

U.S. trade balance in plastics in 2011:

\$22.5 billion

U.S. trade balance in medicinals and pharmaceuticals in 2011:

-\$26.4 billion

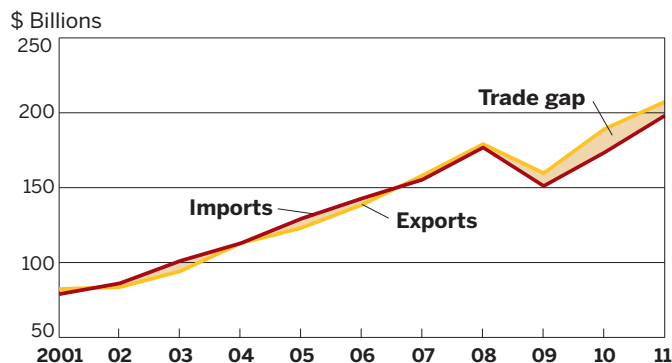
U.S. chemical industry's trade balance with the rest of the world in 2011:

\$9.3 billion

Chemicals' percent share of total U.S. manufacturing exports in 2011:

14.0

U.S. chemical trade surplus shrank in 2011



SOURCE: Department of Commerce

Percent share of U.S. chemical imports from Europe in 2011:

52.0

Percent share of U.S. chemical imports from China in 2011:

7.1

43.0 Percent change in imports of pharmaceuticals to China in 2011

47.1 Percent change in exports of inorganic chemicals from China in 2011

CHEMICAL COMMERCE GROWS AND SHIFTS

For the second year, **TRADE** in chemicals grew, especially with developing regions

GLOBAL TRADE in chemicals gained steam in 2011 for the second year in a row. In 2009, growth in trade had taken a brief time-out as the recession interrupted a decadelong trend of globalization.

U.S. chemical exports reached a new peak last year, growing 9.7% to hit \$207.4 billion. Producers in the U.S. have been gaining in global competitiveness as a result of access to low-cost natural gas feedstock. Surprisingly, however, imports of chemicals to the U.S. grew even more than exports, largely because of big jumps in imports of organic chemicals, inorganic chemicals, and fertilizers. As a result, the U.S. chemical industry's trade surplus shrank last year, although it was still at the second-highest level in more than a decade.

The U.S. chemical trade balance is largest for plastics, at \$22.5 billion in 2011. But, as in 2010, chemical trade was negative for pharmaceuticals, organic chemicals, fertilizers, and inorganic chemicals.

The battle to be the second-largest regional trading partner of the U.S. had a

new winner in 2011. Latin America, buoyed by demand for chemicals from the fast-growing Brazilian economy, beat out Canada for the first time. The U.S.'s positive trade balance with Latin America is striking; exports to the region reached close to \$50 billion, an increase of more than 20% from 2010. Imports to the U.S. from Latin America were a much smaller \$13.2 billion, although that amount represented growth of close to 30%.

U.S. chemical trade with Europe also grew, despite the much-discussed weakness of the European economy. Indeed, Europe continues to be the largest chemical trading partner of the U.S. In 2011, for the first time, the value of U.S. imports from Europe exceeded \$100 billion.

As did the U.S., Europe expanded its chemical imports faster than its exports with most trading partners. Trade with Japan was the exception for both the U.S. and Europe. Japan's chemical exports all over the world grew more slowly than the country's imports. The difference is likely due to

its recovery from the March 2011 earthquake and tsunami, which affected chemical production and created domestic shortages.

Although Europe and the U.S. are strongly linked by their trade in chemicals, both regions' growth in trade with China in recent years has been more rapid. In 2011, Europe's exports to China grew by 16.8%, and its imports by 17.8%. Similarly, U.S. exports to China grew by 13.3%, and its imports by 29.8%.

Overall, China's chemical trade in 2011 grew briskly, with exports to all regions expanding by 29.5% and imports by 26.7%. By volume, China's trade in organic chemicals leads its other chemical sectors. During the year, China's negative trade balance for pharmaceutical products increased, while its positive trade balance for fertilizers widened.

In South Korea, imports and exports of petrochemicals and of the "all other" category of chemical products increased significantly last year, although not at the 30%-plus rate of 2010. Exports in both categories rose faster than imports; exports grew 27.6% for petrochemicals and 24.0% for chemical products.

In Canada, chemical trade increased significantly in 2011, with growth in exports outpacing growth in imports. For the second year in a row, the Canadian trade deficit shrank, dipping to \$12.3 billion from \$13.1 billion in 2010. The export strength came from basic chemicals; exports in that category were \$11.8 billion in 2011, up 19.4%.

U.S. TOTAL TRADE

Chemical industry kept the number two spot among exporting sectors

\$ BILLIONS	EXPORTS				IMPORTS			
	2008	2009	2010	2011	2008	2009	2010	2011
Machinery & transport equipment	\$556.6	\$441.4	\$520.7	\$580.8	\$721.2	\$569.7	\$714.1	\$794.6
Miscellaneous manufactures	134.1	119.9	133.9	143.4	290.0	247.6	287.3	308.3
Chemicals	179.1	159.7	189.1	207.4	176.8	151.1	173.4	198.1
Manufactured goods classified by material	125.0	94.6	119.5	139.4	231.7	152.0	194.5	230.7
Food & live animals	85.8	71.6	82.7	101.6	66.2	62.0	70.3	82.5
Crude materials, inedible (except fuels)	76.5	61.8	81.0	92.5	32.9	20.7	28.3	35.2
Mineral fuels & lubricants	76.5	54.7	80.7	129.2	487.9	270.3	353.5	455.4
Beverages & tobacco	5.5	5.0	5.5	6.2	17.2	15.6	16.7	18.3
Animal & vegetable oils, fats & waxes	4.4	3.2	4.3	4.5	5.1	3.7	4.2	6.5
Other	56.5	45.0	60.2	75.5	71.1	65.3	70.0	77.4
TOTAL	\$1,300.1	\$1,056.9	\$1,278.0	\$1,480.6	\$2,100.1	\$1,557.9	\$1,912.0	\$2,206.9

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

U.S. CHEMICAL TRADE, BY REGION

Growing trade imbalance with Europe, Middle East caused imports to rise faster than exports

\$ MILLIONS	2008		2009		2010		2011		CHANGE, 2010-11	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Canada	\$27,118	\$27,099	\$24,438	\$20,448	\$28,526	\$24,314	\$32,196	\$28,125	12.9%	15.7%
Europe	59,352	94,902	55,049	85,822	59,310	93,939	59,641	103,097	0.6	9.7
Japan	10,636	8,731	8,943	7,809	11,766	9,140	12,415	9,146	5.5	0.1
China-Vietnam	9,588	10,823	10,437	8,593	13,052	10,788	14,792	14,001	13.3	29.8
Rest of Asia	23,075	13,612	19,006	13,382	25,212	15,076	28,083	18,968	11.4	25.8
Middle East	3,419	6,346	3,151	5,408	3,943	7,799	4,151	9,070	5.3	16.3
Latin America	40,123	12,893	33,208	7,912	41,238	10,218	49,511	13,199	20.1	29.2
Australia	3,299	893	3,050	892	3,291	999	3,363	1,074	2.2	7.5
Africa	1,690	1,298	1,618	630	1,785	952	2,125	1,188	19.0	24.8
Other	835	227	779	177	966	225	1,163	261	20.4	16.0
TOTAL	\$179,137	\$176,825	\$159,678	\$151,073	\$189,089	\$173,449	\$207,442	\$198,129	9.7%	14.2%

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

EUROPE CHEMICAL TRADE, BY COUNTRY

Growth in imports outpaced that in exports for every major trading partner other than Japan

\$ MILLIONS	2008		2009		2010		2011		CHANGE, 2010-11	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Brazil	\$7,101	\$3,033	\$7,073	\$2,593	\$9,684	\$2,960	\$10,520	\$3,516	8.6%	18.8%
Canada	6,847	2,739	6,799	2,956	7,481	3,005	7,147	3,470	-4.5	15.5
China	11,634	12,947	14,068	11,060	17,637	15,344	20,606	18,080	16.8	17.8
India	4,189	4,622	4,166	4,171	5,461	5,613	5,922	7,147	8.4	27.3
Japan	11,989	8,452	13,221	7,764	16,585	9,067	18,189	9,503	9.7	4.8
Russia	19,174	7,339	15,800	4,629	21,702	6,558	24,982	7,913	15.1	20.7
Saudi Arabia	3,867	3,476	4,157	2,240	5,174	3,997	5,815	4,659	12.4	16.6
South Korea	5,904	2,377	5,185	2,058	6,695	2,552	7,438	3,101	11.1	21.5
U.S.	73,405	49,776	74,475	46,736	84,315	54,223	86,109	56,617	2.1	4.4

NOTE: Data represent a total for 27 countries in the European Union. All figures were converted at the 2011 average exchange rate of \$1.00 U.S. = 0.7178 euros.

SOURCE: European Union

U.S. CHEMICAL TRADE, BY PRODUCT

Export increases were eclipsed by import increases in all but one sector

\$ MILLIONS	2008		2009		2010		2011		CHANGE, 2010-11	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Organic chemicals	\$34,815	\$47,773	\$28,152	\$42,145	\$38,806	\$45,825	\$45,478	\$54,265	17.2%	18.4%
Plastics in primary form	30,918	12,088	24,998	8,172	32,128	10,938	35,324	12,863	9.9	176
Medicinals & pharmaceuticals	38,225	59,565	44,244	59,910	44,607	65,270	43,154	69,561	-3.3	6.6
Inorganic chemicals	13,094	16,832	10,531	10,793	12,133	13,830	14,436	17,013	19.0	23.0
Plastics in nonprimary form	10,059	6,830	8,849	5,519	10,822	6,886	11,868	7,885	9.7	14.5
Perfume, toilet & cleaning materials	12,149	9,564	11,680	8,404	13,173	9,565	13,988	10,613	6.2	11.0
Dyeing, tanning & coloring materials	6,367	3,074	5,700	2,423	7,578	3,104	8,787	3,459	16.0	11.4
Fertilizers	7,468	8,393	4,109	4,146	4,574	6,652	6,199	9,160	35.5	37.7
Other	26,041	12,706	21,416	9,561	25,268	11,377	28,207	13,309	11.6	17.0
TOTAL	\$179,137	\$176,825	\$159,678	\$151,073	\$189,089	\$173,449	\$207,442	\$198,129	9.7%	14.2%

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

ASIA CHEMICAL TRADE, BY PRODUCT

China's chemical exports grew by close to 30%

\$ MILLIONS	2008		2009		2010		2011		CHANGE, 2010-11	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
CHINA										
Inorganic chemicals	\$13,354	\$9,191	\$7,817	\$6,218	\$11,765	\$9,956	\$17,301	\$10,943	47.1%	9.9%
Organic chemicals	29,125	39,301	24,198	36,174	31,459	48,232	39,295	63,171	24.9	31.0
Pharmaceutical products	2,881	4,886	3,450	6,020	4,485	7,236	5,421	10,347	20.9	43.0
Fertilizers	4,383	3,482	2,584	1,993	5,431	2,572	7,924	3,450	45.9	34.1
Dyes & pigments	3,713	4,023	3,068	3,592	4,310	4,426	5,504	4,539	27.7	2.6
Other (a)	15,450	16,078	12,909	15,424	17,540	20,730	21,652	25,553	23.4	23.3
TOTAL	\$68,906	\$76,961	\$54,026	\$69,421	\$74,990	\$93,152	\$97,097	\$118,003	29.5%	26.7%
JAPAN										
Organic chemicals	\$20,228	\$15,606	\$18,866	\$14,078	\$22,072	\$16,216	\$24,569	\$19,167	11.3%	18.2%
Inorganic chemicals	5,116	8,542	3,510	5,521	4,484	7,922	4,941	11,384	10.2	43.7
Synthetic resins	23,814	12,101	21,702	9,788	29,237	12,675	30,295	15,289	3.6	20.6
Photographic materials	4,641	383	3,890	370	4,681	392	4,951	393	5.8	0.3
Fertilizers	225	1,627	99	862	146	850	205	1,056	40.4	24.2
Dyes & pigments	3,997	1,501	3,655	1,134	4,808	1,536	5,240	1,787	9.0	16.3
Rubber	11,749	5,455	9,686	3,463	12,830	5,399	14,946	7,570	16.5	40.2
Other	18,453	20,341	15,837	21,828	20,677	26,872	22,369	32,993	8.2	22.8
TOTAL	\$88,223	\$65,556	\$77,245	\$57,044	\$98,935	\$71,862	\$107,516	\$89,639	8.7%	24.7%
SOUTH KOREA										
Chemicals & chemical products	\$42,710	\$36,658	\$37,415	\$31,505	\$48,951	\$41,148	\$60,709	\$48,251	24.0%	17.3%
Petrochemicals (b)	32,124	12,319	27,466	9,535	35,715	13,301	45,587	16,503	27.6	24.1

a Calculated by C&EN. b Defined as synthetic resins, synthetic fiber raw materials, and synthetic rubber.

SOURCES: General Administration of Customs of the People's Republic of China; Japan Chemical Exporters & Importers Association; Korea National Statistical Office, Republic of Korea; Korea Petrochemical Industry Association

CANADA CHEMICAL TRADE, BY PRODUCT

Canadian trade rose strongly in 2011, especially with the U.S.

\$ MILLIONS	2008		2009		2010		2011		CHANGE, 2010-11	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Basic chemicals	\$11,005	\$10,667	\$8,121	\$8,478	\$9,886	\$9,440	\$11,804	\$9,996	19.4%	5.9%
Resin, synthetic rubber & fibers	7,595	7,075	5,245	5,524	6,066	6,650	7,027	7,347	15.9	10.5
Pesticides, fertilizers & other agricultural chemicals	2,428	2,432	1,664	2,075	1,612	1,997	2,038	2,432	26.4	21.8
Pharmaceuticals & medicine	6,845	12,832	7,656	14,705	6,242	13,490	5,975	13,732	-4.3	1.8
Other chemical products	4,485	9,629	4,093	9,585	4,448	9,785	4,775	10,389	7.3	6.2
TOTAL	\$32,360	\$42,634	\$26,779	\$40,368	\$28,253	\$41,361	\$31,618	\$43,897	11.9%	6.1%
TOTAL WITH U.S.	\$24,717	\$25,068	\$20,251	\$23,317	\$21,403	\$24,666	\$24,306	\$26,917	13.6%	9.1%
U.S. SHARE	76.4%	58.8%	75.6%	57.8%	75.8%	59.6%	76.9%	61.3%		

NOTE: Monetary statistics for all years were converted at the 2011 average exchange rate of \$1.00 U.S. = \$0.9887 Canadian. Totals may not sum because of rounding.

SOURCES: Industry Canada, Statistics Canada

U.S. CHEMICAL TRADE BALANCE, BY PRODUCT

Overall trade balance dropped but was still second highest in the past decade

\$ MILLIONS	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Organic chemicals	-\$12,680	-\$13,373	-\$12,425	-\$8,835	-\$11,304	-\$11,900	-\$7,831	-\$12,958	-\$13,993	-\$7,019	-\$8,787
Plastics in primary form	7,189	7,471	7,761	9,858	10,380	12,475	17,018	18,830	16,826	21,190	22,460
Medicinals & pharmaceuticals	-3,203	-8,570	-12,307	-11,123	-13,087	-16,848	-20,224	-21,340	-15,666	-20,663	-26,407
Inorganic chemicals	-463	-406	-1,663	-1,833	-2,315	-2,172	-2,417	-3,738	-262	-1,697	-2,577
Plastics in nonprimary form	1,715	1,656	1,710	1,682	1,678	1,899	2,467	3,229	3,330	3,936	3,983
Perfume, toilet & cleaning materials	2,278	1,940	1,246	794	483	1,163	1,775	2,585	3,276	3,608	3,375
Dyeing, tanning & coloring materials	1,399	1,619	1,801	2,021	2,048	2,406	2,790	3,293	3,277	4,474	5,328
Fertilizers	357	643	422	316	-496	-271	-1,227	-925	-37	-2,078	-2,961
Other	6,857	6,556	6,558	7,038	7,446	9,053	10,480	13,335	11,855	13,891	14,898
TOTAL	\$3,449	-\$2,464	-\$6,897	-\$82	-\$5,167	-\$4,195	\$2,831	\$2,312	\$8,605	\$15,640	\$9,313

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

CANADA CHEMICAL TRADE BALANCE, BY PRODUCT

Canadian chemical trade deficit shrank for the second consecutive year

\$ MILLIONS	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Basic chemicals	-\$1,275	-\$1,200	-\$1,425	-\$775	\$10	\$167	\$2,067	\$339	-\$357	\$445	\$1,807
Resin, synthetic rubber & fibers	-59	-423	-237	159	109	472	604	520	-279	-585	-320
Pesticides, fertilizers & other agricultural chemicals	-352	-255	-383	-78	153	21	-68	-4	-411	-383	-394
Pharmaceuticals & medicine	-4,791	-5,582	-5,707	-5,614	-5,758	-5,994	-5,597	-5,987	-7,051	-7,249	-7,759
Other chemical products	-4,891	-5,403	-5,277	-5,102	-5,180	-5,204	-5,189	-5,143	-5,492	-5,336	-5,614
TOTAL	-\$11,368	-\$12,862	-\$13,029	-\$11,412	-\$10,667	-\$10,538	-\$8,183	-\$10,275	-\$13,590	-\$13,109	-\$12,279

NOTE: Monetary statistics for all years were converted at the 2011 average exchange rate of \$1.00 U.S. = \$0.9887 Canadian. Totals may not sum because of rounding.

SOURCES: Industry Canada, Statistics Canada