CHROMIUM

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

Domestic Production and Use: In 2016, 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. 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 2015 was $683 million as measured by the value of net imports, excluding stainless steel, and was expected to be about $620 million in 2016.

Salient Statistics—United States:	2012	2013	2014	2015	2016[e]
Production:					
Mine	—	—	—	—	—
Recycling[1]	146	150	157	154	172
Imports for consumption	637	557	683	511	493
Exports	244	240	256	236	260
Government stockpile releases	4	10	15	9	9
Consumption:					
Reported (includes recycling)	401	402	417	406	417
Apparent[2] (includes recycling)	543	477	598	438	413
Unit value, average annual import (dollars per ton):					
Chromite ore (gross weight)	381	309	243	217	200
Ferrochromium (chromium content)	2,356	2,162	2,208	2,251	1,400
Chromium metal (gross weight)	13,333	11,147	11,002	11,235	11,000
Stocks, yearend, held by U.S. consumers	8	8	8	8	8
Net import reliance[3] as a percentage of apparent consumption	73	69	74	65	58

Recycling: In 2016, recycled chromium (contained in reported stainless steel scrap receipts) accounted for 42% of apparent consumption.

Import Sources (2012–15): Chromite (mineral): South Africa, 98%; and other, 2%. Chromium-containing scrap: Canada, 49%; Mexico, 43%; and other, 8%. Chromium (primary metal): South Africa, 33%; Kazakhstan, 15%; Russia, 9%; and other, 43%. Total imports: South Africa, 37%; Kazakhstan, 13%; Russia, 8%; and other, 42%.

Tariff:[4] Item	Number	Normal Trade Relations 12–31–16
Chromium ores and concentrates:		
Not more than 40% Cr_2O_3	2610.00.0020	Free.
Cr_2O_3 more than 40% and less than 46%	2610.00.0040	Free.
Cr_2O_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	2.4% 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.

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

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CHROMIUM

Government Stockpile: For FY 2017, 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—9–30–16[5]

Material[6]	Inventory	Disposal Plan FY 2016	Disposals FY 2016
Ferrochromium:			
High-carbon	57.4	[7]21.3	5.58
Low-carbon	30.7	—	2.15
Chromium metal	3.91	0.181	0.059

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.

World stainless steel production rose from the first to the second quarter of 2016 and then declined from the second to the third quarter; however, third quarter production still exceeded that of the first quarter. China was the leading stainless-steel producer, accounting for about one-half of world production. As result of declining chromite ore prices early in 2016, it was thought that chromite ore stocks on the ground may have increased; however, moving that material into the market place was limited by the availability of transportation in South Africa and Zimbabwe. The price of South African Upper Group Reef seam 2 chromite concentrate, used in China to produce ferrochromium for its stainless-steel-producing industry, nearly doubled during the year. In Turkey, miners shifted away from chromite ore production when chromite ore prices declined early in the year.

DLA Strategic Materials planned to continue selling ferrochromium in fiscal year 2017 until it reaches its limit; however, DLA Strategic Materials would need congressional authority to continue sales into fiscal year 2018.

World Mine Production and Reserves:

	Mine production[8]		Reserves[9] (shipping grade)[10]
	2015	2016[e]	
United States	—	—	620
India	3,200	3,200	54,000
Kazakhstan	5,490	5,500	230,000
South Africa	14,000	14,000	200,000
Turkey	3,500	3,500	12,000
Other countries	4,220	4,200	NA
World total (rounded)	30,400	30,400	500,000

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.

[e]Estimated. NA Not available. — Zero.
[1]Recycling production is based on reported stainless steel scrap receipts.
[2]Defined as production (from mines and recycling) + imports – exports + adjustments for Government and industry stock changes.
[3]Defined as imports – exports + adjustments for Government and industry stock changes.
[4]In 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.
[6]Units are thousand tons of material by gross weight.
[7]High-carbon and low-carbon ferrochromium, combined.
[8]Mine production units are thousand tons, gross weight, of marketable chromite ore.
[9]See Appendix C for resource and reserve definitions and information concerning data sources.
[10]Reserves units are thousand tons of shipping-grade chromite ore, which is deposit quantity and grade normalized to 45% Cr_2O_3.