

# PRODUCTION: GROWTH IN MOST REGIONS

Although output increased, rise was probably less than most nations had hoped

**T**OTAL CHEMICAL PRODUCTION indexes for most countries that issue these figures increased last year. Except for a few cases, however, the increases were in the 2–3% range—not the 3–4% range that most countries hope for. Once one gets down to the sectors of the chemical industry and individual products, there were some standout performers; chief among these seems to be the basic chemicals industry.

For instance, in the U.S., the production index for all chemicals rose 2.9% to 110.3. (All indexes are 1997 = 100.) This was enough to increase capacity utilization in U.S. chemical facilities to 75.4% from 74.3% at the end of 2003, according to Federal Reserve Board data.

Within the broad chemical category, U.S. production of basic chemicals rose 4.7% to 94.4, with alkalis and chlorine up 5.3% to 143.3 and synthetic dyes and pigments rising 6.5% to 108.4. Organic chemicals rose 7.4% to 91.3, and synthetic materials climbed 5.9% to 101.0.

In Europe, which provides data only on total chemicals by country, the chemical production index in the U.K. rose 4.3% to 117.8, the highest growth of any of the European national chemical industries. Belgium increased 3.4% to 131.3; Spain, 2.3% to 116.1; Italy, 2.1% to 98.0; Germany, 1.4% to 109.0; and France, 0.6% to 108.1. The index for the Netherlands was unchanged from 2003 at 124.0.

In Asia, output of Japan's chemical industry rose just 1.4% to an index of 98.7, and within the industry sectors, the star performer was plastics, up 3.2% to 94.3. South Korea's chemical production index increased 4.9% to 134.5.

Canada and Taiwan had the best growth in overall chemical output among the countries. Canada's chemical industry turned out 6.8% more product in 2004 than it did in 2003 as shown by its index, which increased to 136.1. And Taiwan in-

creased chemical production 10.0% to 146.8. The basic chemicals sector was the best performer in both countries, rising 8.4% in Canada to 122.1 and 12.4% in Taiwan to 150.1.

The increase in basic chemical production around the world was bolstered by output of ethylene, the largest volume petrochemical, which garnered double-digit increases in many countries. In the U.S., for instance, ethylene production rose 11.8% to 25.7 million metric tons.

In Canada, ethylene output rose 7.7% to 5.10 million metric tons. In Asia, Taiwanese ethylene production was

up 6.9% to 2.86 million metric tons. Output improved only 2.8% in Japan to 7.57 million metric tons and 1.2% in South Korea to 5.94 million metric tons. China's ethylene output rose only 2.4%, however, to 6.27 million metric tons. In the European Union, ethylene output rose just 2.6% to 21.4 million metric tons.

Downstream from petrochemicals, some plastics showed very good growth last year. In the U.S., high-density polyethylene output rose 11.4% to 7.94 million

metric tons, whereas linear low-density polyethylene production increased 10.8% to 5.60 million metric tons, and plain-old low-density polyethylene production improved 6.6% to 3.77 million metric tons.

In Canada, production of high-, low-, and linear low-density polyethylene combined rose 16.3% to 3.59 million metric tons.

Japan saw output of polyethylene terephthalate increase 11.1% to 1.20 million metric tons. Epoxy and phenolic resin production rose 10.3% to 215,000 metric tons and 10.0% to 287,000 metric tons, respectively. And in Taiwan, polyurethane resin output rose 10.9% to 214,000 metric tons, and production of low-density polyethylene increased 13.6% to 609,000 metric tons.

In South Korea, production growth of many products lagged behind other countries. For example, the best growth of any of the South Korean-produced plastics was 4.9% for low-density polyethylene. Production of the resin totaled 1.71 million metric tons.

Some inorganic chemicals also saw strong growth in 2004, but these were generally fewer than in the organic chemical industry. In the U.S., for instance, only six of 15 products surveyed had production increases of more than 2% last year. Growth for three of these, though—chlorine, hydrochloric acid, and hydrogen—was in the double digits. Hydrogen output rose 23.0% to 17.7 billion cu meters. Hydrochloric acid production rose 19.9% to 5.01 million metric tons; and the U.S. produced 12.2 million metric tons of chlorine, up 17.5% from 2003.

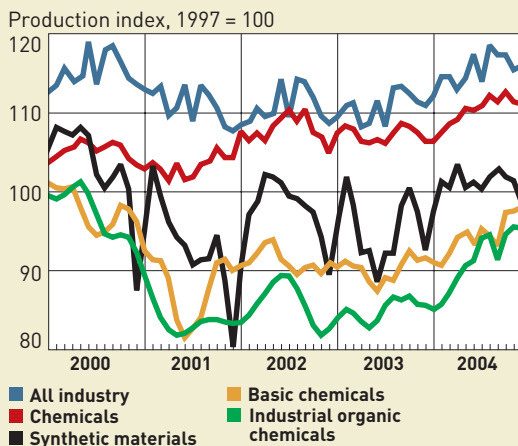
In Canada, ammonia was up 12.1% to 5.0 million metric tons, while sulfuric acid production rose 13.5% to 3.93 million metric tons.



FACTS & FIGURES

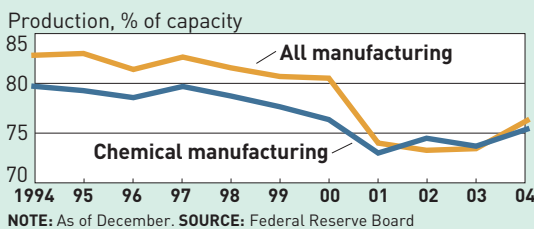
## U.S. PRODUCTION

Nearly all major categories rose during 2004



## U.S. PLANT USE

Chemical capacity utilization picked up, but lags behind all manufacturing by a hair



## PRODUCTION

### U.S. PRODUCTION INDEX

Organic chemicals and synthetic materials rose faster than total manufacturing

PRODUCTION INDEX, 1997=100												ANNUAL CHANGE	
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2003-04	1994-04
Total index	85.3	89.4	93.2	100.0	105.8	110.6	115.4	111.3	111.0	110.9	115.5	4.1%	3.1%
Manufacturing, total	83.3	87.9	92.2	100.0	106.8	112.3	117.6	112.7	112.7	118.1	118.1	4.8	3.6
Nondurable manufacturing	94.5	96.2	96.4	100.0	101.5	102.2	102.8	99.4	99.6	98.1	100.1	2.0	0.6
Chemicals	91.1	92.5	94.4	100.0	101.7	103.7	105.3	103.4	107.9	107.2	110.3	2.9	1.9
Basic chemicals	93.1	93.1	93.0	100.0	96.6	101.4	97.9	88.1	91.2	90.2	94.4	4.7	0.1
Alkalies & chlorine	97.3	103.9	109.3	100.0	98.8	129.0	119.3	100.3	149.7	136.1	143.3	5.3	4.0
Synthetic dyes & pigments	100.1	95.8	95.5	100.0	98.7	95.2	98.2	91.0	105.7	101.8	108.4	6.5	0.8
Other basic inorganic chemicals	90.1	93.8	96.6	100.0	104.1	109.8	99.8	95.5	94.3	93.0	92.2	-0.9	0.2
Organic chemicals	91.0	90.4	89.9	100.0	91.5	98.4	97.2	83.9	85.7	85.0	91.3	7.4	0.0
Synthetic materials <sup>a</sup>	95.5	96.1	94.0	100.0	104.3	105.2	103.3	93.2	97.6	95.4	101.0	5.9	0.6
Plastic material & resin	93.0	93.9	90.8	100.0	108.2	112.2	111.5	101.0	108.7	105.3	112.0	6.4	1.9
Artificial & synthetic fibers	104.3	105.4	105.7	100.0	100.7	90.8	84.6	79.1	67.1	67.3	68.8	2.2	-4.1
Chemical products	86.7	90.4	94.7	100.0	105.0	106.5	110.4	116.2	123.5	122.6	125.3	2.2	3.8
Pharmaceuticals & medicines	86.2	89.7	95.0	100.0	108.8	113.1	117.6	126.5	134.4	132.6	135.8	2.4	4.7
Soaps & toiletries	87.1	91.8	94.5	100.0	98.5	94.6	97.6	99.3	106.6	107.4	107.5	0.1	2.1
Paint & coatings	102.6	99.5	99.3	100.0	100.2	98.3	98.0	95.8	93.4	98.7	98.4	-0.3	-0.4
Pesticide, fertilizer & other agricultural chemicals	94.9	94.6	96.4	100.0	102.2	92.2	86.9	80.0	81.0	81.0	81.2	0.2	-1.5

<sup>a</sup> Includes synthetic rubber. SOURCE: Federal Reserve Board

### ASIA PRODUCTION INDEX

The industry mostly grew, particularly in Taiwan

PRODUCTION INDEX, 1997=100												ANNUAL CHANGE	
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2003-04	1994-04
<b>JAPAN</b>													
Mining & manufacturing	91.3	94.3	96.5	100.0	92.9	93.6	99.1	91.3	91.0	93.0	98.1	5.5%	0.7%
All chemicals <sup>a</sup>	89.4	94.5	95.7	100.0	94.9	98.3	98.9	95.8	95.9	97.3	98.7	1.4	1.0
Petrochemicals	84.4	92.9	94.5	100.0	94.5	99.3	99.1	94.5	95.7	98.4	101.0	2.7	1.8
Aromatics	78.9	89.0	85.5	100.0	93.9	100.9	100.1	97.7	101.0	106.5	109.9	3.2	3.4
Industrial sodium chemicals	92.5	97.3	95.7	100.0	95.7	97.2	98.2	91.0	92.6	93.8	93.8	0.0	0.1
Inorganic chemicals & dyes	94.5	98.5	96.8	100.0	97.7	103.3	106.8	101.8	103.8	106.3	108.8	2.4	1.4
Organic chemicals	82.0	90.4	93.2	100.0	96.6	101.9	100.6	94.3	94.8	100.0	100.7	0.7	2.1
Cyclic intermediates & dyes	89.3	96.9	96.8	100.0	95.1	98.2	97.7	93.9	95.1	96.6	98.9	2.4	1.0
Plastics	86.5	92.6	89.8	100.0	92.2	94.8	96.4	91.0	91.0	91.4	94.3	3.2	0.9
Synthetic rubber	84.9	94.1	95.5	100.0	95.5	99.1	99.9	92.0	96.1	99.6	102.1	2.5	1.9
Fertilizers	103.8	104.2	101.8	100.0	90.9	88.1	87.1	80.6	75.8	69.5	69.8	0.5	-3.9

#### SOUTH KOREA

All manufacturing	78.9	88.3	95.9	100.0	93.4	116.8	136.8	137.1	148.3	156.0	172.4	10.7%	8.1%
Chemicals & chemical products	74.4	79.5	89.0	100.0	96.6	106.6	113.0	116.0	123.4	128.1	134.5	4.9	6.1
Rubber & plastic products	88.2	92.6	98.1	100.0	79.2	93.1	99.4	101.9	108.5	111.3	115.0	3.3	2.7

#### TAIWAN

All manufacturing	86.3	90.8	93.3	100.0	103.2	111.2	120.2	110.1	120.4	129.4	143.2	10.6%	5.2%
Chemicals	83.6	88.6	93.8	100.0	102.9	112.6	120.5	129.4	137.1	145.8	146.8	10.0	5.1
Basic chemicals	84.0	88.7	95.9	100.0	98.9	107.5	120.9	123.5	125.4	133.5	150.1	12.4	6.0
Petrochemicals	85.2	89.0	95.5	100.0	101.2	118.5	133.4	163.8	175.4	197.8	213.6	8.0	9.6
Fertilizers	88.1	94.7	96.5	100.0	92.3	85.0	83.0	77.5	74.2	73.8	71.4	-3.2	-2.1
Man-made fibers	82.8	85.6	91.1	100.0	105.5	107.6	111.8	107.7	112.2	111.8	116.8	4.5	3.5
Plastics & resins	84.8	91.5	95.1	100.0	103.3	113.2	117.8	118.0	125.3	129.0	137.0	6.3	4.9
Synthetic rubber	60.9	77.1	80.3	100.0	103.3	109.0	102.4	105.5	115.8	120.8	129.1	6.9	7.8

<sup>a</sup> Excludes pharmaceuticals. SOURCES: Japan's Ministry of Economy, Trade & Industry; National Statistical Office, Republic of Korea; Taiwan's Ministry of Economic Affairs, Department of Statistics

## EUROPE PRODUCTION INDEX

Production growth picked up in most major producing countries

### CHEMICAL PRODUCTION INDEX,

1997 = 100	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Belgium	80.4	87.9	90.2	100.0	101.2	108.1	119.9	116.5	127.2	127.0	131.3	3.4%	5.0%
France	91.8	93.8	96.2	100.0	105.1	107.5	112.5	109.9	108.7	107.5	108.1	0.6	1.6
Germany	89.6	89.8	94.4	100.0	100.2	104.5	107.5	104.9	107.5	107.5	109.0	1.4	2.0
Italy	91.8	94.6	96.6	100.0	100.2	100.4	101.8	98.3	98.3	95.0	98.0	2.1	1.6
Netherlands	93.9	100.0	95.6	100.0	100.0	107.0	116.0	117.0	124.0	124.0	124.0	0.0	2.8
Spain	91.3	93.4	93.5	100.0	103.6	107.7	106.2	107.1	110.3	113.5	116.1	2.3	2.4
U.K.	92.9	97.7	98.2	100.0	101.6	104.9	109.3	113.2	112.3	112.9	117.8	4.3	2.4

SOURCES: European Chemical Industry Council, national chemical associations

## CANADA PRODUCTION INDEX

Chemicals outperformed other manufacturing sectors in 2004

### PRODUCTION INDEX,

1997 = 100	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
All manufacturing	88.4	92.9	93.9	100.0	105.0	113.5	126.2	120.0	122.3	122.4	127.3	4.0%	3.7%
Chemicals	94.5	99.3	99.8	100.0	100.9	105.1	116.8	119.8	124.6	127.4	136.1	6.8	3.7
Basic chemicals	91.0	97.6	93.0	100.0	98.2	97.8	112.5	111.1	111.8	112.7	122.1	8.4	3.0
Pharmaceuticals & medicines	92.4	96.8	96.6	100.0	95.3	111.2	133.8	173.7	208.4	216.5	220.1	1.7	9.1

SOURCE: Statistics Canada

## U.S. ORGANICS

Ethylene dichloride and 1,3-butadiene increased more than 15%

### THOUSANDS OF METRIC TONS UNLESS OTHERWISE NOTED

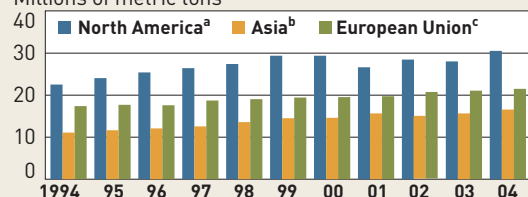
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Acrylonitrile	1,373	1,455	1,530	1,493	1,415	1,415	1,551	1,343	1,239	1,501	1,598	6.4%	10.8%
Aniline <sup>a</sup>	573	631	489	607	701	719	846	865	921	969	813	-16.1	3.6
Benzene (liters) <sup>b,c</sup>	7,850	8,206	8,009	8,864	8,467	9,088	9,156	7,271	8,130	7,926	8,781	10.8	1.1
1,3-Butadiene <sup>d</sup>	1,531	1,670	1,744	1,863	1,844	1,942	2,009	1,721	1,869	1,901	2,204	15.9	3.7
Cumene	2,366	2,551	2,667	2,776	3,045	3,162	3,741	3,186	3,503	3,397	3,736	10.0	4.7
Ethylbenzene <sup>a</sup>	4,880	6,194	4,699	5,432	5,743	5,945	5,967	4,642	5,412	5,578	5,779	3.6	1.7
Ethylene	20,231	21,303	22,270	23,169	23,614	25,300	25,113	22,513	23,644	22,976	25,682	11.8	2.4
Ethylene dichloride <sup>a</sup>	7,603	7,830	5,142	11,927	11,140	10,358	9,911	9,336	9,328	9,994	12,163	21.7	4.8
Ethylene oxide	3,283	3,457	3,284	3,738	3,692	4,030	3,867	3,343	3,447	3,660	3,772	3.0	1.4
Propylene <sup>e</sup>	10,860	11,653	11,390	12,489	13,014	13,202	14,457	13,176	14,425	13,939	15,345	10.1	3.5
Styrene	5,123	5,165	5,386	5,156	5,166	5,397	5,405	4,214	4,899	5,167	5,394	4.4	0.5
Urea <sup>f</sup>	7,214	7,366	7,755	7,533	8,042	8,080	6,969	6,080	7,038	5,783	5,755	-0.5	-2.2
Vinyl acetate	1,377	1,312	1,322	1,331	1,333	1,378	1,497	1,188	1,349	1,306	1,431	9.6	0.4

<sup>a</sup> Reporting method changed in 1996; data may not be comparable with preceding years. <sup>b</sup> Tar distillers and coke-oven operators not included. <sup>c</sup> Specification grades. <sup>d</sup> Rubber grade. <sup>e</sup> All grades. <sup>f</sup> Data from 1995 on are from the Bureau of the Census. SOURCES: National Petroleum Refiners Association, Bureau of the Census

## ETHYLENE PRODUCTION

Output picked up around the world

Millions of metric tons



<sup>a</sup> U.S. and Canada. <sup>b</sup> Japan, South Korea, and Taiwan. <sup>c</sup> European Union. SOURCE: Association of Petrochemical Producers in Europe

## PRODUCTION

### CANADA ORGANICS

Major products such as ethylene, benzene, and urea rose sharply

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Benzene	770	781	758	715	718	805	859	751	849	843	915	8.5%	1.7%
Butadiene	170	205	212	219	236	230	252	245	276	276	289	4.7	5.4
Ethylene	2,716	3,130	3,202	3,244	3,557	3,881	4,069	4,261	4,734	4,729	5,095	7.7	6.5
Formaldehyde	168	na	195	210	228	211	194	179	212	245	269	9.8	4.8
Propylene	725	822	822	859	1,038	1,000	934	882	956	938	939	0.1	2.6
Toluene	288	283	303	321	222	260	218	222	256	289	na	na	na
Urea	3,153	3,331	3,281	3,470	3,714	3,783	3,887	3,363	3,436	3,311	3,654	10.4	1.5
Xylenes	356	434	384	362	308	253	312	271	294	336	351	4.5	-0.0

na = not available. SOURCE: Statistics Canada

### EUROPE ORGANICS

Ethylene continued to be highest-volume product

THOUSANDS OF METRIC TONS	1995	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003	2004 <sup>b</sup>	ANNUAL CHANGE	
											2003-04	1995-04
Acetic acid	703	589	781	584	593	754	495	716	676	876	nm	nm
Acetone	874	992	1,173	1,254	1,307	1,325	404	1,011	1,235	564	nm	nm
Acrylonitrile	na	na	788	752	695	721	360	na	266	na	nm	nm
Benzene	3,257	3,617	3,561	3,345	3,705	4,565	6,670	6,817	6,535	4,265	nm	nm
Butadiene	1,939	1,906	1,939	1,971	2,027	2,097	1,992	2,024	2,131	2,222	nm	nm
1-Butanol	141	140	164	188	44	67	531	575	542	535	nm	nm
Ethylbenzene	na	na	679	684	937	149	1,180	769	911	858	nm	nm
Ethylene	17,707	17,748	18,537	18,980	19,362	19,444	19,674	20,159	20,686	21,408	nm	nm
Ethylene dichloride	251	413	902	860	1,056	1,122	2,759	3,358	3,374	3,276	nm	nm
Ethylene glycol	351	365	506	1,171	1,177	1,195	268	239	857	277	nm	nm
Ethylene oxide	148	190	634	644	592	637	934	717	792	874	nm	nm
Formaldehyde	889	735	808	824	947	954	2,463	3,299	3,295	1,461	nm	nm
Methanol	2,625	1,046	2,365	2,242	869	1,148	2,030	1,844	2,009	1,823	nm	nm
Phenol	909	951	na	1,391	na	na	689	797	724	827	nm	nm
Phthalic anhydride	213	182	414	446	446	488	371	442	430	259	nm	nm
Propylene	11,884	12,037	12,624	12,885	13,153	13,330	13,352	14,107	14,708	15,123	nm	nm
Propylene glycol	323	328	361	351	429	443	316	305	329	348	nm	nm
Propylene oxide	410	398	819	727	845	908	735	777	861	1,048	nm	nm
Styrene	na	na	3,025	3,152	2,989	3,215	958	3,078	3,215	1,666	nm	nm
Toluene	1,329	1,161	209	1,130	1,172	1,155	886	919	848	853	nm	nm
Vinyl acetate	na	na	391	469	718	644	457	667	502	154	nm	nm
Xylenes	240	129	1,368	2,514	2,497	2,602	579	1,122	626	594	nm	nm

<sup>a</sup> Data for 2002 restated to reflect expansion of the European Union to 25 countries; previous years' data are for EU15. <sup>b</sup> Germany, France, and U.K. only. na = not available. nm = not meaningful. SOURCES: European Union and national government statistics offices, Association of Petrochemicals Producers in Europe

### CHINA ORGANICS

Methanol production maintained healthy growth

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
									2003-04	1997-04
Benzene (pure)	1,358	1,341	1,535	1,850	1,988	2,131	2,408	2,556	6.1%	9.5%
Caprolactam	100	120	109	164	152	170	201	228	13.4	12.5
Ethylene	3,585	3,772	4,348	4,743	4,807	5,414	6,118	6,266	2.4	8.3
Methanol (refined)	1,743	1,581	1,794	1,967	2,065	2,110	2,989	4,406	47.4	14.2

SOURCE: China National Chemical Information Center

## ASIA ORGANICS

Strong growth of petrochemicals in Taiwan, but Japan leveled off

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
<b>JAPAN</b>													
Acetic acid	519	574	599	620	654	644	675	594	569	592	589	-0.5%	1.3%
Acetone	354	396	417	458	459	507	508	476	472	492	539	9.6	4.3
Acrylonitrile	610	663	675	730	667	738	732	738	708	780	711	-8.8	1.5
Benzene <sup>a</sup>	3,620	4,013	4,177	4,502	4,203	4,459	4,425	4,261	4,313	4,551	4,758	4.5	2.8
Butadiene	856	991	1,025	1,052	977	1,035	1,044	976	993	1,062	1,041	-2.0	2.0
Butanol	380	424	415	447	424	495	461	472	476	519	506	-2.5	2.9
Caprolactam	519	545	555	556	519	581	599	531	508	530	503	-5.1	-0.3
Cyclohexane	640	681	639	721	652	688	673	598	607	685	676	-1.3	0.5
Ethylene	6,125	6,944	7,138	7,416	7,076	7,687	7,614	7,361	7,152	7,367	7,570	2.8	2.1
Ethylene dichloride	2,792	2,932	3,116	3,491	3,491	3,503	3,431	3,275	3,352	3,463	3,594	3.8	2.6
Ethylene glycol	567	709	751	886	920	922	930	787	733	814	786	-3.4	3.3
Ethylene oxide	716	803	840	952	953	976	990	891	868	939	941	0.2	2.8
Octanol	305	321	331	321	285	315	278	262	302	306	307	0.3	0.1
Phenol	675	771	768	833	851	888	916	884	891	926	966	4.3	3.6
Phthalate plasticizers	444	462	484	481	398	417	396	369	377	382	357	-6.5	-2.2
Phthalic anhydride	308	316	342	330	301	301	290	259	262	262	257	-1.9	-1.8
Polypropylene glycol	283	304	296	295	274	302	304	294	299	314	346	10.2	2.0
Propylene	4,435	4,956	5,143	5,409	5,101	5,520	5,453	5,342	5,309	5,610	5,767	2.8	2.7
Purified terephthalic acid	1,579	1,681	1,561	1,663	1,616	1,547	1,527	1,496	1,624	1,443	1,531	6.1	-0.3
Styrene	2,598	2,939	3,085	3,035	2,770	3,055	2,968	3,004	3,016	3,201	3,345	4.5	2.6
Toluene <sup>a</sup>	1,219	1,374	1,370	1,419	1,349	1,488	1,489	1,423	1,548	1,584	1,634	3.2	3.0
Toluene diisocyanate	144	160	166	192	192	192	214	214	223	230	245	6.5	5.5
Xylene <sup>a</sup>	3,627	4,154	3,931	4,634	4,340	4,641	4,681	4,798	4,900	5,213	5,395	3.5	4.1
<i>p</i> -Xylene	2,199	2,476	2,329	2,921	2,754	2,969	2,920	2,814	2,920	3,097	3,164	2.2	3.7
<b>SOUTH KOREA</b>													
Benzene	1,255	1,285	1,407	1,819	2,412	2,572	2,834	2,650	2,852	3,246	3,462	6.7%	10.7%
Butadiene	547	555	601	658	731	764	808	777	816	860	917	6.6	5.3
Ethylene	3,667	3,721	3,968	4,450	5,110	5,216	5,439	5,398	5,636	5,872	5,945	1.2	5.0
Propylene	2,095	2,131	2,244	2,760	3,247	3,282	3,409	3,273	3,557	3,753	3,892	3.7	6.4
Vinyl chloride	687	675	709	911	984	1,017	1,133	1,392	1,416	1,441	1,498	4.0	8.1
<b>TAIWAN</b>													
Acrylonitrile	153	156	180	180	167	175	186	292	339	352	379	7.7%	9.5%
Benzene	422	489	511	506	415	605	690	1,070	931	998	1,088	9.0	9.9
Butadiene	127	121	129	130	122	190	220	349	346	390	412	5.6	12.5
Caprolactam	104	108	104	114	123	119	171	184	186	216	216	0.0	7.6
Dioctyl phthalate	205	140	193	274	270	269	198	280	257	243	239	-1.6	1.5
Ethylene	889	874	906	959	935	1,296	1,592	2,584	2,393	2,679	2,864	6.9	12.4
Ethylene glycol	179	192	194	193	206	301	612	1,036	939	1,169	1,459	24.8	23.3
Propylene	532	474	514	553	545	765	930	1,410	1,462	1,752	1,995	13.9	14.1
Purified terephthalic acid	1,793	2,140	2,210	2,345	2,433	2,769	3,140	3,217	3,705	4,079	4,620	13.3	9.9
Styrene	386	425	411	464	386	806	956	1,146	1,249	1,274	1,247	-2.1	12.4
Toluene	39	20	13	43	23	18	26	54	42	64	140	118.8	13.6
Vinyl chloride	851	802	1,013	927	1,018	1,288	1,410	1,452	1,557	1,718	1,763	2.6	7.6

<sup>a</sup> Petroleum and nonpetroleum sources. **SOURCES:** Japan's Ministry of Economy, Trade & Industry; National Statistical Office, Republic of Korea; Petrochemical Industry Association of Taiwan; Taiwan Ministry of Economic Affairs

## PRODUCTION

### U.S. INORGANICS

Hydrogen, hydrochloric acid, and chlorine had double-digit increases

THOUSANDS OF METRIC TONS UNLESS OTHERWISE NOTED	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004 <sup>a</sup>	ANNUAL CHANGE	
												2003-04	1994-04
Aluminum sulfate <sup>b</sup>	1,034	1,038	1,086	1,053	1,058	1,085	976	1,019	1,053	961	922	-4.0%	-1.1%
Ammonia <sup>c,d</sup>	16,207	15,785	16,256	16,227	16,757	15,725	14,339	11,090	12,574	10,466	10,762	2.8	-4.0
Ammonium nitrate <sup>e</sup>	7,771	7,700	7,708	7,804	8,235	6,920	7,237	5,833	6,436	5,733	6,021	5.0	-2.5
Ammonium sulfate <sup>f</sup>	2,344	2,401	2,414	2,451	2,528	2,357	2,547	2,347	2,671	2,604	2,643	1.5	1.2
Chlorine <sup>g</sup>	11,054	11,242	11,301	11,720	11,647	12,111	12,698	11,487	11,681	10,359	12,166	17.5	1.0
Hydrochloric acid <sup>h</sup>	3,405	3,541	3,733	4,145	4,226	4,081	4,278	3,969	4,037	4,179	5,012	19.9	3.9
Hydrogen (mcm), 100% <sup>i,j</sup>	9,373	9,968	10,930	14,895	15,631	12,856	13,139	13,451	13,564	14,385	17,698	23.0	6.6
Nitric acid, 100% <sup>k</sup>	7,904	8,018	8,349	8,556	8,421	8,113	7,898	6,416	6,939	6,747	6,703	-0.7	-1.6
Nitrogen gas (mcm), 100% <sup>l,l</sup>	24,636	23,900	23,107	22,908	24,664	24,296	26,590	26,222	26,023	26,561	26,675	0.4	0.8
Oxygen (mcm), 100% <sup>l,l</sup>	17,132	17,840	19,312	21,040	19,142	19,397	18,859	16,367	17,160	19,765	19,539	-1.1	1.3
Phosphoric acid, P <sub>2</sub> O <sub>5</sub>	11,602	11,913	11,981	11,935	12,599	12,433	11,330	10,472	11,146	11,324	11,463	1.2	-0.1
Sodium chlorate	507	560	600	568	707	742	853	792	721	668	658	-1.5	2.6
Sodium hydroxide	11,373	10,347	10,488	9,953	11,893	11,971	10,451	9,811	9,459	8,793	9,508	8.1	-1.8
Sodium sulfate <sup>m</sup>	591	645	602	640	571	599	462	512	500	466	473	1.6	-2.2
Sulfuric acid <sup>n</sup>	40,645	43,100	43,327	43,472	44,000	40,594	39,584	36,338	36,062	37,373	37,515	0.4	-0.8

**a** Preliminary data. **b** Commercial, 17% Al<sub>2</sub>O<sub>3</sub>. **c** Synthetic anhydrous. **d** Excludes by-product ammonia liquor and ammonium sulfate. **e** Original solution. **f** Synthetic and noncoke by-product. **g** Includes quantities liquefied for use, storage, or shipment. **h** Includes anhydrous hydrochloric acid production. **i** High- and low-purity gas. **j** Liquid and gas; excludes amounts vented and used as fuel and amounts produced in petroleum refineries for captive use. **k** Includes unspecified amounts produced but not withdrawn from the system. **l** Excludes amounts produced and consumed in making synthetic ammonia or ammonia derivatives. **m** Anhydrous, high and low purity, and Glauber's salt. **n** Gross (new and fortified). **mcm** = millions of cubic meters.  
**SOURCES:** Department of Commerce, Bureau of the Census

### CANADA INORGANICS

Growth in 2004 was stronger than usual, for the most part

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Aluminum sulfate	174	171	172	162	191	205	167	170	176	171	167	-2.3%	-0.4%
Ammonia	4,384	4,655	4,682	4,768	4,737	4,889	4,888	4,297	4,501	4,455	4,996	12.1	1.3
Ammonium nitrate	938	1,031	1,059	979	1,000	1,052	1,110	1,174	1,152	1,031	1,096	6.3	1.6
Carbon black	167	176	185	205	217	218	229	215	215	205	223	8.8	2.9
Chlorine	1,074	1,131	1,119	1,067	989	1,065	1,079	1,054	1,095	994	1,057	6.3	-0.2
Hydrochloric acid	134	138	147	142	149	157	155	143	151	153	149	-2.6	1.1
Hydrogen peroxide	143	145	156	179	199	228	237	203	222	226	244	8.0	5.5
Nitric acid	910	991	1,039	1,002	935	1,007	1,074	1,054	1,143	1,105	1,219	10.3	3.0
Sodium chlorate	962	1,020	926	1,038	1,012	1,048	1,107	1,082	1,055	1,129	1,183	4.8	2.1
Sodium hydroxide	1,153	1,182	1,154	1,099	1,015	1,082	1,094	1,074	1,111	1,059	1,146	8.2	-0.1
Sulfuric acid	4,065	4,220	4,278	4,088	4,333	4,194	3,804	3,846	3,887	3,465	3,933	13.5	-0.3

**SOURCE:** Statistics Canada

### 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](http://www.cen-online.org), that is, where you can access downloadable versions of these tables.

## EUROPE INORGANICS

Chlorine growth shows no sign of slowing

THOUSANDS OF METRIC TONS UNLESS OTHERWISE NOTED	1994	1995	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003	2004 <sup>b</sup>	ANNUAL CHANGE	
												2003-04	1994-04
Carbon black	364	775	687	1,243	1,386	1,322	1,342	1,059	1,025	1,009	738	nm	nm
Chlorine	na	9,093	8,959	9,386	9,190	9,219	9,697	9,265	9,222	9,525	9,856	nm	nm
Hydrochloric acid	1,013	1,248	1,540	1,907	1,830	2,098	2,050	2,608	4,142	3,784	2,457	nm	nm
Hydrogen (mcm)	950	2,043	1,904	1,883	2,124	2,252	2,196	5,553	7,519	8,962	4,511	nm	nm
Hydrogen peroxide	53	227	143	133	248	438	847	372	655	736	229	nm	nm
Nitrogen (mcm)	1,237	7,457	11,398	11,950	10,490	7,422	8,091	12,829	13,942	17,807	12,407	nm	nm
Oxygen (mcm)	1,415	5,814	7,044	10,610	4,674	5,592	5,965	12,678	19,026	22,554	13,672	nm	nm
Phosphoric acid <sup>c</sup>	483	548	615	599	526	995	692	2,463	3,921	3,574	305	nm	nm
Sodium carbonate	na	1,526	1,592	1,589	4,998	4,567	4,401	1,451	1,493	3,874	1,439	nm	nm
Sodium hydroxide	2,555	5,656	5,785	6,197	6,090	5,418	5,780	6,756	9,114	7,937	5,622	nm	nm
Sodium sulfate	1,209	1,506	1,930	2,718	2,748	2,237	2,314	1,806	2,951	3,082	873	nm	nm
Sulfuric acid <sup>d</sup>	3,518	4,918	5,795	6,586	6,832	7,109	6,598	8,157	13,835	12,746	4,816	nm	nm
Titanium oxides	na	na	na	na	415	433	538	na	440	419	439	nm	nm

<sup>a</sup> Data for 2002 restated to reflect expansion of the European Union to 25 countries; previous years' data are for EU15. <sup>b</sup> Germany, France, and U.K. only.

<sup>c</sup> As P<sub>2</sub>O<sub>5</sub>. <sup>d</sup> As SO<sub>3</sub>. **mcm** = millions of cubic meters. **na** = not available. **nm** = not meaningful.

**SOURCES:** European Union and national government statistics offices, EuroChlor

## JAPAN INORGANICS

Hydrogen peroxide grew strongly, whereas chlorine continued to shrink

THOUSANDS OF METRIC TONS UNLESS OTHERWISE NOTED	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Ammonia	1,713	1,831	1,811	1,836	1,689	1,685	1,715	1,604	1,450	1,291	1,340	3.8%	-2.4%
Ammonium sulfate <sup>a</sup>	1,710	1,771	1,756	1,780	1,618	1,716	1,749	1,585	1,564	1,570	1,526	-2.8	-1.1
Carbon black	698	757	757	776	723	761	788	742	755	788	804	2.0	1.4
Chlorine, liquid	872	942	894	928	881	875	847	777	754	723	619	-14.4	-3.4
Hydrochloric acid	2,370	2,469	2,416	2,539	2,408	2,448	2,494	2,342	2,317	2,363	2,324	-1.7	-0.2
Hydrogen peroxide	142	143	143	141	140	145	151	159	167	176	196	11.4	3.3
Nitrogen (mcm)	9,098	9,130	9,314	9,676	9,716	9,855	10,290	10,296	10,455	10,835	11,281	4.1	2.2
Oxygen (mcm)	8,277	8,598	8,904	9,795	9,188	9,534	10,655	10,373	10,720	11,250	11,278	0.2	3.1
Sodium hydroxide	3,786	4,004	4,062	4,391	4,252	4,345	4,471	4,291	4,271	4,369	4,493	2.8	1.7
Sodium silicate	831	836	800	795	765	769	720	679	622	596	577	-3.2	-3.6
Sulfuric acid	6,594	6,888	6,851	6,828	6,739	6,943	7,059	6,727	6,763	6,534	6,444	-1.4	-0.2
Titanium dioxide	238	249	238	241	251	269	270	257	240	253	253	0.0	0.6

<sup>a</sup> Agricultural and nonagricultural use. **mcm** = millions of cubic meters. **SOURCE:** Ministry of Economy, Trade & Industry

## CHINA INORGANICS

Production of inorganic chemicals grew rapidly for another year

THOUSANDS OF METRIC TONS	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
									2003-04	1997-04
Hydrochloric acid (31%)	3,843	3,801	3,960	4,454	4,705	4,926	5,276	6,007	13.9%	6.6%
Sodium carbonate	7,285	7,368	7,486	9,199	9,144	10,189	11,075	12,668	14.4	8.2
Sodium hydroxide	5,483	5,184	5,495	7,123	7,880	8,227	9,399	10,603	12.8	9.9
Sulfuric acid	19,460	20,519	21,589	23,888	26,963	29,674	33,191	38,249	15.2	10.1

**SOURCE:** China National Chemical Information Center

## PRODUCTION

### U.S. PLASTICS

Linear low-density polyethylene and high-density polyethylene led thermoplastic growth

THOUSANDS OF METRIC TONS <sup>a</sup>	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
<b>THERMOPLASTIC RESINS</b>													
<b>Polyethylene</b>													
Low-density <sup>b,c</sup>	2,077	3,467	3,531	3,489	3,437	3,493	3,436	3,491	3,647	3,540	3,773	6.6%	6.2%
Linear low-density <sup>b,c</sup>	2,278	2,378	2,885	3,124	3,278	3,677	3,607	4,659	5,139	5,052	5,597	10.8	9.4
High-density <sup>c,d</sup>	5,043	5,085	5,612	5,696	5,862	6,289	6,336	6,933	7,243	7,125	7,940	11.4	4.6
Polypropylene <sup>e</sup>	4,327	4,940	5,439	6,042	6,271	7,028	7,139	7,228	7,691	8,013	8,401	4.8	6.9
<b>Styrene polymers</b>													
Polystyrene <sup>f</sup>	2,653	2,566	2,751	2,894	2,829	2,935	3,104	2,773	3,025	2,900	3,059	5.5	1.4
Styrene-acrylonitrile <sup>g</sup>	63	59	55	44	55	56	58	58	59	55	60	9.1	-0.4
Acrylonitrile-butadiene-styrene & other styrene polymers <sup>g,h</sup>	1,465	1,319	1,347	1,359	1,447	1,406	1,415	1,240	1,323	1,296	1,403	8.2	-0.4
Polyamine, nylon type	428	463	500	554	583	612	581	517	578	580	573	-1.3	3.0
Polyvinyl chloride & copolymers <sup>e</sup>	5,312	5,577	5,996	6,388	6,578	6,764	6,551	6,467	6,939	6,669	7,257	8.8	3.2
<b>THERMOSETTING RESINS</b>													
Epoxy <sup>i</sup>	273	287	300	297	290	298	314	273	297	262	293	11.6%	0.7%
Urea & melamine	1,005	955	1,104	1,197	1,302	1,354	1,437	1,379	1,460	1,440	1,504	4.5	4.1
Phenolic	1,465	1,543	1,577	1,694	1,787	1,990	1,974	1,979	2,013	2,015	2,101	4.3	3.7

**NOTE:** Totals are for those products listed and exclude some small-volume plastics. **a** Dry-weight basis unless otherwise specified. **b** Density 0.940 and below. **c** Data include Canada from 2001. **d** Density above 0.940. **e** Data include Canada from 1995. **f** Data include Canada from 2000. **g** All data include Canada. **h** Includes styrene-butadiene copolymers and other styrene-based polymers. **i** Unmodified. **SOURCE:** American Plastics Council

### CANADA PLASTICS

Polyethylene rebounded in 2004

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Polyesters, unsaturated	60	58	61	71	82	108	120	115	113	139	100	-28.1%	5.2%
Polyethylene <sup>a</sup>	1,908	2,073	2,194	2,195	2,283	2,485	2,751	3,035	3,330	3,083	3,587	16.3	6.5
Polystyrene <sup>b</sup>	177	189	209	181	180	200	203	186	195	183	207	13.1	1.6

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

### EUROPE PLASTICS

Output of polyethylene, polyvinyl chloride, and polypropylene climbed steadily through 2003

THOUSANDS OF METRIC TONS	1995	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003	2004 <sup>b</sup>	ANNUAL CHANGE	
											2003-04	1995-04
Polyethylene	2,832	3,000	8,508	9,731	10,223	10,579	11,487	11,599	11,942	3,600	nm	nm
Polystyrene	891	1,044	1,117	1,090	675	331	2,410	2,550	2,540	839	nm	nm
Acrylonitrile-butadiene-styrene	643	604	762	859	971	1,038	466	793	495	211	nm	nm
Polyvinyl chloride	3,905	4,322	4,792	2,651	3,209	4,893	5,681	6,531	6,694	3,512	nm	nm
Epoxy resins	340	282	373	334	393	419	215	464	356	121	nm	nm
Polypropylene	na	na	na	4,158	6,524	6,984	7,526	8,113	8,638	3,958	nm	nm
Polyamides	441	843	1,652	1,494	766	1,412	1,209	1,833	1,769	1,207	nm	nm
Synthetic rubber	1,753	1,946	2,419	2,245	2,239	2,342	2,691	3,250	3,713	2,145	nm	nm

**a** Data for 2002 restated to reflect expansion of the European Union to 25 countries; previous years' data are for EU15. **b** Germany, France, and U.K. only. **na** = not available. **nm** = not meaningful. **SOURCES:** European Union and national government statistics offices, Association of Plastics Manufacturers in Europe



## ASIA PLASTICS

Production of most plastics grew in Japan, and Taiwan's numbers illustrate the petrochemical industry's expansion on the island

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
<b>JAPAN</b>													
Polyethylene	2,944	3,193	3,313	3,366	3,143	3,369	3,342	3,294	3,176	3,165	3,238	2.3%	1.0%
Polyethylene terephthalate	1,279	1,377	1,360	1,398	1,300	1,281	1,308	1,243	1,211	1,076	1,195	11.1	-0.7
Polypropylene	2,225	2,502	2,730	2,854	2,520	2,626	2,721	2,696	2,641	2,751	2,908	5.7	2.7
Polyvinyl chloride	2,112	2,274	2,511	2,626	2,457	2,460	2,410	2,195	2,225	2,164	2,153	-0.5	0.2
Polystyrene	2,099	2,149	2,178	2,201	1,975	2,037	2,024	1,810	1,837	1,801	1,824	1.3	-1.4
Epoxy	181	194	201	222	204	225	243	192	201	195	215	10.3	1.7
Phenolic resins	330	327	294	303	259	250	262	232	242	261	287	10.0	-1.4
Polycarbonate	171	227	251	292	317	351	354	370	386	409	411	0.5	9.2

## SOUTH KOREA

Acrylonitrile-butadiene-styrene	409	491	560	596	636	784	777	932	1,120	1,143	1,105	-3.3%	10.4%
Polyethylene, high-density	1,294	1,232	1,340	1,549	1,615	1,756	1,706	1,839	1,871	1,925	1,882	-2.2	3.8
Polyethylene, low-density	923	970	1,256	1,394	1,518	1,642	1,576	1,614	1,624	1,627	1,706	4.9	6.3
Polypropylene	1,607	1,619	1,738	2,056	2,355	2,440	2,413	2,485	2,622	2,811	2,930	4.2	6.2
Polystyrene	869	905	1,000	1,104	1,038	1,105	1,212	1,354	1,361	1,427	1,176	-17.6	3.1
Polyvinyl chloride	791	914	1,005	1,087	1,013	1,170	1,191	1,238	1,244	1,278	1,306	2.2	5.1

## TAIWAN

Acrylonitrile-butadiene-styrene	735	759	911	979	899	1,016	1,067	985	1,078	1,105	1,166	5.5%	4.7%
Polyethylene, high-density	187	212	241	243	273	395	306	510	507	547	537	-1.8	11.1
Polyethylene, low-density	224	208	233	235	224	236	273	477	492	536	609	13.6	10.5
Polyester resin	128	134	146	171	175	204	198	204	219	212	185	-12.7	3.8
Polypropylene	341	417	448	420	418	517	564	773	830	937	1,020	8.9	11.6
Polystyrene	626	671	808	780	764	765	711	866	848	858	817	-4.8	2.7
Polyurethane resin	111	111	127	151	145	157	185	170	189	193	214	10.9	6.8

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

## U.S. PAINTS & COATINGS

Architectural coatings shipments have shown steady growth since 2001

MILLIONS OF LITERS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Architectural	2,441	2,350	2,422	2,483	2,392	2,498	2,464	2,525	2,721	2,926	3,126	6.9%	2.5%
Product <sup>a</sup>	1,412	1,423	1,510	1,609	1,620	1,665	1,715	1,540	1,559	1,514	1,400	-7.5	-0.1
Special purpose	734	738	791	689	655	659	689	609	693	541	522	-3.5	-3.3

<sup>a</sup> For original equipment manufacturers. SOURCE: Department of Commerce

## U.S. SYNTHETIC FIBERS

Polyester output growth was strongest, followed by nylon and olefin

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
<b>NONCELLULOSIC FIBERS</b>													
Acrylic <sup>a</sup>	200	196	211	209	157	143	154	141	154	122	109	-11.1%	-5.9%
Nylon	1,243	1,226	1,270	1,286	1,218	1,217	1,215	1,019	1,112	1,115	1,142	2.4	-0.8
Olefin	1,083	1,085	1,095	1,216	1,326	1,395	1,461	1,342	1,354	1,348	1,372	1.8	2.4
Polyester	1,750	1,763	1,736	1,855	1,768	1,736	1,775	1,464	1,482	1,374	1,455	5.9	-1.8
<b>CELLULOSIC FIBERS</b>													
Acetate <sup>b</sup> & rayon	227	226	215	208	166	134	158	103	81	75	67	-11.4%	-11.5%

<sup>a</sup> Includes modacrylic. <sup>b</sup> Includes diacetate and triacetate; excludes production for cigarette filters. SOURCE: Fiber Economics Bureau

## PRODUCTION

### EUROPE SYNTHETIC FIBERS

Wider base confirmed continuing, but slow, growth in Europe

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Acrylic	714	623	677	705	650	614	623	607	620	856	862	0.7%	nm
Polyester	982	973	895	995	959	909	968	924	909	1,423	1,473	3.5	nm
Polyamide	641	632	632	673	641	595	636	555	549	670	680	1.5	nm
Cellulosics	682	736	766	722	715	651	627	607	585	609	636	4.4	nm

**NOTE:** Database was revised in 2001 and again in 2003. Data now represent "Greater Europe," including newly enlarged European Union and Turkey.  
nm = not meaningful. **SOURCE:** International Rayon & Synthetic Fibers Committee

### JAPAN SYNTHETIC FIBERS

Production of polypropylene fiber was the only bright spot

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
Man-made <sup>a</sup>	1,773	1,804	1,802	1,822	1,724	1,634	1,643	1,564	1,416	1,316	1,279	-2.8%	-3.2%
Acrylic <sup>b</sup>	376	370	388	416	418	372	377	365	358	298	267	-10.5	-3.4
Nylon <sup>c</sup>	214	201	201	198	180	174	176	162	126	121	121	0.0	-5.5
Polyester <sup>a</sup>	732	743	724	731	684	665	665	628	564	528	520	-1.7	-3.4
Polypropylene <sup>a</sup>	79	92	100	110	109	109	111	117	114	116	120	2.7	4.3

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

### U.S. FERTILIZERS

Monoammonium phosphate and phosphate rock grew fastest

THOUSANDS OF METRIC TONS	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	ANNUAL CHANGE	
												2003-04	1994-04
<b>NITROGEN PRODUCTS</b>													
Ammonia	11,647	14,509	14,671	15,160	15,032	14,484	13,438	10,455	11,306	10,475	9,164	-12.5%	-2.4%
Ammonium nitrate	2,268	2,648	2,431	3,012	3,183	3,165	2,873	2,192	2,246	2,142	2,165	1.1	-0.5
Ammonium sulfate	2,233	2,351	2,330	2,424	2,453	2,517	2,595	2,353	2,405	2,595	2,669	2.9	1.8
Urea	3,528	4,808	4,822	4,989	4,850	5,066	4,742	3,678	4,477	4,443	3,095	-30.4	-1.3
Nitrogen solutions	3,397	7,856	8,178	8,994	8,980	10,136	9,038	9,143	7,985	8,863	7,781	-12.2	8.6
<b>PHOSPHATE PRODUCTS</b>													
Diammonium phosphate	12,454	14,010	14,155	14,325	14,088	14,528	12,670	10,049	10,825	9,991	10,404	4.1%	-1.8%
Monoammonium phosphate	2,523	2,541	2,529	3,170	3,624	3,511	4,106	4,087	4,175	4,734	5,328	12.6	7.8
Concentrated superphosphate	1,395	1,528	1,512	1,443	1,321	1,066	1,098	1,094	1,067	991	790	-20.3	-5.5
Phosphate rock	32,199	38,303	40,911	40,890	37,814	38,352	36,088	34,219	29,183	32,327	35,338	9.3	0.9
Phosphoric acid (P <sub>2</sub> O <sub>5</sub> )	10,079	11,263	11,073	11,494	11,264	11,470	10,751	9,406	10,125	10,253	10,530	2.7	0.4
<b>POTASH PRODUCTS</b>													
Potassium chloride	1,679	1,654	1,612	1,635	1,586	1,491	1,430	1,339	1,391	1,361	1,311	-3.7%	-2.4%

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

### EUROPE FERTILIZERS

Ammonium nitrate production is rebounding

THOUSANDS OF METRIC TONS	1995	1996	1997	1998	1999	2000	2001	2002 <sup>a</sup>	2003	2004 <sup>b</sup>	ANNUAL CHANGE	
											2003-04	1995-04
Ammonium nitrate	1,344	1,460	1,171	631	897	721	687	1,505	1,168	1,528	nm	nm
Ammonium sulfate	802	475	478	585	566	675	1,442	769	832	164	nm	nm
Anhydrous ammonia	1,955	2,246	2,291	2,295	2,213	2,078	2,362	9,394	4,752	3,867	nm	nm
Nitric acid	192	263	266	290	264	153	600	612	2,378	1,414	nm	nm
Urea	89	113	368	na	600	725	214	947	767	707	nm	nm

a Data for 2002 restated to reflect expansion of the European Union to 25 countries; previous years' data are for EU15. b Germany, France, and U.K. only. na = not available nm = not meaningful. **SOURCES:** European Union and national government statistics offices