

CHROMIUM

(Data in thousand metric tons of chromium content unless otherwise noted)

Domestic Production and Use: In 2015, 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 from which it produced foundry sand. Imported chromite ore was consumed by one chemical firm to produce chromium chemicals. One company produced chromium metal. Stainless-steel and heat-resisting-steel producers were the leading consumers of ferrochromium. Stainless steels and superalloys require chromium. The value of chromium material consumption in 2014 was \$971 million as measured by the value of net imports, excluding stainless steel, and was expected to be about \$1 billion in 2015.

Salient Statistics—United States:	2011	2012	2013	2014	2015^e
Production:					
Mine	—	NA	NA	NA	NA
Recycling ¹	147	146	150	157	162
Imports for consumption	531	554	475	637	676
Exports	232	234	235	250	381
Government stockpile releases	4	4	10	15	15
Consumption:					
Reported (includes recycling)	400	401	402	418	418
Apparent ² (includes recycling)	450	471	400	558	471
Unit value, average annual import (dollars per ton):					
Chromite ore (gross quantity)	355	392	310	243	214
Ferrochromium (chromium content)	2,603	2,362	2,156	2,209	1,035
Chromium metal (gross quantity)	14,090	13,333	11,147	11,006	10,866
Stocks, yearend, held by U.S. consumers	8	8	8	8	8
Net import reliance ³ as a percentage of apparent consumption	67	69	63	72	66

Recycling: In 2015, recycled chromium (contained in reported stainless steel scrap receipts) accounted for 34% of apparent consumption.

Import Sources (2011–14): Chromite (mineral): South Africa, 98%; and other, 2%. Chromium-containing scrap: Canada, 50%; Mexico, 42%; and other, 8%. Chromium (primary metal): South Africa, 33%; Kazakhstan, 18%; Russia, 10%; and other, 39%. Total imports: South Africa, 37%; Kazakhstan, 16%; Russia, 8%; and other, 39%.

Tariff:⁴ Item	Number	Normal Trade Relations 12–31–15
Chromium ores and concentrates:		
Not more than 40% Cr ₂ O ₃	2610.00.0020	Free.
Cr ₂ O ₃ more than 40% and less than 46%	2610.00.0040	Free.
Cr ₂ O ₃ not less than 46%	2610.00.0060	Free.
Chromium oxides and hydroxides:		
Chromium trioxide	2819.10.0000	3.7% ad val.
Other	2819.90.0000	3.7% ad val.
Sulfates of chromium	2833.29.4000	3.7% ad val.
Sodium dichromate	2841.30.0000	1.5% ad val.
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.

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

Government Stockpile: For FY 2016, the Defense Logistics Agency (DLA) Strategic Materials announced maximum disposal limits for chromium materials of about 21,300 tons of ferrochromium and 181 tons of chromium metal. No acquisitions were planned.

Stockpile Status—9–30–15⁵

Material ⁶	Inventory	Disposal Plan FY 2015	Disposals FY 2015
Ferrochromium:			
High-carbon	63.0	⁷ 21.0	11.8
Low-carbon	32.9	—	4.04
Chromium metal	3.96	0.136	—

Events, Trends, and Issues: Chromium is consumed in the form of ferrochromium to produce stainless steel. China was the leading chromium-consuming and ferrochromium-producing country and the leading stainless steel producer. South Africa was the leading chromite ore and a leading ferrochromium producer upon which world stainless steel producers depend directly or indirectly for chromium supply. Ferrochromium production is electrical energy intensive, so constrained electrical power supply results in constrained ferrochromium production. South Africa was the leading ferrochromium producer for many years before 2012, the first year that China's ferrochromium producers, motivated by China's stainless steel industry demand, matched South African ferrochromium production. China produced more ferrochromium, much of it derived from South African chromite ore, than South Africa in 2013 and 2014. However, the startup of a new smelter in 2014, as well as the restarting of other ferrochromium production capacity, which was shut down in 2012 and 2013 under electrical power buy-back contracts, permitted ferrochromium production in South Africa to rebound strongly in 2015. The leading ferrochromium producer in 2015 will likely be determined by the amount of electrical power reduction required in South Africa during its winter months and the amount of hydropower available in China during its rainy season.

DLA Strategic Materials planned to continue selling ferrochromium in fiscal year 2016 until it reaches its limit; however, DLA Strategic Materials would need congressional authority to continue sales into fiscal year 2017.

World Mine Production and Reserves:

	Mine production ⁸		Reserves ⁹
	2014	2015 ^e	(shipping grade) ¹⁰
United States	NA	NA	620
India	3,540	3,500	54,000
Kazakhstan	3,700	3,800	230,000
South Africa	12,000	15,000	200,000
Turkey	2,600	3,600	NA
Other countries	4,590	4,600	NA
World total (rounded)	26,400	27,000	>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.

^eEstimated. NA Not available. — Zero.

¹Recycling production is based on reported stainless steel scrap receipts.

²Defined as production (from mines and recycling) + imports – exports + adjustments for Government and industry stock changes.

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.

⁵See [Appendix B](#) for definitions.

⁶Units are metric tons of material gross quantity.

⁷High-carbon and low-carbon ferrochromium, combined.

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

⁹See [Appendix C](#) for resource/reserve definitions and information concerning data sources.

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