

CHROMIUM

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

Domestic Production and Use: In 2011, the United States was expected to consume about 5% 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 ore was consumed by one chemical firm to produce chromium chemicals. One company produced chromium metal. Stainless- and heat-resisting-steel producers were the leading consumers of ferrochromium. Superalloys require chromium. The value of chromium material consumption in 2010 was \$883 million as measured by the value of net imports, excluding stainless steel, and was expected to be about \$720 million in 2011.

Salient Statistics—United States: ¹	2007	2008	2009	2010	2011^e
Production:					
Mine	—	—	—	—	NA
Recycling ²	162	146	141	144	160
Imports for consumption	485	559	273	499	430
Exports	291	287	280	274	200
Government stockpile releases	137	11	25	14	1
Consumption:					
Reported (includes recycling)	442	401	369	396	380
Apparent ³ (includes recycling)	493	432	160	383	400
Unit value, average annual import (dollars per metric ton):					
Chromite ore (gross mass)	156	227	227	212	330
Ferrochromium (chromium content)	1,951	3,728	2,085	2,564	2,300
Chromium metal (gross mass)	8,331	11,078	9,896	11,322	14,500
Stocks, yearend, held by U.S consumers	10	7	7	7	5
Net import reliance ⁴ as a percentage of apparent consumption	67	66	12	62	60

Recycling: In 2011, recycled chromium (contained in reported stainless steel scrap receipts) accounted for 40% of apparent consumption.

Import Sources (2007–10): Chromium contained in chromite ore, chromium ferroalloys and metal, and stainless steel mill products and scrap: South Africa, 34%; Kazakhstan, 17%; Russia, 9%; China, 5%; and other, 35%.

Tariff: ⁵	Item	Number	Normal Trade Relations
			12-31-11
	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: 22% (Domestic), 14% (Foreign).

Government Stockpile: In fiscal year (FY) 2011, which ended on September 30, 2011, the Defense Logistics Agency, DLA Strategic Materials reported disposals of 190 tons of high-carbon ferrochromium, 4,509 tons of low-carbon ferrochromium, and 193 tons of chromium metal. Disposals in the following table are estimated as the change in DLA Strategic Materials' reported current year minus previous year physical inventory, with adjustments for accounting changes when appropriate. 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 DLA Strategic Materials announced that maximum disposal limits for FY 2012 were 90,718 tons of ferrochromium and 454 tons of chromium metal.

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Stockpile Status—9-30-11⁶

Material	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2011	Disposals FY 2011	Average chromium content
Ferrochromium:					
High-carbon	95.2	—	⁷ 90.7	0.190	71.4%
Low-carbon	55.1	—	(1)	4.51	71.4%
Chromium metal	4.24	—	0.454	0.193	100%

Events, Trends, and Issues: Most chromite ore is converted into ferrochromium that is consumed by the metallurgical industry and most of that is consumed to make stainless and heat-resisting steel. The year 2011 was characterized by uncertainty resulting from the escalating Eurozone debt crisis. World ingot and slab equivalent stainless and heat-resisting steel production at the end of the first half of 2011 was on track to reach 32 million tons for the year. At 32 million tons, an historically high stainless and heat-resisting steel world production would be reached.

World Mine Production and Reserves: Reserves for India were revised based on information reported by the government of India. Reserves for Kazakhstan and South Africa were revised based on Joint Ore Reserves Committee (JORC) complaint information reported by mining companies.

	Mine production ⁸		Reserves ⁹
	2010	2011 ^e	(shipping grade) ¹⁰
United States	—	NA	620
India	3,800	3,800	54,000
Kazakhstan	3,830	3,900	220,000
South Africa	10,900	11,000	200,000
Other countries	<u>5,170</u>	<u>5,300</u>	NA
World total (rounded)	23,700	24,000	>480,000

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 some metallurgical uses.

⁶Estimated. NA Not available. — Zero.

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

²Recycling production is based on reported stainless steel scrap receipts.

³Calculated consumption of chromium; equal to production (from mines and recycling) + imports – exports + stock adjustments.

⁴Defined as imports – exports + adjustments for Government and industry stock changes.

⁵In 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.

⁶See Appendix B for definitions.

⁷Disposal plan for ferrochromium without distinction between high-carbon and low-carbon ferrochromium; total included in high-carbon.

⁸Mine production units are thousand metric tons, gross weight, of marketable chromite ore.

⁹See Appendix C for resource/reserve definitions and information concerning data sources.

¹⁰Reserves units are thousand metric tons of shipping-grade chromite ore, which is deposit quantity and grade normalized to 45% Cr₂O₃.