetate, and styrene led growth, while others grew modestly or declined

THOUSANDS OF METRIC TONS UNLESS OTHERWISE INDICATED	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Acrylonitrile	1,493	1,415	1,415	1,551	1,343	1,239	1,501	1,598	1,323	1,371	1,270	-7.4%	-1.6%
Aniline	607	701	719	846	865	921	969	1,034	964	930	978	5.2	4.9
Benzene (thousands of liters) (a,b)	8,864	8,467	9,088	9,156	7,271	8,130	7,926	8,781	7,574	7,642	7,979	4.4	-1.0
1,3-Butadiene (c)	1,863	1,844	1,942	2,009	1,721	1,869	1,901	2,204	2,046	1,987	1,805	-9.2	-0.3
Cumene	2,776	3,045	3,162	3,741	3,186	3,503	3,397	3,736	3,509	3,559	3,702	4.0	2.9
Ethylbenzene	5,432	5,743	5,945	5,967	4,642	5,412	5,578	5,779	5,251	5,286	5,664	7.2	0.4
Ethylene	23,169	23,614	25,300	25,113	22,513	23,644	22,976	25,682	23,974	25,020	25,412	1.6	0.9
Ethylene dichloride	11,927	11,140	10,358	9,911	9,336	9,328	9,994	12,163	11,308	9,732	9,562	-1.7	-2.2
Ethylene oxide	3,738	3,692	4,030	3,867	3,343	3,447	3,660	3,772	3,166	3,445	3,415	-0.9	-0.9
Propylene (d)	12,489	13,014	13,202	14,457	13,176	14,425	13,939	15,345	15,490	15,650	16,165	3.3	2.6
Styrene	5,156	5,166	5,397	5,405	4,214	4,899	5,167	5,394	5,042	4,827	5,100	5.6	-0.1
Urea	7,533	8,042	8,080	6,969	6,080	7,038	5,783	5,756	5,268	5,383	5,629	4.6	-2.9
Vinyl acetate	1,331	1,333	1,378	1,497	1,188	1,349	1,306	1,431	1,327	1,315	1,391	5.7	0.4

a Tar distillers and coke-oven operators not included. b Specification grades. c Rubber grade. d All grades. SOURCES: National Petroleum Refiners Association, Bureau of the Census

PRODUCTION

CANADA ORGANICS

Formaldehyde and toluene declined sharply in 2007

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Benzene	715	718	805	859	751	849	843	915	798	743	794	6.9%	1.1%
Butadiene	219	236	230	252	245	276	276	289	246	262	234	-10.7	0.7
Ethylene	3,244	3,557	3,881	4,069	4,261	4,734	4,729	5,095	na	na	5,055	na	4.5
Formaldehyde	210	228	211	194	179	212	245	269	na	236	195	-17.4	-0.7
Propylene	859	1,038	1,000	934	882	956	938	939	737	833	917	10.1	0.7
Toluene	321	222	260	218	222	256	289	na	na	253	211	-16.6	-4.1
Urea	3,470	3,714	3,783	3,887	3,363	3,436	3,311	3,654	3,549	na	3,574	na	0.3
Xylenes	362	308	253	312	271	294	336	351	na	na	na	na	na

na = not available. SOURCE: Statistics Canada

EUROPE ORGANICS

Ethylene dichloride and ethylene oxide led growth in organic chemicals

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007 (a)	ANNUAL CHANGE, 2006-07	
												2006-07	2006-07
Acetic acid	781	584	593	754	495	716	676	1,451	1,500	876	836	-4.6%	9.5
Acetone	1,173	1,254	1,307	1,325	404	1,011	1,235	1,567	1,336	1,476	1,616	9.5	9.5
Benzene	3,561	3,345	3,705	4,565	6,670	6,817	6,535	7,931	7,089	6,090	6,150	1.0	1.0
Butadiene	1,939	1,971	2,027	2,097	1,992	2,024	2,131	2,222	2,233	2,182	2,188	0.3	0.3
1-Butanol	164	188	44	67	531	575	542	788	816	417	452	8.4	8.4
Ethylbenzene	679	684	937	149	1,180	769	911	4,262	4,276	1,147	1,430	24.7	24.7
Ethylene	18,537	18,980	19,362	19,444	19,674	20,159	20,686	21,408	21,600	21,192	21,818	3.0	3.0
Ethylene dichloride	902	860	1,056	1,122	2,759	3,358	3,374	6,044	6,646	1,452	3,087	112.6	112.6
Ethylene glycol	506	1,171	1,177	1,195	268	239	857	1,404	1,637	1,441	1,256	-12.8	-12.8
Ethylene oxide	634	644	592	637	934	717	792	2,311	2,397	635	967	52.3	52.3
Formaldehyde	808	824	947	954	2,463	3,299	3,295	4,017	4,057	1,187	1,505	26.8	26.8
Methanol	2,365	2,242	869	1,148	2,030	1,844	2,009	2,878	3,248	2,396	2,531	5.6	5.6
Phenol	na	1,391	na	na	689	797	724	2,059	2,005	2,041	2,036	-0.2	-0.2
Phthalic anhydride	414	446	446	488	371	442	430	848	852	457	456	-0.2	-0.2
Propylene	12,624	12,885	13,153	13,330	13,352	14,107	14,708	15,123	15,406	15,291	15,670	2.5	2.5
Propylene glycol	361	351	429	443	316	305	329	1,987	2,179	725	729	0.6	0.6
Propylene oxide	819	727	845	908	735	777	861	666	950	2,012	1,846	-8.3	-8.3
Styrene	3,025	3,152	2,989	3,215	958	3,078	3,215	6,220	4,963	4,277	4,383	2.5	2.5
Toluene	209	1,130	1,172	1,155	886	919	848	1,913	2,014	1,634	1,689	3.4	3.4
Vinyl acetate	391	469	718	644	457	667	502	881	800	913	920	0.8	0.8
Xylenes	1,368	2,514	2,497	2,602	579	1,122	626	4,382	4,282	4,217	3,860	-8.5	-8.5

NOTE: Data from 2005 forward are for 27 countries in the European Union; between 2002 and 2005, for 25 countries; and prior to 2002, for 15 countries. Thus, 10-year comparisons are not meaningful. a C&EN estimates based on partial reporting. na = not available.

SOURCES: European Union, national government statistics offices, Association of Petrochemicals Producers in Europe

CHINA ORGANICS

Production of methanol jumped by more than 40% in 2007

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Benzene (pure)	1,358	1,341	1,535	1,850	1,988	2,131	2,408	2,556	3,061	3,441	4,069	18.3%	11.6%
Caprolactam	100	120	109	164	152	170	201	228	214	291	299	2.7	11.6
Ethylene	3,585	3,772	4,348	4,743	4,807	5,414	6,118	6,266	7,555	8,765	10,477	19.5	11.3
Methanol (refined)	1,743	1,581	1,794	1,967	2,065	2,110	2,989	4,406	5,356	7,623	10,764	41.2	20.0

SOURCE: China National Chemical Information Center

ASIA ORGANICS

Output of most organic chemicals surged in Taiwan as new facilities came on-line

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
JAPAN													
Acetic acid	620	654	644	675	594	569	592	589	599	597	587	-1.7%	-0.5%
Acetone	458	459	507	508	476	472	492	539	546	531	593	11.7	2.6
Acrylonitrile	730	667	738	732	738	708	780	711	742	667	743	11.4	0.2
Benzene (a)	4,502	4,203	4,459	4,425	4,261	4,313	4,551	4,758	4,980	4,874	5,245	7.6	1.5
Butadiene	1,052	977	1,035	1,044	976	993	1,062	1,041	1,040	1,002	1,024	2.2	-0.3
Butanol	447	424	495	461	472	476	519	506	513	537	537	0.0	1.9
Caprolactam	556	519	581	599	531	508	530	503	458	467	467	0.0	-1.7
Cyclohexane	721	652	688	673	598	607	685	676	722	731	703	-3.8	-0.3
Ethylene	7,416	7,076	7,687	7,614	7,361	7,152	7,367	7,570	7,618	7,522	7,739	2.9	0.4
Ethylene dichloride	3,491	3,491	3,503	3,431	3,275	3,352	3,463	3,594	3,687	3,514	3,603	2.5	0.3
Ethylene glycol	886	920	922	930	787	733	814	786	841	763	754	-1.2	-1.6
Ethylene oxide	952	953	976	990	891	868	939	941	1,005	974	966	-0.8	0.1
Octanol	321	285	315	278	262	302	306	307	279	280	270	-3.6	-1.7
Phenol	833	851	888	916	884	891	926	966	938	860	961	11.7	1.4
Phthalate plasticizers	481	398	417	396	369	377	382	357	315	279	281	0.7	-5.2
Phthalic anhydride	330	301	301	290	259	262	262	257	239	175	179	2.3	-5.9
Polypropylene glycol	295	274	302	304	294	299	314	346	339	344	343	-0.3	1.5
Propylene	5,409	5,101	5,520	5,453	5,342	5,309	5,610	5,767	6,030	6,090	6,286	3.2	1.5
Purified terephthalic acid	1,663	1,616	1,547	1,527	1,496	1,624	1,443	1,531	1,472	1,432	1,254	-12.4	-2.8
Styrene	3,035	2,770	3,055	2,968	3,004	3,016	3,201	3,345	3,392	3,295	3,533	7.2	1.5
Toluene (a)	1,419	1,349	1,488	1,489	1,423	1,548	1,584	1,634	1,676	1,633	1,637	0.2	1.4
Toluene diisocyanate	192	192	192	214	214	223	230	245	216	232	229	-1.3	1.8
Xylene (a)	4,634	4,340	4,641	4,681	4,798	4,900	5,213	5,395	5,570	5,727	6,006	4.9	2.6
p-Xylene	2,921	2,754	2,969	2,920	2,814	2,920	3,097	3,164	3,358	3,357	3,301	-1.7	1.2
SOUTH KOREA													
Benzene	1,819	2,412	2,572	2,834	2,650	2,852	3,246	3,462	3,594	3,719	4,065	9.3%	8.4%
Butadiene	658	731	764	808	777	816	860	917	939	948	1,078	13.7	5.1
Ethylene	4,450	5,110	5,216	5,439	5,398	5,636	5,872	5,945	6,058	6,055	6,788	12.1	4.3
Propylene	2,760	3,247	3,282	3,409	3,273	3,557	3,753	3,892	3,945	4,172	4,669	11.9	5.4
Vinyl chloride	911	984	1,017	1,133	1,392	1,416	1,441	1,498	1,501	1,521	1,512	-0.6	5.2
TAIWAN													
Acrylonitrile	180	167	175	186	292	339	352	379	386	418	451	7.9%	9.6%
Benzene	506	415	605	690	1,070	931	998	1,088	1,204	1,180	1,606	36.1	12.2
Butadiene	130	122	190	220	349	346	390	412	387	394	521	32.2	14.9
Caprolactam	114	123	119	171	184	186	216	216	247	257	257	0.0	8.5
Diocetyl phthalate	274	270	269	198	280	257	243	239	204	211	244	15.6	-1.2
Ethylene	959	935	1,296	1,592	2,584	2,393	2,679	2,864	2,890	2,888	3,666	26.9	14.4
Ethylene glycol	193	206	301	612	1,036	939	1,169	1,459	1,413	1,343	1,795	33.7	25.0
Propylene	553	545	765	930	1,410	1,462	1,752	1,995	2,012	2,105	2,835	34.7	17.8
Purified terephthalic acid	2,345	2,433	2,769	3,140	3,217	3,705	4,079	4,620	4,597	4,400	4,437	0.8	6.6
Styrene	464	386	806	956	1,146	1,249	1,274	1,247	1,248	1,222	1,824	49.3	14.7
Toluene	43	23	18	26	54	42	64	140	86	30	36	20.0	-1.8
Vinyl chloride	927	1,018	1,288	1,410	1,452	1,557	1,718	1,763	1,783	1,609	1,810	12.5	6.9

a Petroleum and nonpetroleum sources. **SOURCES:** Japan Ministry of Economy, Trade & Industry; Korea National Statistical Office, South Korea; Petrochemical Industry Association of Taiwan; Taiwan Ministry of Economic Affairs

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.

PRODUCTION

U.S. INORGANICS

Ammonium nitrate and nitric acid grew at double-digit rates

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007 (a)	ANNUAL CHANGE	
												2006-07	1997-07
Aluminum sulfate (b)	1,053	1,058	1,085	976	1,019	1,053	961	971	967	912	889	-2.5%	-1.7%
Ammonia (c)	16,227	16,757	15,725	14,339	11,090	12,574	10,466	10,937	10,141	9,960	10,744	7.9	-4.0
Ammonium nitrate (d)	7,804	8,235	6,920	7,237	5,833	6,436	5,733	6,558	6,541	6,411	7,311	14.0	-0.6
Ammonium sulfate	2,451	2,528	2,357	2,547	2,347	2,671	2,604	2,726	2,636	2,603	2,835	8.9	1.5
Chlorine	11,720	11,647	12,111	12,698	11,487	11,681	10,359	12,326	10,275	10,331	10,846	5.0	-0.8
Hydrochloric acid	4,145	4,226	4,081	4,278	3,969	4,037	4,179	5,301	4,618	4,232	4,335	2.4	0.5
Nitric acid, 100%	8,556	8,421	8,113	7,898	6,416	6,939	6,747	6,466	6,710	6,607	7,381	11.7	-1.5
Phosphoric acid, P ₂ O ₅	11,935	12,599	12,433	11,330	10,472	11,146	11,324	11,511	11,447	10,700	11,000	2.8	-0.8
Sodium chlorate	568	707	742	853	792	721	668	556	523	558	562	0.8	-0.1
Sodium hydroxide	9,953	11,893	11,971	10,451	9,811	9,459	8,793	9,618	8,519	8,061	8,031	-0.4	-2.1
Sodium sulfate (e)	640	571	599	462	512	500	466	469	467	290	308	6.3	-7.0
Sulfuric acid (f)	43,472	44,000	40,594	39,584	36,338	36,062	37,373	38,021	37,183	35,909	36,636	2.0	-1.7

a Preliminary data. b Commercial, 17% Al₂O₃; includes production by municipalities. c Synthetic anhydrous; excludes by-product ammonia liquor and ammonium sulfate. d Original solution. e High purity. f Gross (new and fortified). SOURCES: Department of Commerce, Bureau of the Census

CANADA INORGANICS

Chlorine and sodium hydroxide plummeted in 2007

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Aluminum sulfate	162	191	205	167	170	176	171	167	175	164	199	21.3%	2.1%
Ammonia	4,768	4,737	4,889	4,888	4,297	4,501	4,455	4,996	4,607	4,623	4,411	-4.6	-0.8
Ammonium nitrate	979	1,000	1,052	1,110	1,174	1,152	1,031	1,096	1,206	1,181	1,188	0.6	2.0
Carbon black	205	217	218	229	215	215	205	223	235	225	na	na	na
Chlorine	1,067	989	1,065	1,079	1,054	1,095	994	1,057	1,008	929	601	-35.3	-5.6
Hydrochloric acid	142	149	157	155	143	151	153	149	142	155	138	-11.0	-0.3
Hydrogen peroxide	179	199	228	237	203	222	226	244	244	na	236	na	2.8
Nitric acid	1,002	935	1,007	1,074	1,054	1,143	1,105	1,219	1,147	1,180	1,132	-4.1	1.2
Sodium chlorate	1,038	1,012	1,049	1,107	1,082	1,055	1,129	1,183	1,169	1,111	1,073	-3.4	0.3
Sodium hydroxide	1,099	1,015	1,082	1,094	1,074	1,111	1,059	1,146	1,119	1,012	676	-33.2	-4.7
Sulfuric acid	4,088	4,333	4,194	3,804	3,846	3,887	3,465	3,933	3,743	3,823	3,833	0.3	-0.6

na = not available. SOURCE: Statistics Canada

JAPAN INORGANICS

Production of nitrogen and oxygen reached the country's highest levels on record

THOUSANDS OF METRIC TONS UNLESS OTHERWISE INDICATED	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Ammonia	1,836	1,689	1,685	1,715	1,604	1,450	1,291	1,340	1,318	1,328	1,355	2.0%	-2.9%
Ammonium sulfate (a)	1,780	1,618	1,716	1,749	1,585	1,564	1,570	1,526	1,458	1,439	1,463	1.6	-1.9
Carbon black	776	723	761	788	742	755	788	804	805	827	835	1.0	0.7
Chlorine, liquid	928	881	875	847	777	754	723	619	601	571	550	-3.5	-5.1
Hydrochloric acid	2,539	2,408	2,448	2,494	2,342	2,317	2,363	2,324	2,308	2,326	2,343	0.7	-0.8
Hydrogen peroxide	141	140	145	151	159	167	176	196	197	221	218	-1.5	4.5
Nitrogen (mcm)	9,676	9,716	9,855	10,290	10,296	10,455	10,835	11,281	11,435	11,998	12,696	6.1	2.8
Oxygen (mcm)	9,795	9,188	9,534	10,655	10,373	10,720	11,250	11,278	11,371	11,766	12,407	5.6	2.4
Sodium hydroxide	4,391	4,252	4,345	4,471	4,291	4,271	4,369	4,493	4,552	4,453	4,482	0.6	0.2
Sodium silicate	795	765	769	720	679	622	596	577	546	541	524	-3.1	-4.1
Sulfuric acid	6,828	6,739	6,943	7,059	6,727	6,763	6,534	6,444	6,546	6,843	7,098	3.9	0.4
Titanium dioxide	241	251	269	270	257	240	253	253	259	240	246	2.3	0.2

a For agricultural and nonagricultural use. mcm = millions of cubic meters. SOURCE: Ministry of Economy, Trade & Industry

EUROPE INORGANICS

Hydrogen and sulfuric acid advanced; sodium carbonate retreated

THOUSANDS OF METRIC TONS UNLESS OTHERWISE INDICATED	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007 (a)	ANNUAL CHANGE, 2006-07	
												2006-07	1997-07
Carbon black	1,243	1,386	1,322	1,342	1,059	1,025	1,009	1,468	1,388	1,639	1,477	-9.9%	2.9
Chlorine	9,386	9,190	9,219	9,697	9,265	9,222	9,525	10,396	10,382	10,315	10,610	2.9	19.9
Hydrochloric acid	1,907	1,830	2,098	2,050	2,608	4,142	3,784	5,165	6,002	3,176	3,808	19.9	29.3
Hydrogen (mcm)	1,883	2,124	2,252	2,196	5,553	7,519	8,962	10,690	11,251	6,039	7,810	29.3	
Hydrogen peroxide	133	248	438	847	372	655	736	1,085	1,123	929	969	4.3	
Nitrogen (mcm)	11,950	10,490	7,422	8,091	12,829	13,942	17,807	22,326	22,457	23,277	22,500	-3.3	
Oxygen (mcm)	10,610	4,674	5,592	5,965	12,678	19,026	22,554	27,112	27,824	27,393	25,657	-6.3	
Phosphoric acid (b)	599	526	995	692	2,463	3,921	3,574	4,304	4,257	703	640	-9.0	
Sodium carbonate	1,589	4,998	4,567	4,401	1,451	1,493	3,874	6,609	6,956	6,742	4,717	-30.0	
Sodium hydroxide	6,197	6,090	5,418	5,780	6,756	9,114	7,937	9,994	9,829	8,922	8,634	-3.2	
Sodium sulfate	2,718	2,748	2,237	2,314	1,806	2,951	3,082	3,406	3,565	3,462	3,168	-8.5	
Sulfuric acid (c)	6,586	6,832	7,109	6,598	8,157	13,835	12,746	16,584	16,609	9,471	11,423	20.6	
Titanium oxides	na	415	433	538	na	440	419	588	602	623	617	-1.0	

NOTE: Data from 2005 forward are for 27 countries in the European Union; between 2002 and 2005, for 25 countries; and prior to 2002, for 15 countries. Thus, 10-year comparisons are not meaningful. **a** C&EN estimates based on partial reporting. **b** As P₂O₅. **c** As SO₃. **mcm** = millions of cubic meters. **na** = not available.

SOURCES: European Union, national government statistics offices, EuroChlor

CHINA INORGANICS

Solid growth continued

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2003	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Hydrochloric acid (31%)	3,843	3,801	3,960	4,454	4,705	4,926	5,276	6,007	6,582	7,306	7,476	2.3%	6.9%
Sodium carbonate	7,285	7,368	7,486	9,199	9,144	10,189	11,075	12,668	14,211	15,972	17,718	10.9	9.3
Sodium hydroxide	5,483	5,184	5,495	7,123	7,880	8,227	9,399	10,603	12,400	15,118	17,593	16.4	12.4
Sulfuric acid	19,460	20,519	21,589	23,888	26,963	29,674	33,191	38,249	44,621	48,603	53,907	10.9	10.7

SOURCE: China National Chemical Information Center

U.S. PLASTICS

High-density polyethylene and polypropylene rose by 4% or more

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
THERMOPLASTIC RESINS													
Polyethylene													
Low-density (a,b)	3,489	3,437	3,493	3,436	3,491	3,647	3,540	3,763	3,558	3,586	3,628	1.2%	0.4%
Linear low-density (a,b)	3,124	3,278	3,677	3,607	4,659	5,139	5,052	5,640	5,395	5,919	6,069	2.5	6.9
High-density (b,c)	5,696	5,862	6,289	6,336	6,933	7,243	7,125	7,960	7,328	7,966	8,334	4.6	3.9
Polypropylene (d)	6,042	6,271	7,028	7,139	7,228	7,691	8,013	8,415	8,149	8,442	8,782	4.0	3.8
Styrene polymers													
Polystyrene (e)	2,894	2,829	2,935	3,104	2,773	3,025	2,900	3,062	2,854	2,807	2,719	-3.1	-0.6
Acrylonitrile-butadiene-styrene & other styrene polymers (d,f)	1,403	1,503	1,461	1,473	1,294	1,382	1,351	1,466	1,413	1,376	1,335	-3.0	-0.5
Polyamine, nylon type	554	583	612	581	517	578	580	608	568	575	591	2.7	0.6
Polyvinyl chloride & copolymers (d)	6,388	6,578	6,764	6,551	6,467	6,939	6,669	7,251	6,921	6,758	6,638	-1.8	0.4
THERMOSETTING RESINS													
Epoxy (g)	297	290	298	314	273	297	262	293	276	289	296	2.5%	0.0%
Urea & melamine	1,197	1,302	1,354	1,437	1,379	1,460	1,440	1,504	1,524	1,544	1,564	1.3	2.7
Phenolic	1,694	1,787	1,990	1,974	1,979	2,013	2,015	2,101	2,127	1,961	1,979	0.9	1.6

NOTE: Totals are for those products listed and exclude some small-volume plastics; dry-weight basis unless otherwise specified. **a** Density 0.940 and below. **b** Data include Canadian production from 2001. **c** Density above 0.940. **d** Data include Canadian and Mexican production. **e** Data include Canadian production from 2000. **f** Data include styrene-butadiene copolymers, styrene acrylonitrile, and other styrene-based polymers. **g** Unmodified. **SOURCE:** American Plastics Council

PRODUCTION

CANADA PLASTICS

Polystyrene output dropped by more than half in 2007

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Polyesters, unsaturated	71	82	108	120	115	113	139	100	90	81	62	-23.5%	-1.3%
Polyethylene (a)	2,195	2,283	2,485	2,751	3,035	3,330	3,083	3,587	3,366	3,594	3,736	4.0	5.5
Polystyrene (b)	181	180	200	203	186	195	183	207	198	195	83	-57.4	-7.5

a Includes high-, low-, and linear low-density polyethylene. b Includes acrylonitrile-butadiene-styrene. SOURCE: Statistics Canada

EUROPE PLASTICS

Plastics showed ups and downs in 2007

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007 (a)	ANNUAL CHANGE,
												2006-07
Polyethylene	8,508	9,731	10,223	10,579	11,487	11,599	11,942	13,859	14,529	13,744	14,730	7.2%
Polystyrene	1,117	1,090	675	331	2,410	2,550	2,540	1,790	1,859	1,752	1,904	8.7
Acrylonitrile-butadiene-styrene	762	859	971	1,038	466	793	495	811	891	812	835	2.8
Polyvinyl chloride	4,792	2,651	3,209	4,893	5,681	6,531	6,694	6,485	6,594	6,966	6,256	-10.2
Epoxy resins	373	334	393	419	215	464	356	633	693	578	550	-4.8
Polypropylene	na	4,158	6,524	6,984	7,526	8,113	8,638	8,950	9,050	11,105	11,341	2.1
Polyamides	1,652	1,494	766	1,412	1,209	1,833	1,769	2,052	2,119	1,924	2,037	5.9
Synthetic rubber	2,419	2,245	2,239	2,342	2,691	3,250	3,713	4,415	4,170	4,382	4,345	-0.8

NOTE: Data from 2005 forward are for 27 countries in the European Union; between 2002 and 2005, for 25 countries; and prior to 2002, for 15 countries. Thus, 10-year comparisons are not meaningful. a C&EN estimates based on partial reporting. na = not available.

SOURCES: European Chemical Industry Council, national agencies and associations, Association of Plastics Manufacturers in Europe

U.S. SYNTHETIC FIBERS

All categories either stayed steady or declined

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE		
												2006-07	1997-07	
NONCELLULOSIC FIBERS														
Nylon	1,286	1,218	1,217	1,215	1,019	1,112	1,115	1,142	1,082	1,023	937	-8.3%	-3.1%	
Olefin	1,216	1,326	1,395	1,461	1,316	1,397	1,374	1,388	1,403	1,293	1,293	0.0	0.6	
Polyester	1,855	1,768	1,763	1,785	1,476	1,499	1,401	1,500	1,420	1,332	1,242	-6.7	-3.9	
CELLULOSIC FIBERS														
Acetate (a) & rayon	208	166	135	158	103	81	75	67	49	27	27	0.0%	-18.4%	

a Includes diacetate and triacetate; excludes production for cigarette filters. SOURCE: Fiber Economics Bureau

JAPAN SYNTHETIC FIBERS

Production was generally down

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
Man-made (a)	1,822	1,724	1,634	1,643	1,564	1,416	1,316	1,279	1,249	1,209	1,193	-1.3%	4.1%
Polyester (a)	731	684	665	665	628	564	528	520	496	483	465	-3.6	-4.4
Acrylic (b)	416	418	372	377	365	358	298	267	261	243	236	-2.7	-5.5
Polypropylene (a)	110	109	109	111	117	114	116	120	125	127	127	0.0	1.4
Nylon (c)	198	180	174	176	162	126	121	121	118	118	117	-0.8	-5.1

a Sum of staple and filament. b Staple only. c Filament only. SOURCE: Ministry of Economy, Trade & Industry

ASIA PLASTICS

Output of most plastics increased, especially in Taiwan

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE	
												2006-07	1997-07
JAPAN													
Polyethylene	3,366	3,143	3,369	3,342	3,294	3,176	3,165	3,238	3,240	3,162	3,232	2.2%	-0.4%
Polyethylene terephthalate	1,398	1,300	1,281	1,308	1,243	1,211	1,076	1,195	1,126	1,110	1,104	-0.5	-2.3
Polypropylene	2,854	2,520	2,626	2,721	2,696	2,641	2,751	2,908	3,063	3,049	3,087	1.2	0.8
Polystyrene	2,201	1,975	2,037	2,024	1,810	1,837	1,801	1,824	1,734	1,745	1,749	0.2	-2.3
Polyvinyl chloride	2,626	2,457	2,460	2,410	2,195	2,225	2,164	2,153	2,151	2,146	2,162	0.7	-1.9
Epoxy	222	204	225	243	192	201	195	215	211	229	239	4.4	0.7
Phenolic resins	303	259	250	262	232	242	261	287	280	284	295	3.9	-0.3
Polycarbonate	292	317	351	354	370	386	409	411	431	413	418	1.2	3.7
Synthetic rubber	1,592	1,520	1,577	1,590	1,466	1,522	1,577	1,616	1,627	1,607	1,655	3.0	0.4
SOUTH KOREA													
Acrylonitrile-butadiene-styrene	596	636	784	777	932	1,120	1,143	1,105	980	1,077	1,145	6.3%	6.7%
Polyethylene, high-density	1,549	1,615	1,756	1,706	1,839	1,871	1,925	1,882	1,949	1,935	1,984	2.5	2.5
Polyethylene, low-density	1,394	1,518	1,642	1,576	1,614	1,624	1,627	1,706	1,744	1,728	1,790	3.6	2.5
Polypropylene	2,056	2,355	2,440	2,413	2,485	2,622	2,811	2,930	3,013	3,040	3,240	6.6	4.7
Polystyrene	1,104	1,038	1,105	1,212	1,354	1,361	1,427	1,176	1,093	1,009	1,019	1.0	-0.8
Polyvinyl chloride	1,087	1,013	1,170	1,191	1,238	1,244	1,278	1,306	1,184	1,203	1,161	-3.5	0.7
TAIWAN													
Acrylonitrile-butadiene-styrene	979	899	1,016	1,067	985	1,078	1,105	1,166	1,215	1,274	1,324	3.9%	3.1%
Polyester resin	171	175	204	198	204	219	212	185	168	162	169	4.3	-0.1
Polyethylene, high-density	243	273	395	306	510	507	547	537	515	521	577	10.7	9.0
Polyethylene, low-density	235	224	236	273	477	492	536	609	663	597	700	17.3	11.5
Polypropylene	420	418	517	564	773	830	937	1,020	1,098	1,174	1,262	7.5	11.6
Polystyrene	780	764	765	711	866	848	858	817	830	713	761	6.7	-0.2
Polyurethane resin	151	145	157	185	170	189	193	214	195	191	185	-3.1	2.1
Styrene-butadiene rubber	103	107	104	83	81	78	69	108	96	102	112	9.8	0.8
Polybutadiene rubber	55	56	54	50	52	52	54	56	53	50	54	8.0	-0.2

SOURCES: Japan Ministry of Economy, Trade & Industry; Korea National Statistical Office, South Korea; Petrochemical Industry Association of Taiwan; Taiwan Ministry of Economic Affairs

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.

EUROPE SYNTHETIC FIBERS

Acrylics registered sharp decline in 2007

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE,
												2006-07
Acrylic	705	650	614	623	607	620	856	862	587	578	494	-14.5%
Polyester	995	959	909	968	924	909	1,423	1,473	1,004	988	1,028	4.0
Polyamide	673	641	595	636	555	549	670	682	684	622	612	-1.6
Cellulosics	722	715	651	627	607	585	609	636	496	501	483	-3.6

NOTE: Data are not comparable across the years given: Data for 2003 and 2004 include enlarged European Union and Turkey; data from 2005 onward include Russia and the Confederation of Independent States and exclude Turkey. Thus, 10-year comparisons are not meaningful.

SOURCES: International Rayon & Synthetic Fibers Committee, Fiber Economics Bureau

U.S. FERTILIZERS

Output grew at double-digit rates for urea, nitrogen solutions, and monoammonium phosphate

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	ANNUAL CHANGE		
												2006-07	1997-07	
NITROGEN PRODUCTS														
Ammonia	15,160	15,032	14,484	13,438	10,455	11,306	10,475	9,164	8,945	7,209	7,888		9.4%	-6.3%
Ammonium nitrate	3,012	3,183	3,165	2,873	2,192	2,246	2,142	2,165	2,473	2,045	2,180		6.6	-3.2
Ammonium sulfate	2,424	2,453	2,517	2,595	2,353	2,405	2,595	2,669	2,676	2,706	2,597		-4.0	0.7
Urea	4,989	4,850	5,066	4,742	3,678	4,477	4,443	3,095	3,086	2,284	2,603		14.0	-6.3
Nitrogen solutions	8,994	8,980	10,136	9,038	9,143	7,985	8,863	7,781	8,062	7,022	8,549		21.8	-0.5
PHOSPHATE PRODUCTS														
Diammonium phosphate	14,325	14,088	14,528	12,670	10,049	10,825	9,991	10,404	9,988	9,474	8,202		-13.4%	-5.4%
Monoammonium phosphate	3,170	3,624	3,511	4,106	4,087	4,175	4,734	5,328	5,213	4,170	4,838		16.0	4.3
Phosphate rock	40,890	37,814	38,352	36,088	34,219	29,183	32,327	35,338	35,183	33,127	29,370		-11.3	-3.3
Phosphoric acid (P ₂ O ₅)	11,494	11,264	11,470	10,751	9,406	10,125	10,253	10,530	10,533	9,802	9,379		-4.3	-2.0

NOTE: Years ending June 30. Figures are based on Fertilizer Institute surveys and may not represent the entire industry. **SOURCE:** Fertilizer Institute

EUROPE FERTILIZERS

Production of nitric acid more than doubled

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007 (a)	ANNUAL CHANGE,
												2006-07
Ammonium nitrate	1,171	631	897	721	687	1,505	1,168	6,656	6,138	2,346	2,300	-2.0%
Ammonium sulfate	478	585	566	675	1,442	769	832	1,735	1,703	1,387	1,130	-18.5
Anhydrous ammonia	2,291	2,295	2,213	2,078	2,362	9,394	4,752	12,364	13,187	3,915	4,993	27.5
Nitric acid	266	290	264	153	600	612	2,378	6,581	6,326	895	1,800	101.1
Urea	368	na	600	725	214	947	767	2,407	2,822	2,471	2,085	-15.6

NOTE: Data from 2005 forward are for 27 countries in the European Union; between 2002 and 2005, for 25 countries; and prior to 2002, for 15 countries. Thus, 10-year comparisons are not meaningful. **a** C&EN estimates based on partial reporting. **na** = not available. **SOURCES:** European Union, national government statistics offices

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