

TRADE: INCREASES IN MOST COUNTRIES

In the U.S., exports showed double-digit growth, but imports rose faster, deepening the deficit

FOREIGN TRADE IS NOT JUST A segment of the chemical industry; it is, in fact, vital to the health of the enterprise. It has been said that the chemical industry is unique in that a company's competitors are also its customers. The same can be said for countries—U.S. customers bought some \$6.80 billion in chemicals from Japan last year; U.S. producers sold about \$8.01 billion in chemicals back.

The globalization of the chemical industry has changed foreign trade, especially in the past decade. Companies now ship large quantities of chemicals to their own plants in other countries, often to use as raw materials in downstream products. This intracompany trade is large enough to affect a country's trade balance, but it is often in the best interest of the producing firm.

Thus, the chemical trade balance becomes less important—at least to a company, if not to economists—because a company's domestic and foreign operations both contribute to its bottom line.

ONE OTHER FACTOR that taints the chemical trade figures, as well as other chemical data from government, is the inclusion of pharmaceuticals in the chemicals category. While pharmaceuticals are indisputably chemicals, when it comes to how they are made, how they are sold, and the money they garner, many people hold that drugs have little, if any, relationship to the rest of the chemical industry. Their extremely high value-added component—compare the price per pound of practically any drug with the price per pound of ethylene—skews the entire industry category.

Using the U.S. deficit as an example, if pharmaceuticals were excluded, the \$6.90 billion deficit for 2003 becomes a \$5.40 billion surplus. It seems that the deficit may be just a way of keeping score, which everyone will, of course, continue to use. This is especially true of the

chemical industry, which had a continuous surplus lasting from early in the 20th century to 2001. What is more important is the rate of change in the value of exports and imports.

In the U.S. last year, exports of chemicals increased 12.6% to \$94.2 billion, a good increase by any measure, but imports rose even faster, jumping 17.4% to \$101.1 billion. The biggest hike in exports was in organic chemicals, which soared 21.5% to \$20.5 billion. Other double-digit increases occurred for pharmaceuticals, up 18.9% to \$19.2 billion; fertilizers, up 12.8% to \$2.55 billion; and perfume, toilet, and cleaning materials, up 11.8% to \$6.86 billion.

For imports, double-digit increases were seen in the perfume and toiletries sector, up 33.8% to \$5.61 billion; fertilizers, up 31.6% to \$2.13 billion; pharmaceuticals, up 27.5% to \$31.5 billion; inorganic chemicals, up 23.3% to \$7.42 billion; plastics in primary form and in nonprimary form, up 14.6% to \$7.37 billion and 10.6% to \$4.79 billion, respectively; and other chemicals, up 11.1% to \$6.86 billion.

Six of the nine sectors had trade surpluses: plastics in primary form, \$776 billion; dyes and coloring materials, \$1.80 billion; plastics in nonprimary form, \$1.71 billion; perfume and toiletries, \$1.25 billion; fertilizers, \$422.0 million; and other chemicals, \$6.56 billion.

Just across the border from the U.S., Canada had a rather lackluster chemical trade picture in 2003, with exports increasing just 0.9% to \$14.6 billion, while imports rose by the same percentage to \$23.7 billion. The U.S., which is Canada's largest

trading partner, taking 83.2% of Canada's chemical exports and providing 68.6% of its imports, didn't help. Exports to the U.S.

were down 1.2% to \$12.1 billion, while imports from the U.S. declined 2.0% to \$16.2 billion.

In Europe, Germany remains the largest chemical exporter, despite a 12.4% decline in 2003, sending \$79.5 billion worth of chemicals outside its borders. It is probably still Europe's largest importer of chemicals, but data for 2003 were not available at press time.

As an exporter, Belgium closely followed Germany, with exports of \$77.2 billion, an increase of 1.7% over 2002. Belgium's imports declined 4.3% to \$60.9 billion. Belgium's trade surplus of \$16.3 billion was the largest of countries reporting, followed closely by the Netherlands with a surplus of \$15.9 billion.

In the Asia-Pacific region, Japan's total chemical exports rose 15.5% to \$51.3 billion, sparked by double-digit increases in all but two chemical sectors—photographic chemicals and fertilizers. Photographic chemical exports increased 9.0% to \$4.10 billion, while fertilizers, not a major industry for Japan, climbed 2.4% to just \$86 million. Organic chemicals was the largest exports sector, at \$13.5 billion, 17.1% higher than in 2002.

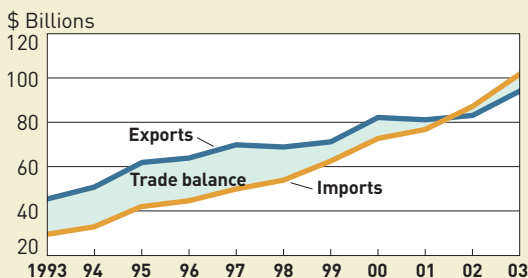
Japan had chemical imports val-



FACTS & FIGURES

U.S. TRADE

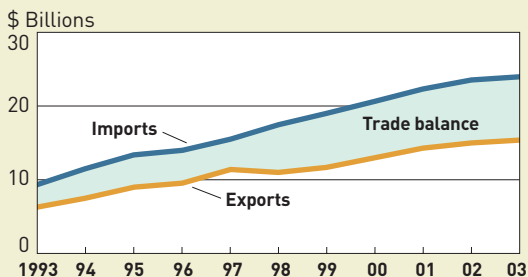
Chemical trade deficit almost tripled between 2002 and 2003



SOURCE: Department of Commerce

CANADA TRADE

Trade gap didn't widen for a change



NOTE: \$1.00 U.S. = \$1.401 Canadian.
SOURCES: Industry Canada, Statistics Canada

ued at \$35.0 billion, a 15.9% increase from the year before. Again in terms of value, except for the "other chemicals" category, organic chemical imports led with

\$9.32 billion in imports, a 15.3% gain.

China, which is quickly becoming a significant trading country, sent \$18.5 billion in chemicals abroad last year, up 26.8%,

while its chemical imports rose 30.8% to \$31.8 billion. Since 2000, China's exports have risen 59.5% as imports have jumped 75.7%.

U.S. TOTAL TRADE

Chemical industry grew to be clear number two among exporting sectors

\$ BILLIONS	U.S. EXPORTS				U.S. IMPORTS			
	2000	2001	2002	2003	2000	2001	2002	2003
Machinery & transport equipment	\$412.2	\$375.1	\$349.7	\$351.8	\$553.2	\$499.9	\$505.6	\$523.6
Miscellaneous manufactures	93.2	88.5	82.1	84.9	200.9	198.1	205.2	218.9
Chemicals	82.5	82.3	83.6	94.2	73.6	78.9	86.1	101.1
Manufactured goods classified by material	72.0	66.7	65.1	67.7	134.0	123.1	126.9	132.9
Food & live animals	40.3	41.2	40.3	43.3	36.8	37.2	39.2	42.9
Crude materials, inedible (except fuels)	29.0	28.1	28.1	33.5	22.4	20.2	19.8	20.0
Mineral fuels & lubricants	13.3	12.9	11.7	14.0	135.5	122.9	117.1	155.6
Beverages & tobacco	6.8	5.6	4.7	4.8	9.3	9.7	10.8	12.0
Animal & vegetable oils, fats & waxes	1.4	1.4	1.9	2.0	1.4	1.2	1.3	1.6
Other	29.6	29.2	26.0	27.5	51.8	50.8	51.5	50.8
TOTAL	\$780.3	\$731.0	\$693.2	\$723.7	\$1,218.9	\$1,142.0	\$1,163.5	\$1,259.4

SOURCE: Department of Commerce

U.S. CHEMICAL TRADE, BY COUNTRY

Led by China and the Middle East, trade increased with almost every region

\$ MILLIONS	2000		2001		2002		2003		CHANGE, 2002-03	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
European Union	\$22,304	\$37,576	\$23,346	\$40,976	\$24,121	\$47,396	\$28,354	\$55,222	17.5%	16.5%
Canada	16,151	11,579	15,857	12,001	16,344	12,108	17,891	13,492	9.5	11.4
Latin America	17,378	4,380	17,319	4,461	16,464	4,297	18,030	5,220	9.5	21.5
Japan	6,547	7,220	6,510	6,679	6,501	7,008	6,804	8,013	4.7	14.3
China-Vietnam	2,397	1,810	2,280	2,066	3,043	2,426	3,731	3,029	22.6	24.9
Rest of Asia	11,476	3,862	10,368	4,274	10,957	4,951	12,587	6,259	14.9	26.4
Australia	1,773	358	1,750	442	1,637	367	1,809	526	10.5	43.3
Middle East	1,249	1,746	1,591	2,009	1,157	1,788	1,392	2,249	20.3	25.8
Africa	724	312	776	400	859	368	736	496	-14.3	34.8
Eastern Europe	535	2,179	687	2,712	685	2,399	744	2,934	8.6	22.3
Other	2,008	2,611	1,838	2,850	1,825	2,949	2,075	3,610	13.7	22.4
TOTAL	\$82,542	\$73,633	\$82,322	\$78,870	\$83,593	\$86,057	\$94,153	\$101,050	12.6%	17.4%

SOURCE: Department of Commerce

EUROPE CHEMICAL TRADE, BY COUNTRY

Exports picked up, while imports fell in many countries

\$ MILLIONS	2000		2001		2002		2003		CHANGE, 2002-03	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Belgium	\$53,323	\$41,127	\$57,227	\$46,182	\$75,878	\$63,606	\$77,168	\$60,875	1.7%	-4.3%
France	54,448	44,540	57,384	46,204	58,793	46,379	58,734	46,286	-0.1	-0.2
Germany	86,632	59,597	93,498	66,271	90,787	65,542	79,535	na	-12.4	—
Italy	27,309	37,601	29,140	38,460	30,254	39,399	29,487	38,689	-2.5	-1.8
Netherlands	40,809	27,265	41,989	27,898	43,235	28,879	43,823	27,925	1.4	-3.3
Spain	13,218	20,512	14,510	22,051	15,562	23,898	17,057	25,899	9.6	8.4
U.K.	45,264	38,622	50,418	42,851	51,014	44,594	na	na	—	—

NOTE: Monetary statistics for all years were converted from local currencies to U.S. dollars on the basis of the 2003 average exchange rates of \$1.00 U.S. = 0.884 euros and 0.612 pounds sterling. na = not available. SOURCES: European Chemical Industry Council, national agencies

U.S. CHEMICAL TRADE, BY PRODUCT

Both imports and exports increased in every category of chemical trade

\$ MILLIONS	2000		2001		2002		2003		CHANGE, 2002-03	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Organic chemicals	\$18,931	\$28,563	\$16,946	\$29,626	\$16,839	\$30,213	\$20,451	\$32,876	21.5%	8.8%
Plastics in primary form	13,873	6,434	13,511	6,322	13,896	6,425	15,127	7,366	8.9	14.6
Medicinals & pharmaceuticals	13,122	14,694	15,421	18,624	16,150	24,719	19,209	31,516	18.9	27.5
Inorganic chemicals	5,514	6,096	5,730	6,193	5,612	6,018	5,756	7,419	2.6	23.3
Plastics in nonprimary form	6,191	4,208	5,772	4,057	5,993	4,336	6,504	4,794	8.5	10.6
Perfume, toilet & cleaning materials	5,546	3,541	6,031	3,753	6,135	4,195	6,857	5,611	11.8	33.8
Dyeing, tanning & coloring materials	4,205	2,676	3,879	2,480	3,976	2,358	4,282	2,481	7.7	5.2
Fertilizers	2,485	1,689	2,247	1,890	2,262	1,619	2,552	2,130	12.8	31.6
Other	12,675	5,731	12,785	5,925	12,730	6,174	13,415	6,857	5.4	11.1
TOTAL	\$82,542	\$73,632	\$82,322	\$78,870	\$83,593	\$86,057	\$94,153	\$101,050	12.6%	17.4%

SOURCE: Department of Commerce

CANADA CHEMICAL TRADE, BY PRODUCT

Pharmaceutical trade rose significantly in 2003

\$ MILLIONS	2000		2001		2002		2003		CHANGE, 2002-03	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Basic chemicals	\$4,439	\$5,159	\$4,723	\$5,623	\$4,712	\$5,556	\$4,402	\$5,407	-6.6%	-2.7%
Resins, synthetic rubber & fibers	4,336	4,601	4,431	4,474	4,388	4,693	4,339	4,491	-1.1	-4.3
Pesticides, fertilizers & other agricultural chemicals	874	1,024	836	1,084	868	1,048	820	1,094	-5.5	4.4
Pharmaceuticals & medicine	1,322	4,255	1,646	5,024	1,821	5,734	2,426	6,402	33.2	11.6
Other chemical products	2,284	5,776	2,524	5,977	2,633	6,439	2,566	6,297	-2.5	-2.2
TOTAL	\$13,278	\$20,814	\$14,160	\$22,182	\$14,422	\$23,470	\$14,553	\$23,690	0.9%	0.9%
TOTAL WITH U.S.	\$11,162	\$15,805	\$12,163	\$16,053	\$12,249	\$16,574	\$12,106	\$16,244	-1.2%	-2.0%
U.S. SHARE	84.1%	75.9%	85.9%	72.4%	84.9%	70.6%	83.2%	68.6%		

NOTE: Monetary statistics for all years were converted from Canadian dollars to U.S. dollars on the basis of the 2003 average exchange rate of \$1.00 U.S. = \$1.401 Canadian. SOURCES: Statistics Canada, Industry Canada

ASIA CHEMICAL TRADE, BY PRODUCT

In Japan and South Korea, both exports and imports increased sharply

\$ MILLIONS	2000		2001		2002		2003		CHANGE, 2002-03	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
JAPAN										
Organic chemicals	\$11,909	\$8,125	\$10,817	\$8,097	\$11,493	\$8,085	\$13,458	\$9,323	17.1%	15.3%
Inorganic chemicals	2,113	3,530	1,814	2,941	1,936	2,952	2,295	3,468	18.5	17.5
Synthetic resins	11,203	5,623	9,338	5,365	10,495	5,425	12,197	6,311	16.2	16.5
Photographic materials	3,979	736	3,599	501	3,766	372	4,104	403	9.0	6.2
Fertilizers	93	529	81	484	84	523	86	530	2.4	1.4
Dyes and pigments	2,493	897	1,948	825	2,046	801	2,430	950	18.8	18.1
Cosmetics	697	1,405	669	1,429	712	1,519	785	1,809	10.3	20.3
Rubber	6,118	1,872	5,443	1,752	5,981	1,839	6,879	2,259	15.0	24.0
Other	8,255	8,408	7,316	8,469	7,948	8,720	9,101	9,923	14.5	14.2
TOTAL	\$46,860	\$31,125	\$41,025	\$29,863	\$44,461	\$30,236	\$51,335	\$34,976	15.5%	15.9%
SOUTH KOREA										
Chemicals & chemical products	\$13,784	\$13,517	\$12,524	\$12,942	\$13,757	\$14,133	\$16,929	\$16,459	23.1%	16.5%
Petrochemicals ^a	9,666	5,154	8,394	4,514	9,625	4,745	11,917	5,821	23.8	22.7

^a Defined as synthetic resins, synthetic fiber raw materials, and synthetic rubber. SOURCES: Japan Chemical Importers & Exporters Association; National Statistical Office, Republic of Korea; Korea Petrochemical Industry Association

CHINA CHEMICAL TRADE, BY PRODUCT

Exports and imports of most commodities continued to exhibit remarkable growth

\$ MILLIONS	2000		2001		2002		2003		CHANGE, 2002-03	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Inorganic chemicals	\$2,623	\$1,530	\$2,862	\$1,644	\$3,030	\$1,949	\$3,595	\$2,729	18.6%	40.0%
Organic chemicals	4,170	8,327	4,599	8,976	5,568	11,156	7,140	16,007	28.2	43.5
Pharmaceutical products	770	799	757	986	790	1,130	913	1,392	15.6	23.2
Fertilizers	324	1,730	389	1,556	350	2,354	800	1,763	128.6	-25.1
Dyes & pigments	1,134	1,654	1,210	1,787	1,390	2,088	1,527	2,583	9.9	23.7
TOTAL	\$11,639	\$18,100	\$12,794	\$19,071	\$14,618	\$24,303	\$18,531	\$31,791	26.8%	30.8%

SOURCE: Customs General Administration of the People's Republic of China

U.S. CHEMICAL TRADE BALANCE, BY PRODUCT

Deficit almost tripled due to trade losses in pharmaceuticals, inorganic chemicals, and cleaning products

\$ MILLIONS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Organic chemicals	\$1,797	\$2,027	\$3,070	\$192	\$-86	\$-3,119	\$-6,106	\$-9,632	\$-12,680	\$-13,373	\$-12,425
Plastics in primary form	4,704	5,163	6,425	6,539	7,220	6,476	6,330	7,439	7,189	7,471	7,761
Medicinals & pharmaceuticals	1,615	1,413	1,010	254	-507	-1,224	-2,295	-1,572	-3,203	-8,570	-12,307
Inorganic chemicals	525	-37	-74	-205	292	-276	-472	-582	-463	-406	-1,663
Plastics in nonprimary form	1,189	1,388	1,516	1,699	2,114	1,834	1,529	1,983	1,715	1,656	1,710
Perfume, toilet & cleaning materials	1,238	1,541	1,634	1,995	2,343	1,995	1,863	2,005	2,278	1,940	1,246
Dyeing, tanning & coloring materials	313	455	541	606	869	1,058	1,055	1,529	1,399	1,619	1,801
Fertilizers	661	1,403	1,834	1,676	1,696	1,714	1,618	796	357	643	422
Other	4,522	4,332	4,463	5,305	6,560	6,132	6,261	6,944	6,857	6,556	6,558
TOTAL	\$16,564	\$17,695	\$20,419	\$18,061	\$20,501	\$14,590	\$9,783	\$8,910	\$3,449	\$-2,464	\$-6,897

SOURCE: Department of Commerce

CANADA CHEMICAL TRADE BALANCE, BY PRODUCT

The trade balance was relatively steady in 2003

\$ MILLIONS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Basic chemicals	\$-189	\$-193	\$-24	\$-300	\$-602	\$-1,077	\$-1,336	\$-719	\$-899	\$-844	\$-1,005
Resins, synthetic rubber & fibers	-216	-249	67	-165	-59	-415	-500	-265	-44	-305	-152
Pesticides, fertilizers & other agricultural chemicals	-24	-52	-92	-66	-82	-295	-96	-128	-248	-180	-275
Pharmaceuticals & medicine	-1,110	-1,189	-1,304	-1,418	-1,407	-1,880	-2,430	-2,932	-3,378	-3,913	-3,976
Other chemical products	-1,721	-2,076	-2,182	-2,206	-2,560	-3,024	-3,345	-3,491	-3,453	-3,806	-3,731
TOTAL	\$-3,261	\$-3,759	\$-3,535	\$-4,154	\$-4,709	\$-6,690	\$-7,706	\$-7,537	\$-8,021	\$-9,048	\$-9,139

NOTE: Monetary statistics for all years were converted from Canadian dollars to U.S. dollars on the basis of the 2003 average exchange rate of \$1.00 U.S. = \$1.401 Canadian. SOURCES: Statistics Canada, Industry Canada

EUROPE CHEMICAL TRADE BALANCE, BY COUNTRY

Italy and Spain continued to show chemicals trade deficit

\$ MILLIONS	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Belgium	\$4,838	\$7,220	\$8,487	\$7,988	\$9,694	\$8,296	\$10,642	\$12,196	\$11,045	\$12,272	\$16,294
France	6,177	6,446	7,051	8,129	9,046	8,232	9,752	9,907	11,180	12,414	12,448
Germany	19,549	22,053	22,105	23,926	28,655	24,705	23,938	27,035	27,227	25,245	na
Italy	-6,790	-8,253	-8,611	-8,040	-9,296	-9,834	-9,760	-10,292	-9,320	-9,145	-9,202
Netherlands	7,005	7,463	9,861	9,960	10,280	9,819	10,342	13,544	14,091	14,356	15,898
Spain	-3,902	-4,744	-5,644	-6,207	-6,716	-7,005	-7,154	-7,294	-7,541	-8,336	-8,842
U.K.	6,260	6,177	4,436	5,226	6,597	6,954	6,556	6,642	7,567	6,421	na

NOTE: Monetary statistics for all years were converted from local currencies to U.S. dollars on the basis of the 2003 average exchange rates of \$1.00 U.S. = 0.884 euros and 0.612 pounds sterling. na = not available. SOURCES: European Chemical Industry Council, national agencies