

TRADE: GROWTH WAS COMMON EVERYWHERE

The value of chemical exports and imports increased, but U.S. trade deficit ballooned

WORLDWIDE TRADE IN chemicals posted good, and sometimes very good, increases last year as the value of both exports and imports in major producing countries rose.

In the U.S., total chemical exports rose 9.1% from the previous year to \$123.1 billion, while imports increased 13.6% to \$128.3 billion.

Inorganic chemical exports showed the largest increase among the chemical sectors, rising 22.0% to \$7.9 billion. Plastics and fertilizers also scored double-digit growth in 2005. Exports of plastics in primary form rose 15.9% to \$21.5 billion, while exports of plastics in nonprimary form increased 10.2% to \$8.0 billion. Fertilizer exports rose 12.5% to \$3.2 billion.

The organic chemicals sector, which has the largest export value among the nine chemical sectors, saw an export increase of just 1.7% to \$26.8 billion.

The growth in chemical imports last year was widespread throughout the industry, with all but one of the sectors showing increases greater than 10%. The organic chemicals sector was the exception, with only 8.3% growth to \$38.1 billion.

Fertilizers saw the largest import growth, rising 46.2% to \$3.7 billion, followed by plastics in primary form, which increased

28.0% to \$11.1 billion. Imports in the largest importing sector, pharmaceuticals, rose 11.2% to \$39.0 billion.

The disparity between import and export growth rates in 2005 led to a huge increase in the U.S. chemical trade deficit. After dropping to just \$82.0 million in 2004 from the previous year, the deficit swelled to \$5.2 billion last year. As in the past, deficits in both the organic chemicals and pharmaceuticals sectors were greater than the sum for all sectors. Pharmaceuticals posted the largest deficit, \$13.1 billion, up from \$11.1 billion in 2004. The organic chemicals deficit of \$11.3 billion was well above the \$8.8 billion seen in the previous year. The only other deficit was in fertilizers: \$496 million, compared with a surplus of \$316 million the year before.

In Canada, overall chemical exports increased 10.4% to \$22.1 billion, while imports rose less than half that rate, 5.1%, to \$30.8 billion. The result was a trade deficit of only \$8.7 billion, lower than the \$9.3 billion deficit in the previous year.

Basic chemical exports from Canada jumped 15.6% to \$7.7 billion, while imports increased 6.4% to \$7.7 billion, cutting the deficit for this sector to \$72.4 million from \$643 million in 2004. Agricultural chemical exports increased 18.7% to \$1.4 billion as imports rose only 2.4%. This sector thus

realized a trade surplus of \$125 million, compared with a deficit of \$63.5 million the year before.

In Europe, six countries showed positive export and import growth, but in most cases, imports rose faster than exports. Within the group, Germany, as usual, had the largest exports, \$129.2 billion, up 4.4% from the prior year. Imports rose 9.6%, to \$91.2 billion.

Belgium achieved the largest growth in both exports and imports. Exports rose 12.0% to \$104.3 billion, and imports increased 15.4% to \$87.9 billion. Spain followed closely, recording an 11.7% increase in exports to \$22.0 billion and a 7.0% rise in imports to \$32.5 billion. The Netherlands did not provide trade data this year.

In Japan, chemical exports for 2005 rose 9.0% from the previous year to \$68.2 billion. Imports of chemicals into Japan increased 10.4% to \$45.2 billion. The result was a 16.8% decline in the country's chemical trade surplus to \$22.9 billion.

The largest growth in both chemical exports and imports was in the synthetic resins sector. Japanese exports of resins rose 13.3% to \$17.4 billion while imports increased 13.9% to \$8.6 billion. The organic chemicals sector, which sends more product abroad than any other sector, saw exports improve by 8.3% to \$17.9 billion, but imports also went up, by 7.3% to \$11.5 billion.

South Korea reports that total chemical exports rose 20.0% to \$27.7 billion and imports increased 18.6% to \$24.5 billion. Petrochemical exports grew 22.3% to \$20.8 billion, and imports totaled \$9.5 billion, 18.6% ahead of 2004.

China's exports increased 29.6% last year to \$31.9 billion, and imports increased 18.7% to \$50.6 billion. This trade produced

U.S. TOTAL TRADE

Chemical industry kept the number two spot among exporting sectors

\$ BILLIONS	U.S. EXPORTS				U.S. IMPORTS			
	2002	2003	2004	2005	2002	2003	2004	2005
Machinery & transport equipment	\$349.7	\$351.8	\$393.3	\$433.7	\$505.6	\$523.6	\$596.8	\$649.9
Miscellaneous manufactures	82.1	84.9	95.7	103.8	205.2	218.9	241.2	259.8
Chemicals	83.6	94.2	112.9	123.1	86.1	101.1	112.9	128.3
Manufactured goods classified by material	65.1	67.7	78.7	89.2	126.9	132.9	170.2	190.8
Food & live animals	40.3	43.3	45.5	48.3	39.2	42.9	47.0	51.4
Crude materials, inedible (except fuels)	28.1	33.5	37.0	41.2	19.8	20.0	26.3	28.6
Mineral fuels & lubricants	11.7	14.0	18.9	26.4	117.1	155.6	205.9	286.4
Beverages & tobacco	4.7	4.8	4.8	4.5	10.8	12.0	12.7	13.9
Animal & vegetable oils, fats & waxes	1.9	2.0	2.0	1.8	1.3	1.6	2.3	2.4
Other	26.0	27.5	29.1	32.5	51.5	50.8	54.3	59.5
TOTAL	\$693.2	\$723.7	\$817.9	\$904.5	\$1,163.5	\$1,259.4	\$1,469.6	\$1,671.0

SOURCE: Department of Commerce

a deficit of \$18.7 billion, up from \$18.0 billion in 2004.

Exports of organic chemicals, China's largest chemical trade sector, increased by 33.2% to \$12.1 billion, and imports rose 17.5% to \$28.0 billion.

U.S. CHEMICAL TRADE, BY REGION

Both imports from and exports to China and Latin America rose sharply

\$ MILLIONS	2002		2003		2004		2005		CHANGE, 2004-05	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Europe	\$26,312	\$52,683	\$30,796	\$61,304	\$36,896	\$67,267	\$39,853	\$73,136	8.0%	8.7%
Canada	16,344	12,108	17,891	13,492	20,053	16,674	22,413	19,727	11.8	18.3
Latin America	16,464	4,297	18,030	5,220	22,484	6,901	25,459	8,616	13.2	24.9
Japan	6,501	7,008	6,804	8,013	7,702	8,325	8,166	8,500	6.0	2.1
China-Vietnam	3,043	2,426	3,731	3,029	4,831	3,770	5,549	5,216	14.9	38.4
Rest of Asia	10,957	4,951	12,587	6,259	15,442	6,276	15,904	8,023	3.0	27.8
Australia	1,637	367	1,809	526	2,189	587	2,435	620	11.2	5.6
Middle East	1,157	1,788	1,392	2,249	1,789	2,481	1,848	3,602	3.3	45.2
Africa	859	368	736	496	910	558	983	747	8.0	33.9
Other	319	61	377	462	564	103	508	100	-9.9	-2.9
TOTAL	\$83,593	\$86,057	\$94,153	\$101,050	\$112,860	\$112,942	\$123,119	\$128,288	9.1%	13.6%

NOTE: Totals may not sum because of rounding. SOURCE: Department of Commerce

EUROPE CHEMICAL TRADE

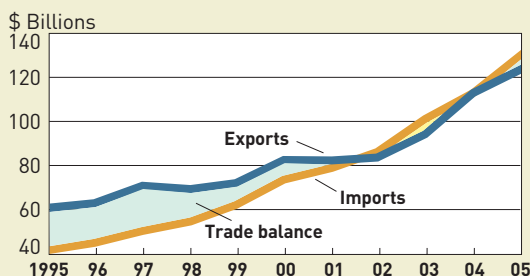
Belgium, Italy, and Spain had double-digit export growth

\$ MILLIONS	2002		2003		2004		2005		CHANGE, 2004-05	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Belgium	\$83,908	\$68,690	\$84,769	\$68,557	\$93,170	\$76,163	\$104,319	\$87,861	12.0%	15.4%
France	64,710	52,077	65,127	52,537	68,614	55,091	72,761	60,177	6.0	9.2
Germany	101,455	72,250	107,601	73,392	123,740	83,227	129,200	91,200	4.4	9.6
Italy	33,431	43,815	32,467	44,633	33,854	47,424	37,502	50,708	10.8	6.9
Netherlands	47,758	31,170	48,385	31,169	54,655	35,627	na	na	na	na
Spain	18,059	27,353	18,794	28,986	19,718	30,415	22,031	32,548	11.7	7.0
U.K.	57,006	47,222	56,684	46,637	58,453	50,211	59,884	52,150	2.4	3.9

NOTE: Monetary statistics for all years were converted from local currencies to U.S. dollars on the basis of the 2005 average exchange rates of \$1.00 U.S. = 0.803 euros and 0.549 pounds sterling. na = not available. SOURCES: European Chemical Industry Council, national agencies

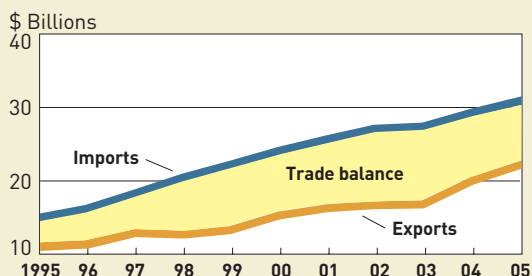
NORTH AMERICAN CHEMICALS

U.S. trade gap opened up again ...



SOURCE: Department of Commerce

... while Canada's shrank



NOTE: \$1.00 U.S. = \$1.212 Canadian
SOURCES: Industry Canada, Statistics Canada

U.S. CHEMICAL TRADE, BY PRODUCT

Led by fertilizers and plastics, chemical imports rose more than exports did in 2005

\$ MILLIONS	2002		2003		2004		2005		CHANGE, 2004-05	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Organic chemicals	\$16,839	\$30,213	\$20,451	\$32,876	\$26,377	\$35,212	\$26,836	\$38,140	1.7%	8.3%
Plastics in primary form	13,896	6,425	15,127	7,366	18,512	8,654	21,458	11,078	15.9	28.0
Medicinals & pharmaceuticals	16,150	24,719	19,209	31,516	23,982	35,105	25,952	39,039	8.2	11.2
Inorganic chemicals	5,612	6,018	5,756	7,419	6,440	8,273	7,854	10,169	22.0	22.9
Plastics in nonprimary form	5,993	4,336	6,504	4,794	7,252	5,570	7,992	6,314	10.2	13.4
Perfume, toilet & cleaning materials	6,135	4,195	6,857	5,611	7,745	6,951	8,409	7,926	8.6	14.0
Dyeing, tanning & coloring materials	3,976	2,358	4,282	2,481	4,690	2,669	5,018	2,970	7.0	11.3
Fertilizers	2,262	1,619	2,552	2,130	2,846	2,530	3,203	3,699	12.5	46.2
Other	12,730	6,174	13,415	6,857	15,016	7,978	16,398	8,952	9.2	12.2
TOTAL	\$83,593	\$86,057	\$94,153	\$101,050	\$112,860	\$112,942	\$123,119	\$128,288	9.1%	13.6%

NOTE: Totals may not sum because of rounding. SOURCE: Department of Commerce

CANADA CHEMICAL TRADE, BY PRODUCT

Exports boomed and imports climbed in 2005

\$ MILLIONS	2002		2003		2004		2005		CHANGE, 2004-05	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Basic chemicals	\$5,450.3	\$6,429.2	\$5,091.2	\$6,255.1	\$6,620.7	\$7,263.7	\$7,656.6	\$7,729.3	15.6%	6.4%
Resins, synthetic rubber & fibers	5,075.5	5,420.6	5,018.6	5,212.5	5,653.3	5,522.9	6,196.5	6,057.0	9.6	9.7
Pesticides, fertilizers & other agricultural chemicals	1,003.7	1,212.5	948.4	1,261.2	1,161.4	1,224.9	1,378.5	1,253.8	18.7	2.4
Pharmaceuticals & medicine	2,106.5	6,662.0	2,807.3	7,457.7	3,310.8	7,872.1	3,578.2	8,242.7	8.1	4.7
Other chemical products	3,045.0	7,454.4	2,971.5	7,276.9	3,299.2	7,458.5	3,319.0	7,546.8	0.6	1.2
TOTAL	\$16,681.0	\$27,177.9	\$16,837.0	\$27,462.6	\$20,045.4	\$29,342.1	\$22,127.9	\$30,829.6	10.4%	5.1%
TOTAL WITH U.S.	\$14,168.4	\$19,196.0	\$14,002.5	\$18,829.6	\$16,245.2	\$19,625.3	\$17,654.1	\$20,148.6	8.7%	2.7%
U.S. SHARE	84.9%	70.6%	83.2%	68.6%	81.0%	66.9%	79.8%	65.4%		

NOTE: Monetary statistics for all years were converted to U.S. dollars on the basis of the 2005 average exchange rate of \$1.00 U.S. = \$1.212 Canadian. SOURCES: Statistics Canada, Industry Canada

ASIA CHEMICAL TRADE, BY PRODUCT

Chemical trade surpluses grew in both Japan and South Korea

\$ MILLIONS	2002		2003		2004		2005		CHANGE, 2004-05	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
JAPAN										
Organic chemicals	\$11,493	\$8,085	\$13,458	\$9,323	\$16,508	\$10,710	\$17,883	\$11,489	8.3%	7.3%
Inorganic chemicals	1,936	2,952	2,295	3,468	2,708	4,339	2,954	4,754	9.1	9.6
Synthetic resins	10,495	5,425	12,197	6,311	15,385	7,518	17,428	8,566	13.3	13.9
Photographic materials	3,766	372	4,104	403	4,605	325	4,681	319	1.7	-1.8
Fertilizers	84	523	86	530	103	642	110	711	6.8	10.7
Dyes & pigments	2,046	801	2,430	950	2,996	1,037	3,135	1,084	4.6	4.5
Cosmetics	712	1,519	785	1,809	928	2,121	977	2,129	5.3	0.4
Rubber	5,981	1,839	6,879	2,259	7,875	2,834	8,584	3,219	9.0	13.6
Other	7,948	8,720	9,101	9,923	11,412	11,434	12,405	12,964	8.7	13.4
TOTAL	\$44,461	\$30,236	\$51,335	\$34,976	\$62,520	\$40,960	\$68,157	\$45,235	9.0%	10.4%
SOUTH KOREA										
Chemicals & chemical products	\$13,762	\$14,156	\$16,936	\$13,482	\$23,126	\$20,655	\$27,745	\$24,502	20.0%	18.6%
Petrochemicals ^a	9,625	4,745	11,917	5,821	17,015	8,015	20,811	9,507	22.3	18.6

NOTE: Totals may not sum because of rounding. ^a Defined as synthetic resins, synthetic fiber raw materials, and synthetic rubber. Totals may not sum because of rounding. SOURCE: Japan Chemical Importers & Exporters Association; National Statistical Office, Republic of Korea; Korea Petrochemical Industry Association

CHINA TRADE, BY PRODUCT

Deficit grew only slightly as exports rose faster than imports

\$ MILLIONS	2002		2003		2004		2005		CHANGE, 2004-05	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Inorganic chemicals	\$3,030	\$1,949	\$3,595	\$2,729	\$4,840	\$3,961	\$6,944	\$4,815	43.5%	21.6%
Organic chemicals	5,568	11,156	7,131	16,006	9,092	23,846	12,112	28,020	33.2	17.5
Pharmaceutical products	790	1,130	918	1,392	1,100	1,572	1,364	1,959	24.0	24.6
Fertilizers	350	2,354	800	1,763	1,309	2,288	1,011	3,051	-22.8	33.3
Dyes & pigments	1,390	2,088	1,526	2,583	1,927	2,975	2,483	3,081	28.9	3.6
Other ^a	3,490	5,626	4,557	7,316	6,312	7,960	7,939	9,652	25.8	21.2
TOTAL	\$14,618	\$24,303	\$18,527	\$31,789	\$24,580	\$42,602	\$31,853	\$50,578	29.6%	18.7%

^a Calculated by C&EN. SOURCE: Customs General Administration of the People's Republic of China

U.S. CHEMICAL TRADE BALANCE, BY PRODUCT

Large deficits in trade of organic chemicals and pharmaceuticals pushed total trade balance deep into the red

\$ MILLIONS	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Organic chemicals	\$3,070	\$192	-\$86	-\$3,119	-\$6,106	-\$9,632	-\$12,680	-\$13,373	-\$12,425	-\$8,835	-\$11,304
Plastics in primary form	6,425	6,539	7,220	6,476	6,330	7,439	7,189	7,471	7,761	9,858	10,380
Medicinals & pharmaceuticals	1,010	254	-507	-1,224	-2,295	-1,572	-3,203	-8,570	-12,307	-11,123	-13,087
Inorganic chemicals	-74	-205	292	-276	-472	-582	-463	-406	-1,663	-1,833	-2,315
Plastics in nonprimary form	1,516	1,699	2,114	1,834	1,529	1,983	1,715	1,656	1,710	1,682	1,678
Perfume, toiletries & cleaning materials	1,634	1,995	2,343	1,995	1,863	2,005	2,278	1,940	1,246	794	483
Dyeing, tanning & coloring materials	541	606	869	1,058	1,055	1,529	1,399	1,619	1,801	2,021	2,048
Fertilizers	1,834	1,676	1,696	1,714	1,618	796	357	643	422	316	-496
Other	4,463	5,305	6,560	6,132	6,261	6,944	6,857	6,556	6,558	7,038	7,446
TOTAL	\$20,419	\$18,061	\$20,501	\$14,590	\$9,783	\$8,910	\$3,449	-\$2,464	-\$6,897	-\$82	-\$5,169

NOTE: Totals may not sum because of rounding. SOURCE: Department of Commerce

CANADA CHEMICAL TRADE BALANCE, BY PRODUCT

Chemical trade deficit decreased for the second consecutive year

\$ MILLIONS	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Basic chemicals	-\$27.2	-\$346.7	-\$695.8	-\$1,245.6	-\$1,545.2	-\$832.0	-\$1,040.9	-\$979.0	-\$1,163.8	-\$642.2	-\$72.6
Resins, synthetic rubber & fibers	77.6	-190.7	-69.3	-479.6	-577.8	-307.1	-47.9	-345.0	-194.0	130.4	138.7
Pesticides, fertilizers & other agricultural chemicals	-106.5	-75.9	-94.9	-340.9	-110.6	-148.6	-287.2	-208.0	-312.8	-63.6	124.6
Pharmaceuticals & medicine	-1,508.1	-1,640.1	-1,626.9	-2,174.2	-2,810.6	-3,391.7	-3,910.0	-4,555.5	-4,649.6	-4,561.3	-4,664.5
Other chemical products	-2,524.1	-2,551.4	-2,960.8	-3,498.1	-3,869.6	-4,038.0	-3,991.7	-4,409.4	-4,305.4	-4,158.5	-4,227.8
TOTAL	-\$4,089.1	-\$4,804.8	-\$5,448.6	-\$7,738.3	-\$8,913.7	-\$8,717.3	-\$9,277.8	-\$10,496.9	-\$10,625.7	-\$9,295.9	-\$8,700.8

NOTE: Monetary statistics for all years were converted to U.S. dollars on the basis of the 2005 average exchange rate of \$1.00 U.S. = \$1.212 Canadian. Totals may not sum because of rounding. SOURCES: Statistics Canada, Industry Canada

EUROPE CHEMICAL TRADE BALANCE

Italy and Spain remained stuck in trade deficits

\$ MILLIONS	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Belgium	\$9,338	\$8,789	\$10,666	\$9,127	\$11,708	\$13,419	\$12,151	\$15,205	\$16,199	\$16,993	\$16,445
France	7,762	8,943	9,418	9,347	10,729	10,900	12,301	12,622	12,580	13,512	12,574
Germany	24,320	26,323	31,527	27,181	26,337	29,744	29,956	29,182	34,181	40,480	37,969
Italy	-10,430	-8,854	-10,033	-12,470	-10,625	-11,148	-10,182	-10,375	-12,156	-13,560	-13,196
Netherlands	10,831	10,641	11,346	10,882	11,380	14,903	15,101	16,575	17,202	19,013	na
Spain	-5,972	-6,076	-7,001	-7,797	-7,781	-7,979	-8,394	-9,286	-10,183	-10,689	-10,508
U.K.	5,815	6,929	8,360	9,314	9,232	9,420	10,389	9,776	10,039	8,235	6,208

NOTE: Monetary statistics for all years were converted from local currencies to U.S. dollars on the basis of the 2005 average exchange rates of \$1.00 U.S. = 0.803 euros and 0.549 pounds sterling. na = not available. SOURCES: European Chemical Industry Council, national agencies