

CHROMIUM

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

Domestic Production and Use: In 2020, the United States was expected to consume 4% 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. Stainless-steel and heat-resisting-steel producers were the leading consumers of ferrochromium. Stainless steels and superalloys require the addition of chromium via ferrochromium or chromium-containing scrap. The value of chromium material consumption was expected to be about \$600 million in 2020, as measured by the value of net imports, excluding stainless steel, and was an increase from \$304 million in 2019.

Salient Statistics—United States:	2016	2017	2018	2019	2020^e
Production:					
Mine	—	—	—	—	—
Recycling ¹	156	156	143	142	130
Imports for consumption	548	634	651	530	490
Exports	253	255	211	157	110
Shipments from Government stockpile	5	8	4	4	4
Consumption (includes recycling):					
Reported	462	523	465	489	440
Apparent ²	455	545	587	519	510
Price, average annual value of imports, dollars per ton:					
Chromite ore (gross weight)	198	259	279	248	180
Ferrochromium (chromium content) ³	1,750	2,547	2,549	2,094	1,800
Chromium metal (gross weight)	9,939	9,675	11,344	10,393	7,900
Stocks, consumer, yearend	9	6	5	5	5
Net import reliance ⁴ as a percentage of apparent consumption	66	71	76	73	75

Recycling: In 2020, recycled chromium (contained in reported stainless steel scrap receipts) accounted for 25% of apparent consumption.

Import Sources (2016–19): Chromite (mineral): South Africa, 99%; and Canada, 1%. Chromium-containing scrap:⁵ Canada, 50%; Mexico, 42%; and other, 8%. Chromium (primary metal):⁶ South Africa, 36%; Kazakhstan, 10%; Russia, 7%; and other, 47%. Total imports: South Africa, 39%; Kazakhstan, 8%; Mexico, 6%; Russia, 6%; and other, 41%.

Tariff:⁷	Item	Number	Normal Trade Relations 12–31–20
	Chromium ores and concentrates:		
	Cr ₂ O ₃ not more than 40%	2610.00.0020	Free.
	Cr ₂ O ₃ more than 40% and less than 46%	2610.00.0040	Free.
	Cr ₂ O ₃ more than or equal to 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.
	Sodium dichromate	2841.30.0000	2.4% ad val.
	Potassium dichromate	2841.50.1000	1.5% ad val.
	Other chromates and dichromates	2841.50.9100	3.1% ad val.
	Carbides of chromium	2849.90.2000	4.2% 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.
	Carbon more than 0.5%	7202.49.5010	3.1% ad val.
	Other	7202.49.5090	3.1% ad val.
	Ferrosilicon chromium	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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Government Stockpile:⁸

Material ⁹	Inventory as of 9–30–20	FY 2020		FY 2021	
		Potential acquisitions	Potential disposals	Potential acquisitions	Potential disposals
Ferrochromium:					
High-carbon	33.9	—	¹⁰ 21.3	—	¹⁰ 21.8
Low-carbon	26.8	—	—	—	—
Chromium metal	3.83	—	0.181	—	0.454

Events, Trends, and Issues: Chromium is consumed in the form of ferrochromium to produce stainless steel. South Africa was the leading chromite ore producer. Increased labor costs, increased costs for electricity, an unreliable supply of electricity, temporary mine closures related to the COVID-19 pandemic, and challenges related to deep level mining could affect production in South Africa in 2020.

China was the leading chromium-consuming country. China was also the leading stainless-steel- and ferrochromium-producing country. South Africa was the second-leading country in ferrochromium production. Ferrochromium production is electrical-energy intensive, so constrained electrical power supply and rising costs for electricity in South Africa, as well as temporary closures related to the COVID-19 pandemic, could also affect ferrochromium production.

From September 2019 to September 2020, the monthly average high-carbon ferrochromium price increased by 12%. Prices of chromium metal decreased by 18% in September 2020 compared with the monthly average price in September 2019 and were below the prior low in February 2007.

World Mine Production and Reserves:

	Mine production ¹¹		Reserves ¹² (shipping grade) ¹³
	2019	2020 ^e	
United States	—	—	620
Finland	2,415	2,400	13,000
India	4,139	4,000	100,000
Kazakhstan	6,700	6,700	230,000
South Africa	16,395	16,000	200,000
Turkey	10,000	6,300	26,000
Other countries	5,110	4,800	NA
World total (rounded)	44,800	40,000	570,000

World Resources:¹² World resources are greater than 12 billion tons of shipping-grade chromite, sufficient to meet conceivable demand for centuries. World chromium resources are heavily geographically concentrated (95%) in Kazakhstan and southern Africa; United States 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 receipts of all types of stainless-steel scrap.

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

³Excludes ferrochromium silicon.

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

⁵Includes chromium metal scrap and stainless-steel scrap.

⁶Includes chromium metal, ferrochromium, and stainless steel.

⁷In 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.

⁸See Appendix B for definitions.

⁹Units are thousand tons of material by gross weight.

¹⁰High-carbon and low-carbon ferrochromium, combined.

¹¹Mine production units are thousand tons, gross weight, of marketable chromite ore.

¹²See Appendix C for resource and reserve definitions and information concerning data sources.

¹³Reserves units are thousand tons of shipping-grade chromite ore, which is deposit quantity and grade normalized to 45% Cr₂O₃, except for the United States where grade is normalized to 7% Cr₂O₃ and Finland where grade is normalized to 26% Cr₂O₃.