

CHROMIUM

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

Domestic Production and Use: In 2008, the United States consumed about 10% of world chromite ore production in various forms of imported materials, such as chromite ore, chromium chemicals, chromium ferroalloys, chromium metal, and stainless steel. One U.S. company mined chromite ore in Oregon. Imported chromite was consumed by one chemical firm to produce chromium chemicals. One company produced ferrochromium and chromium metal. Stainless- and heat-resisting-steel producers were the leading consumers of ferrochromium. Superalloys require chromium. The value of chromium material consumption in 2007 was \$548 million as measured by the value of net imports, excluding stainless steel, and was expected to be about \$1,800 million in 2008.

Salient Statistics—United States:¹	2004	2005	2006	2007	2008^e
Production:					
Primary	—	—	W	W	W
Secondary	233	255	234	292	290
Imports for consumption	489	503	520	464	500
Exports	171	220	212	284	250
Government stockpile releases	94	91	103	156	90
Consumption:					
Reported (includes scrap)	444	431	437	442	400
Apparent ² (includes scrap)	647	628	645	629	630
Unit value, average annual import (dollars per metric ton):					
Chromite ore (gross mass)	114	140	141	156	250
Ferrochromium (chromium content)	1,322	1,425	1,290	1,951	3,500
Chromium metal (gross mass)	5,823	8,007	8,181	8,331	10,000
Stocks, yearend, held by U.S. consumers	8	9	10	10	10
Net import reliance ³ as a percentage of apparent consumption	64	59	64	54	54

Recycling: In 2008, recycled chromium (contained in reported stainless steel scrap receipts adjusted for stainless steel and chromium metal scrap trade) accounted for 32% of apparent consumption.

Import Sources (2004-07): Chromium contained in chromite ore, chromium ferroalloys and metal, and stainless steel mill products: South Africa, 35%; Kazakhstan, 19%; Russia, 6%; Zimbabwe, 5%; and other, 35%.

Tariff:⁴ Item	Number	Normal Trade Relations 12-31-08
Ore and concentrate	2610.00.0000	Free.
Ferrochromium:		
Carbon more than 4%	7202.41.0000	1.9% ad val.
Carbon more than 3%	7202.49.1000	1.9% ad val.
Other:		
Carbon more than 0.5%	7202.49.5010	3.1% ad val.
Other	7202.49.5090	3.1% ad val.
Ferrochromium silicon	7202.50.0000	10% ad val.
Chromium metal:		
Unwrought powder	8112.21.0000	3% ad val.
Waste and scrap	8112.22.0000	Free.
Other	8112.29.0000	3% ad val.

Depletion Allowance:⁵ 22% (Domestic), 14% (Foreign).

Government Stockpile: In fiscal year (FY) 2008, which ended on September 30, 2008, the Defense Logistics Agency, Defense National Stockpile Center (DNSC), reported sales of 29,357 tons of high-carbon ferrochromium, 22,710 tons of low-carbon ferrochromium, and 327 tons of chromium metal. As a result of a July 2008 change in DNSC's method of computing inventory, the FY 2008 change in reported inventory does not accurately reflect the change in physical inventory. Disposals in the following table are based on DNSC's reported sales. Metallurgical-grade chromite ore and ferrochromium silicon stocks were exhausted in FY 2002; chemical- and refractory-grade chromite ore stocks were exhausted in FY 2004. The DNSC announced maximum disposal limits for FY 2009 of about 136,000 tons of ferrochromium (high- and low-carbon combined) and 907 tons of chromium metal. At the current maximum disposal rate, ferrochromium stocks will be exhausted in FY 2011; chromium metal, in FY 2014.

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Stockpile Status—9-30-08⁵

Material	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2008	Disposals FY 2008	Average chromium content
Ferrochromium:					
High-carbon	139	139	⁶ 136	29.4	71.4%
Low-carbon	66.7	66.7	(⁶)	22.7	71.4%
Chromium metal	4.82	4.82	0.907	0.327	100%

Events, Trends, and Issues: The price of ferrochromium reached historically high levels in 2008. China's role as a chromium consumer grew along with its stainless steel production industry. China's importance as a consumer of raw materials used in stainless steel production increased owing to its strong economic growth and the expansion of its stainless steel production. China's stainless steel production exceeded that of the United States beginning in 2004 and by 2008 was 335% greater than that of the United States. The U.S. financial problems and the subsequent economic slowdown were expected to result in reduced chromium material consumption and production, factors that could cause prices to decrease.

World Mine Production, Reserves, and Reserve Base: The Indian reserves and reserve base were revised based on information reported by the Government of India. The reserves and reserve base of Kazakhstan were revised based on new information published by mining companies. The reserves and reserve base of South Africa were recalculated to be consistent with those of India and Kazakhstan.

	Mine production ⁷		Reserves ⁸ (shipping grade) ⁹	Reserve base ⁸
	<u>2007</u>	<u>2008^e</u>		
United States	W	W	110	120
India	3,320	3,300	21,000	44,000
Kazakhstan	3,690	3,700	6,100	180,000
South Africa	9,650	9,600	77,000	150,000
Other countries	<u>4,850</u>	<u>4,900</u>	<u>NA</u>	<u>NA</u>
World total (rounded)	21,500	21,500	NA	NA

World Resources: World resources are greater than 12 billion tons of shipping-grade chromite, sufficient to meet conceivable demand for centuries. About 95% of the world's chromium resources is geographically concentrated in Kazakhstan and southern Africa; U.S. chromium resources are mostly in the Stillwater Complex in Montana.

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

^eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

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

²Calculated consumption of chromium; equal to production (from mines and scrap) + imports – exports + stock adjustments.

³Defined as imports – exports + adjustments for Government and industry stock changes.

⁴In addition to the tariff items listed, certain imported chromium materials (see 26 U.S.C. sec. 4661, 4662, and 4672) are subject to excise tax.

⁵[See Appendix B for definitions.](#)

⁶Disposal plan for ferrochromium without distinction between high-carbon and low-carbon ferrochromium; total included in high-carbon.

⁷Mine production units are thousand metric tons, gross weight, of marketable chromite ore.

⁸[See Appendix C for definitions.](#)

⁹Reserves and reserve base units are thousand metric tons of shipping-grade chromite ore, which is deposit quantity and grade normalized to 45% Cr₂O₃.