

MANGANESE

(Data in thousand metric tons, gross weight, unless otherwise specified)

Domestic Production and Use: Manganese ore containing 20% or more manganese has not been produced domestically since 1970. Manganese ore was consumed mainly by five companies: three companies produced manganese dioxide for pig iron manufacture and two companies produced silicomanganese and ferromanganese. Other companies consumed ore for nonmetallurgical purposes, such as in the production of animal feed, brick colorant, dry cell batteries, and fertilizers.

Salient Statistics—United States: ¹	2020	2021	2022	2023	2024^e
Production, mine	—	—	—	—	—
Imports for consumption:					
Manganese ores and concentrates	367	497	566	245	320
Ferromanganese	223	329	330	320	310
Silicomanganese	269	313	420	257	370
Exports:					
Manganese ores and concentrates	1	1	1	2	3
Ferromanganese	5	9	3	2	2
Silicomanganese	2	5	3	4	4
Shipments from Government stockpile: ²					
Manganese ore	—	2	—	NA	NA
Ferromanganese and manganese metal, electrolytic	54	21	14	NA	NA
Consumption, reported:					
Manganese ore ³	378	399	357	321	320
Ferromanganese	325	335	339	336	300
Silicomanganese	229	237	234	230	230
Consumption, apparent, manganese content ⁴	621	717	804	653	680
Price, average, manganese content, cost, insurance, and freight, China, dollars per metric ton unit ⁵	4.58	5.27	5.97	4.80	5.80
Stocks, producer and consumer, yearend:					
Manganese ore ³	143	220	312	233	230
Ferromanganese	35	40	50	27	30
Silicomanganese	31	34	26	18	20
Net import reliance ⁶ as a percentage of apparent consumption, manganese content	100	100	100	100	100

Recycling: Manganese was recycled incidentally as a constituent of ferrous and nonferrous scrap; however, scrap recovery specifically for manganese was negligible. Manganese is recovered along with iron from steel slag.

Import Sources (2020–23): Manganese ore: Gabon, 63%; South Africa, 23%; Mexico, 13%; and other, 1%. Ferromanganese: Malaysia, 24%; Australia, 16%; Norway, 15%; South Africa, 14%; and other, 31%. Silicomanganese: Georgia, 26%; South Africa, 25%; Australia, 19%; Malaysia, 9%; and other, 21%. Manganese contained in principal manganese imports:⁷ Gabon, 24%; South Africa, 21%; Australia, 10%; Malaysia, 9%; and other, 36%.

Tariff:	Item	Number	Normal Trade Relations 12–31–24
	Ores and concentrates:		
	Containing less than 47% manganese	2602.00.0040	Free.
	Containing 47% or more of manganese	2602.00.0060	Free.
	Manganese dioxide	2820.10.0000	4.7% ad valorem.
	Ferromanganese, containing by weight:		
	More than 2% but less than 4% carbon	7202.11.1000	1.4% ad valorem.
	More than 4% carbon	7202.11.5000	1.5% ad valorem.
	1% or less carbon	7202.19.1000	2.3% ad valorem.
	More than 1% but less than 2% carbon	7202.19.5000	1.4% ad valorem.
	Ferrosilicon manganese (silicomanganese)	7202.30.0000	3.9% ad valorem.
	Metal, unwrought:		
	Flake containing at least 99.5% manganese	8111.00.4700	14% ad valorem.
	Other	8111.00.4900	14% ad valorem.

Depletion Allowance: 22% (domestic), 14% (foreign).

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Government Stockpile:⁸

<u>Material</u>	FY 2024		FY 2025	
	<u>Potential acquisitions</u>	<u>Potential disposals</u>	<u>Potential acquisitions</u>	<u>Potential disposals</u>
Manganese ore, metallurgical grade	—	292	—	292
Ferromanganese, high carbon	—	45	—	18
Manganese metal, electrolytic	5	—	5	—

Events, Trends, and Issues: Global production of manganese ore, on a manganese-content basis, increased slightly from that in 2023. Consumption of manganese closely follows the steel industry. The World Steel Association⁹ estimated global finished steel consumption would decrease by 0.9% in 2024. An Australia-based company received grants from the U.S. Department of Defense and the U.S. Department of Energy to accelerate development of its manganese mine and battery-grade manganese production facility in Arizona. At least two manganese mining and processing plants in Ukraine have remained idle since November 2023 and another two have resumed minimum production since the second quarter of 2024. A manganese mine in northern Australia suspended its operation owing to a tropical cyclone, which contributed to the increase in manganese ore prices in 2024. In May 2024, the European Union's Critical Raw Materials Act entered into force, which includes high-purity manganese (battery grade) as a strategic raw material and manganese as a critical raw material. Manganese is included in the U.S. list of critical minerals.

World Mine Production (manganese content) and Reserves: Reserves for South Africa were revised based on Government reports.

	Mine production		Reserves ¹⁰
	<u>2023</u>	<u>2024^e</u>	
United States	—	—	—
Australia	2,860	2,800	¹¹ 500,000
Brazil	^e 580	590	270,000
China	767	770	280,000
Côte d'Ivoire	357	360	NA
Gabon	^e 4,490	4,600	61,000
Ghana	818	820	13,000
India	744	800	34,000
Malaysia	410	410	NA
South Africa	7,300	7,400	560,000
Other countries	<u>1,230</u>	<u>1,300</u>	<u>Small</u>
World total (rounded)	19,600	20,000	1,700,000

World Resources:¹⁰ Land-based manganese resources are large but irregularly distributed; those in the United States are very low grade and have potentially high extraction costs. South Africa accounts for an estimated 70% of the world's manganese resources.

Substitutes: Manganese has no satisfactory substitute in its major applications.

^eEstimated. NA Not available. — Zero.

¹Manganese content typically ranges from 35% to 54% for manganese ore and from 74% to 95% for ferromanganese.

²Defined as change in total inventory from prior yearend inventory. If negative, increase in inventory. Beginning in 2023, Government stock changes no longer available.

³Exclusive of ore consumed directly at iron and steel plants and associated yearend stocks.

⁴Defined for 2020–22 as imports – exports ± adjustments for Government and industry stock changes. Beginning in 2023, Government stock changes no longer included. Manganese content based on estimates of average content for all significant components—including ferromanganese, manganese dioxide, manganese ore, manganese waste and scrap, silicomanganese, unwrought manganese metal, and wrought manganese metal.

⁵For average metallurgical-grade ore containing 44% manganese. Source: CRU Group.

⁶Defined for 2020–22 as imports – exports ± adjustments for Government and industry stock changes. Beginning in 2023, Government stock changes no longer included.

⁷Includes imports of ferromanganese, manganese dioxide, manganese ore, silicomanganese, and unwrought manganese metal.

⁸See Appendix B for definitions.

⁹Source: World Steel Association, 2024, Short range outlook October 2024: Brussels, Belgium, World Steel Association press release, October 14, 3 p.

¹⁰See Appendix C for resource and reserve definitions and information concerning data sources.

¹¹For Australia, Joint Ore Reserves Committee-compliant or equivalent reserves were 110 million tons.