

54% Share of 2010 U.S. chemical imports from Europe

6% Share of 2010 U.S. chemical imports from China

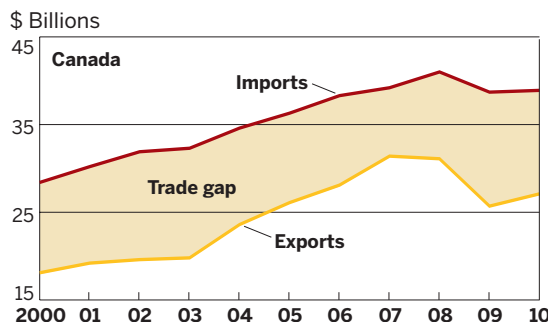
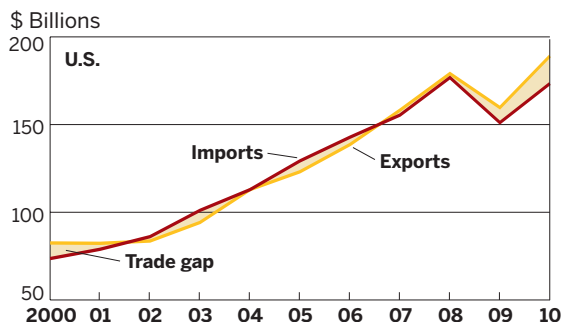
Increase in U.S. chemical exports in 2010: **18%**

Share of Canada's exports to U.S. in 2010: **76%**

Increase in U.S. organic chemical exports in 2010: **38%**

Chemicals' share of total U.S. manufacturing exports in 2010: **15%**

U.S. trade surplus grew, while Canada's gap narrowed in 2010



NOTE: Canadian trade data for all years were converted at the 2010 average exchange rate of \$1.00 U.S. = \$1.0298 Canadian.
 SOURCES: U.S. Department of Commerce, Industry Canada, Statistics Canada

U.S. trade balance in plastics:

\$21.2 billion

U.S. trade balance in medicinals and pharmaceuticals:

-\$20.7 billion

Chinese imports of organic chemicals in 2010:

\$48 billion

Chinese chemical trade deficit in 2010:

\$18 billion

Ratio of European Union exports to Russia over EU imports from Russia:

3.4:1

GROWING ECONOMIES PUMP UP COMMERCE

Jump in **TRADE** was a measure of recovery for the chemical industry

IN THE DECADE through 2008, the value of chemical products shipped around the globe increased at a faster pace than chemical production. In 2009, the trade fervor finally took a break, but it resumed again with a bang last year, restarting a trend that the recession had interrupted.

In the U.S., trade ran ahead of the recovery; chemical exports in 2010 surpassed the 2008 high watermark, reaching a new peak of \$189.1 billion. Meanwhile, chemical production in the U.S. was still significantly down from its 2007 level.

The increase in demand for chemicals,

especially from economies growing faster than the U.S. economy, helped power a near-doubling of the U.S. chemical trade surplus to \$15.6 billion. In particular, the U.S. enjoyed a growing plastics surplus, and it shrank its trade deficit in organic chemical products in 2010 compared with 2009.

Trade with the developing world also boosted exports from Europe. On the plus side were European shipments to Brazil, China, India, and Russia, all of which grew by more than 20% in 2010. On the import side, Europe's imports of chemical

products decreased only from Canada.

Canada, the largest single-country trading partner of the U.S., whittled its trade deficit to \$12.6 billion from \$13.0 billion in 2009. The biggest swing came from basic chemicals, which changed from a \$342 million deficit to a \$426 million surplus in just one year.

South Korea and Japan continued to enjoy a healthy trade surplus in chemicals, as they have for many years. The amount of trade increased considerably in 2010, compared with a severe contraction in 2009. South Korea exported twice as many petrochemicals as it imported, for a surplus of just over \$20 billion. Japan's exports of high-value synthetic resins were responsible for more than half of the \$27.1 billion chemical trade surplus.

China, by contrast, is a major importer of chemicals, and it had an \$18.1 billion overall trade deficit in chemicals in 2010. Most of that gap was due to a shortfall in organic chemicals worth \$16.5 billion. China's fertilizer surplus was \$2.9 billion.

U.S. TOTAL TRADE

Chemical industry held on to its number two spot among exporting sectors

\$ BILLIONS	EXPORTS				IMPORTS			
	2007	2008	2009	2010	2007	2008	2009	2010
Machinery & transport equipment	\$536.4	\$556.6	\$441.4	\$520.7	\$738.7	\$721.2	\$569.7	\$714.1
Miscellaneous manufactures	127.1	134.1	119.9	133.9	293.8	290.0	247.6	287.3
Chemicals	158.2	179.1	159.7	189.1	155.4	176.8	151.1	173.4
Manufactured goods classified by material	112.5	125.0	94.6	119.5	227.2	231.7	152.0	194.5
Food & live animals	62.3	85.8	71.6	82.7	60.9	66.2	62.0	70.3
Crude materials, inedible (except fuels)	62.4	76.5	61.8	81.0	30.5	32.9	20.7	28.3
Mineral fuels & lubricants	42.0	76.5	54.7	80.7	360.9	487.9	270.3	353.5
Beverages & tobacco	5.4	5.5	5.0	5.5	17.3	17.2	15.6	16.7
Animal & vegetable oils, fats & waxes	2.9	4.4	3.2	4.3	3.3	5.1	3.7	4.2
Other	53.5	56.5	45.0	60.2	65.7	71.1	65.3	70.0
TOTAL	\$1,162.7	\$1,300.1	\$1,056.9	\$1,278.0	\$1,953.7	\$2,100.1	\$1,557.9	\$1,912.0

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

U.S. CHEMICAL TRADE, BY REGION

Trade with Latin America, Asia, and the Middle East soared

\$ MILLIONS	2007		2008		2009		2010		CHANGE, 2009-10	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Europe	\$52,546	\$85,976	\$59,352	\$94,902	\$55,049	\$85,822	\$59,310	\$93,939	7.7%	9.5%
Canada	25,498	24,335	27,118	27,099	24,438	20,448	28,526	24,314	16.7	18.9
Latin America	34,345	10,358	40,123	12,893	33,208	7,912	41,238	10,218	24.2	29.1
Japan	9,373	8,599	10,636	8,731	8,943	7,809	11,766	9,140	31.6	17.0
China-Vietnam	8,648	7,315	9,588	10,823	10,437	8,593	13,052	10,788	25.1	25.5
Rest of Asia	19,593	12,290	23,075	13,612	19,006	13,382	25,212	15,076	32.7	12.7
Australia	2,843	843	3,299	893	3,050	892	3,291	999	7.9	12.0
Middle East	2,931	4,509	3,419	6,346	3,151	5,408	3,943	7,799	25.1	44.2
Africa	1,502	963	1,690	1,298	1,618	630	1,785	952	10.3	51.1
Other	911	171	835	227	779	177	966	225	24.0	27.1
TOTAL	\$158,190	\$155,359	\$179,137	\$176,825	\$159,678	\$151,073	\$189,089	\$173,449	18.4%	14.8%

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

EUROPE CHEMICAL TRADE, BY COUNTRY

Trade with Brazil, India, and Russia saw the sharpest increase

\$ MILLIONS	2007		2008		2009		2010		CHANGE, 2009-10	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Brazil	\$5,734	\$2,338	\$6,759	\$2,887	\$6,711	\$2,463	\$9,206	\$2,787	37.2%	13.2%
Canada	6,880	2,607	6,518	3,029	6,466	3,157	7,148	2,795	10.5	-11.5
China	9,817	9,993	11,074	12,323	13,388	10,524	16,815	14,537	25.6	38.1
India	3,289	3,938	3,988	4,400	3,964	3,981	5,208	5,337	31.4	34.1
Japan	11,513	8,661	11,508	8,045	12,655	7,370	15,811	8,634	24.9	17.1
Russia	16,435	5,872	18,251	7,056	15,023	4,413	21,003	6,239	39.8	41.4
Saudi Arabia	3,236	3,433	3,681	3,309	3,958	2,124	4,950	3,698	25.1	74.1
South Korea	5,520	2,073	5,853	2,262	5,125	1,956	6,495	2,428	26.7	24.1
U.S.	72,846	47,515	70,664	46,235	71,807	44,953	80,216	52,238	11.7	16.2

NOTE: Data represent a total for 27 countries in the European Union. All figures were converted at the 2010 average exchange rate of \$1.00 U.S. = 0.7541 euros.
SOURCE: European Union

U.S. CHEMICAL TRADE, BY PRODUCT

Almost all sectors saw double-digit increases in exports and imports

\$ MILLIONS	2007		2008		2009		2010		CHANGE, 2009-10	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Organic chemicals	\$34,407	\$42,238	\$34,815	\$47,773	\$28,152	\$42,145	\$38,806	\$45,825	37.8%	8.7%
Plastics in primary form	28,458	11,440	30,918	12,088	24,998	8,172	32,128	10,938	28.5	33.8
Medicinals & pharmaceuticals	33,464	53,688	38,225	59,565	44,244	59,910	44,607	65,270	0.8	8.9
Inorganic chemicals	10,958	13,375	13,094	16,832	10,531	10,793	12,133	13,830	15.2	28.1
Plastics in nonprimary form	9,278	6,811	10,059	6,830	8,849	5,519	10,822	6,886	22.3	24.8
Perfume, toilet & cleaning materials	10,645	8,870	12,149	9,564	11,680	8,404	13,173	9,565	12.8	13.8
Dyeing, tanning & coloring materials	5,906	3,116	6,367	3,074	5,700	2,423	7,578	3,104	32.9	28.1
Fertilizers	3,742	4,969	7,468	8,393	4,109	4,146	4,574	6,652	11.3	60.4
Other	21,332	10,852	26,041	12,706	21,416	9,561	25,268	11,377	18.0	19.0
TOTAL	\$158,190	\$155,359	\$179,137	\$176,825	\$159,678	\$151,073	\$189,089	\$173,449	18.4%	14.8%

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

ASIA CHEMICAL TRADE, BY PRODUCT

Value of chemical exports and imports surged

\$ MILLIONS	2007		2008		2009		2010		CHANGE, 2009-10	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
CHINA										
Inorganic chemicals	\$9,661	\$6,417	\$13,354	\$9,191	\$7,817	\$6,218	\$11,765	\$9,956	50.5%	60.1%
Organic chemicals	20,597	34,826	29,125	39,301	24,198	36,174	31,459	48,232	30.0	33.3
Pharmaceutical products	2,053	3,451	2,881	4,886	3,450	6,020	4,485	7,236	30.0	20.2
Fertilizers	3,737	2,906	4,383	3,482	2,584	1,993	5,431	2,572	110.2	29.1
Dyes & pigments	3,577	3,806	3,713	4,023	3,068	3,592	4,310	4,426	40.5	23.2
Other (a)	11,490	17,163	15,450	16,078	12,909	15,424	17,540	20,730	35.9	34.4
TOTAL	\$51,115	\$68,569	\$68,906	\$76,961	\$54,026	\$69,421	\$74,990	\$93,152	38.8%	34.2%
JAPAN										
Organic chemicals	\$20,751	\$13,024	\$20,228	\$15,606	\$18,866	\$14,078	\$22,072	\$16,216	17.0%	15.2%
Inorganic chemicals	4,101	6,967	5,116	8,542	3,510	5,521	4,484	7,922	27.7	43.5
Synthetic resins	22,047	10,183	23,814	12,101	21,702	9,788	29,237	12,675	34.7	29.5
Photographic materials	4,684	406	4,641	383	3,890	370	4,681	392	20.3	5.9
Fertilizers	130	787	225	1,627	99	862	146	850	47.5	-1.4
Dyes & pigments	3,621	1,264	3,997	1,501	3,655	1,134	4,808	1,536	31.5	35.4
Rubber	10,450	4,268	11,749	5,455	9,686	3,463	12,830	5,399	32.5	55.9
Other	17,016	17,555	18,453	20,341	15,837	21,828	20,677	26,872	30.6	23.1
TOTAL	\$82,800	\$54,454	\$88,223	\$65,556	\$77,245	\$57,044	\$98,935	\$71,862	28.1%	26.0%
SOUTH KOREA										
Chemicals & chemical products	\$37,545	\$32,433	\$42,710	\$36,658	\$37,415	\$31,505	\$48,951	\$41,148	30.8%	30.6%
Petrochemicals (b)	28,824	11,624	32,124	12,319	27,466	9,535	35,715	13,301	30.0	39.5

NOTE: Totals may not sum because of rounding. 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

Exports of basic chemicals saw the largest increase compared to last year

\$ MILLIONS	2007		2008		2009		2010		CHANGE, 2009-10	
	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS	EXPORTS	IMPORTS
Basic chemicals	\$11,983	\$9,998	\$10,566	\$10,241	\$7,797	\$8,139	\$9,491	\$9,064	21.7%	11.4%
Resin, synthetic rubber & fibers	7,183	6,603	7,292	6,793	5,036	5,303	5,823	6,385	15.6	20.4
Pesticides, fertilizers & other agricultural chemicals	1,629	1,695	2,332	2,335	1,597	1,995	1,548	1,914	-3.1	-4.0
Pharmaceuticals & medicine	6,605	11,979	6,572	12,320	7,350	14,116	5,992	12,945	-18.5	-8.3
Other chemical products	4,003	8,984	4,306	9,245	3,930	9,204	4,271	9,398	8.7	2.1
TOTAL	\$31,403	\$39,259	\$31,068	\$40,932	\$25,710	\$38,756	\$27,125	\$39,706	5.5%	2.5%
TOTAL WITH U.S.	\$22,735	\$23,707	\$23,731	\$24,068	\$19,443	\$22,387	\$20,549	\$23,686	5.7%	5.8%
U.S. SHARE	72.4%	60.4%	76.4%	58.8%	75.6%	57.8%	75.8%	59.7%		

NOTE: Monetary statistics for all years were converted at the 2010 average exchange rate of \$1.00 U.S. = \$1.0298 Canadian. Totals may not sum because of rounding.

SOURCES: Industry Canada, Statistics Canada

U.S. CHEMICAL TRADE BALANCE, BY PRODUCT

Trade surplus nearly doubled, aided by growing plastics surplus, shrinking organics deficit

\$ MILLIONS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Organic chemicals	-\$9,632	-\$12,680	-\$13,373	-\$12,425	-\$8,835	-\$11,304	-\$11,900	-\$7,831	-\$12,958	-\$13,993	-\$7,019
Plastics in primary form	7,439	7,189	7,471	7,761	9,858	10,380	12,475	17,018	18,830	16,826	21,190
Medicinals & pharmaceuticals	-1,572	-3,203	-8,570	-12,307	-11,123	-13,087	-16,848	-20,224	-21,340	-15,666	-20,663
Inorganic chemicals	-582	-463	-406	-1,663	-1,833	-2,315	-2,172	-2,417	-3,738	-262	-1,697
Plastics in nonprimary form	1,983	1,715	1,656	1,710	1,682	1,678	1,899	2,467	3,229	3,330	3,936
Perfume, toilet & cleaning materials	2,005	2,278	1,940	1,246	794	483	1,163	1,775	2,585	3,276	3,608
Dyeing, tanning & coloring materials	1,529	1,399	1,619	1,801	2,021	2,048	2,406	2,790	3,293	3,277	4,474
Fertilizers	796	357	643	422	316	-496	-271	-1,227	-925	-37	-2,078
Other	6,944	6,857	6,556	6,558	7,038	7,446	9,053	10,480	13,335	11,855	13,891
TOTAL	\$8,910	\$3,449	-\$2,464	-\$6,897	-\$82	-\$5,167	-\$4,195	\$2,831	\$2,312	\$8,605	\$15,640

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

CANADA CHEMICAL TRADE BALANCE, BY PRODUCT

Trade deficit shrank for the first time since 2007

\$ MILLIONS	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Basic chemicals	-\$979	-\$1,225	-\$1,152	-\$1,368	-\$744	\$10	\$160	\$1,985	\$325	-\$342	\$426
Resin, synthetic rubber & fibers	-361	-56	-406	-227	152	105	453	580	499	-268	-561
Pesticides, fertilizers & other agricultural chemicals	-175	-338	-245	-368	-75	147	20	-65	-4	-397	-366
Pharmaceuticals & medicine	-3,990	-4,600	-5,359	-5,480	-5,390	-5,528	-5,755	-5,374	-5,748	-6,766	-6,953
Other chemical products	-4,750	-4,696	-5,187	-5,066	-4,898	-4,973	-4,996	-4,982	-4,938	-5,274	-5,128
TOTAL	-\$10,255	-\$10,915	-\$12,349	-\$12,509	-\$10,956	-\$10,241	-\$10,117	-\$7,857	-\$9,865	-\$13,047	-\$12,581

NOTE: Monetary statistics for all years were converted at the 2010 average exchange rate of \$1.00 U.S. = \$1.0298 Canadian. Totals may not sum because of rounding.

SOURCES: Industry Canada, Statistics Canada