CHROMIUM

(Data in thousand metric tons, gross weight, unless otherwise noted)

Domestic Production and Use: In 2003, the United States consumed about 12% of world chromite ore production in various forms of imported materials, such as chromite ore, chromium chemicals, chromium ferroalloys, and chromium metal. Imported chromite was consumed by one chemical firm to produce chromium chemicals. Consumption of chromium ferroalloys and metal was predominantly for the production of stainless and heat-resisting steel and superalloys, respectively. The value of chromium material consumption was about $188 million.

Salient Statistics—United States:[1]	1999	2000	2001	2002	2003[e]
Production, secondary	118	139	122	139	129
Imports for consumption	476	453	239	263	344
Exports	60	86	38	29	16
Government stockpile releases	19	85	9	119	37
Consumption:					
Reported[2] (excludes secondary)	298	206	196	225	224
Apparent[3] (includes secondary)	558	589	332	500	492
Price, chromite, yearend:					
South African, dollars per metric ton, South Africa	63	63	NA[4]	NA[4]	NA[4]
Turkish, dollars per metric ton, Turkey	145	141	NA[4]	NA[4]	NA[4]
Unit value, average annual import (dollars per metric ton):					
Chromite ore (gross weight)	62	64	61	60	45
Ferrochromium (chromium content)	732	797	709	646	704
Chromium metal (gross weight)	6,267	5,976	6,116	5,770	5,550
Stocks, industry, yearend[5]	54	16	17	8	10
Net import reliance[6] as a percentage of apparent consumption	79	67	63	68	74

Recycling: In 2003, chromium contained in purchased stainless steel scrap accounted for 26% of apparent consumption.

Import Sources (1999-2002): Chromium contained in chromite ore and chromium ferroalloys and metal: South Africa, 48%; Kazakhstan, 23%; Zimbabwe, 9%; Turkey, 7%; Russia, 6%; and other, 7%.

Tariff:[7] Item	Number	Normal Trade Relations 12/31/03
Ore and concentrate	2610.00.0000	Free.
Ferrochromium:		
Carbon over 4%	7202.41.0000	1.9% ad val.
Carbon over 3%	7202.49.1000	1.9% ad val.
Other:		
Carbon over 0.5%	7202.49.5010	3.1% ad val.
Other	7202.49.5090	3.1% ad val.
Chromium metal:		
Unwrought powder	8112.21.000	3% ad val.
Waste and scrap	8112.22.000	Free.
Other	8112.29.000	3% ad val.
Ferrosilicon Chromium	7202.50.000	10% ad val.

Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile: The Defense Logistics Agency, U.S. Department of Defense, submitted the Annual Materials Plan for fiscal year (FY) 2004 in February 2003. Quantity available for sale will be limited to sales authority or inventory. The Agency reported sales in FY 2003 of 6,810 tons of chemical-grade chromite ore, 51,800 tons of refractory-grade chromite ore, 45,300 tons of high-carbon ferrochromium, 12,000 tons of low-carbon ferrochromium, and 103 tons of chromium metal.

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Stockpile Status—9-30-03[8]

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposal plan FY 2003	Disposals FY 2003	Average chromium content
Chromite ore:						
Chemical-grade	70.9	7.64	70.9	90.7	7.45	28.6%
Metallurgical-grade	—	51.9	—	90.7	—	28.6%
Refractory-grade	82.6	73.5	82.6	90.7	30.1	[e]23.9%
Ferrochromium:						
High-carbon	482	2.31	482	136	62.0	71.4%
Low-carbon	218	0.642	218	—	15.7	71.4%
Chromium metal	7.10	0.042	7.10	0.454	0.116	100%

Events, Trends, and Issues: Rising cost of ferrochromium production and a strengthening South African rand, along with increased demand for ferrochromium and tightness in supply of stainless steel scrap, have caused the price of ferrochromium to reach historically high levels. Increased demand for ferrochromium resulted from increased world stainless steel production, the major end use for ferrochromium. World stainless steel production responded to world demand led by China. With strong economic growth, China's importance as a consumer of raw materials has increased significantly. The high price of ferrochromium resulted in the reentry of China and India, two of the world's higher cost ferrochromium producers, in that commodity's export market. It also fueled ferrochromium production expansion in Kazakhstan and bolstered its interest in moving into stainless steel production. Kazakhstan is geographically well placed and endowed with mineral and energy resources to meet China's growing demand for stainless steel. The high cost and tight supply of stainless steel scrap resulted from increasing production of stainless steel and the cost of nickel, which reached its highest level in at least 14 years despite increased nickel production. High chromium and nickel prices result in increasing stainless steel price, which may cause the use of less costly stainless steel grades, other metals, or nonmetallic materials. If stainless users shift to less costly stainless grades, nickel demand would fall without depressing chromium demand. If stainless consumers shift to other metals or materials, demand for both chromium and nickel would decrease.

World Mine Production, Reserves, and Reserve Base: The reserves and reserve base estimates have been revised from those previously published based on new information.

	Mine production 2002	Mine production 2003[e]	Reserves[9] (shipping grade)[10]	Reserve base[9] (shipping grade)[10]
United States	—	—	—	7,000
India	1,900	1,900	25,000	57,000
Kazakhstan	2,370	2,400	290,000	470,000
South Africa	6,440	6,500	100,000	200,000
Other countries	2,790	3,000	390,000	1,100,000
World total (rounded)	13,500	14,000	810,000	1,800,000

World Resources: World resources exceed 12 billion tons of shipping-grade chromite, sufficient to meet conceivable demand for centuries. About 95% of chromium resources is geographically concentrated in southern Africa. Reserves and reserve base are geographically concentrated in Kazakhstan and southern Africa. The largest U.S. chromium resource is in the Stillwater Complex in Montana.

Substitutes: Chromium has no substitute in stainless steel, the largest end use, or in superalloys, the major strategic end use. Chromium-containing scrap can substitute for ferrochromium in metallurgical uses.

[e]Estimated. NA Not available. — Zero.

[1]Data in thousand metric tons of contained chromium, unless noted otherwise.

[2]The year 1998 includes chromite ore; 1999 through 2003 exclude chromite ore.

[3]Calculated demand for chromium is production + imports – exports + stock adjustment.

[4] This price series was discontinued.

[5]Includes producer and consumer stocks before 2000; consumer stocks after 1999.

[6]Defined as imports – exports + adjustments for Government and industry stock changes.

[7]In addition to the tariff items listed, certain imported chromium materials (see U.S. Code, chapter 26, sections 4661 and 4672) are subject to excise tax.

[8]See Appendix B for definitions.

[9] See Appendix C for definitions.

[10]Shipping-grade chromite ore is deposit quantity and grade normalized to 45% Cr_2O_3.