

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 six companies at seven facilities with plants principally in the Eastern and Midwestern States. Most ore consumption was related to steel production, either directly in pig iron manufacture or indirectly through upgrading the ore to ferroalloys. Additional quantities of ore were used for nonmetallurgical purposes, such as in the production of animal feed, brick colorant, dry cell batteries, and fertilizers. Manganese ferroalloys were produced at two plants.

Salient Statistics—United States: ¹	2019	2020	2021	2022	2023^e
Production, mine	—	—	—	—	—
Imports for consumption:					
Manganese ores and concentrates	434	367	497	566	500
Ferromanganese	332	223	329	330	300
Silicomanganese	351	269	313	420	250
Exports:					
Manganese ores and concentrates	1	1	1	1	1
Ferromanganese	5	5	9	3	2
Silicomanganese	2	2	5	3	3
Shipments from Government stockpile: ²					
Manganese ore	—	—	2	—	NA
Ferromanganese and manganese metal, electrolytic	10	54	21	14	NA
Consumption, reported:					
Manganese ore ³	442	378	399	357	350
Ferromanganese	336	325	335	339	340
Silicomanganese	⁴ 143	229	237	234	230
Consumption, apparent, manganese content ⁵	748	621	717	804	690
Price, average, manganese content, cost, insurance, and freight, China, dollars per metric ton unit ⁶	5.63	4.59	5.27	5.97	5.00
Stocks, producer and consumer, yearend:					
Manganese ore ³	175	143	220	312	250
Ferromanganese	44	35	40	50	29
Silicomanganese	39	31	34	26	25
Net import reliance ⁷ 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 (2019–22): Manganese ore: Gabon, 62%; South Africa, 24%; Mexico, 13%; and other, 1%. Ferromanganese: Malaysia, 20%; Australia, 19%; South Africa, 15%; Norway, 14%; and other, 32%. Silicomanganese: Georgia, 27%; South Africa, 23%; Australia, 19%; Malaysia, 8%; and other, 23%. Manganese contained in principal manganese imports:⁸ Gabon, 25%; South Africa, 21%; Australia, 10%; Georgia, 8%; and other, 36%.

Tariff:	Item	Number	Normal Trade Relations 12–31–23
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.
High-carbon ferromanganese		7202.11.5000	1.5% 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:⁹

<u>Material</u>	FY 2023		FY 2024	
	<u>Potential acquisitions</u>	<u>Potential disposals</u>	<u>Potential acquisitions</u>	<u>Potential disposals</u>
Manganese ore, metallurgical grade	—	150	—	150
Ferromanganese, high carbon	—	45	—	45
Manganese metal, electrolytic	5	—	5	—

Events, Trends, and Issues: Global production of manganese ore, on a manganese-content basis, was essentially unchanged from that in 2022. Exports of manganese ore, on a gross-weight basis, from Gabon decreased by 13% on account of a military coup, and exports from South Africa decreased by 7% because of weather-related transportation issues. A company based in Australia was developing a manganese mine in Arizona. Two manganese ore producers in Ukraine suspended operations. One of them suspended operations owing to rising operational costs, whereas the other suspended operations owing to Russian shelling that endangered operations.

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

	Mine production		Reserves ¹⁰
	<u>2022</u>	<u>2023^e</u>	
United States	—	—	—
Australia	3,040	3,000	¹¹ 500,000
Brazil	624	620	270,000
Burma	207	210	NA
China	743	740	280,000
Côte d'Ivoire	394	390	NA
Gabon	4,670	4,600	61,000
Georgia	166	160	NA
Ghana	844	840	13,000
India	721	720	34,000
Kazakhstan, concentrate	129	130	5,000
Malaysia	247	250	NA
Mexico	221	220	5,000
South Africa	7,300	7,200	600,000
Ukraine, concentrate	323	320	140,000
Vietnam	155	160	NA
Other countries	<u>325</u>	<u>330</u>	<u>Small</u>
World total (rounded)	19,800	20,000	1,900,000

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.

⁴Imports more nearly represent amount consumed than does reported consumption.

⁵Defined for 2019–22 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.

⁶For average metallurgical-grade ore containing 44% manganese. Source: CRU Group.

⁷Defined for 2019–22 as imports – exports ± adjustments for Government and industry stock changes. Beginning in 2023, Government stock changes no longer included.

⁸Includes imports of ferromanganese, manganese dioxide, manganese ore, silicomanganese, and unwrought manganese metal.

⁹See Appendix B for definitions.

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.