

MANGANESE

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

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 at six 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	2018	2019	2020	2021	2022^e
Production, mine	—	—	—	—	—
Imports for consumption:					
Manganese ores and concentrates	440	434	367	497	650
Ferromanganese	427	332	223	329	330
Silicomanganese	412	351	269	313	420
Exports:					
Manganese ores and concentrates	3	1	1	1	1
Ferromanganese	10	5	5	9	2
Silicomanganese	4	2	2	5	4
Shipments from Government stockpile: ²					
Manganese ore	—	—	—	2	—
Ferromanganese and manganese metal, electrolytic	13	10	54	21	11
Consumption, reported:					
Manganese ore ³	369	442	378	399	370
Ferromanganese	348	336	325	335	340
Silicomanganese	⁴ 139	⁴ 143	229	237	240
Consumption, apparent, manganese content ⁵	796	748	621	717	890
Price, average, manganese content, cost, insurance, and freight, China, dollars per metric ton unit ⁶	7.16	5.63	4.59	5.27	6.50
Stocks, producer and consumer, yearend:					
Manganese ore ³	191	175	143	220	230
Ferromanganese	27	44	35	40	40
Silicomanganese	21	39	31	34	34
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 (2018–21): Manganese ore: Gabon, 67%; South Africa, 19%; Mexico, 12%; and other, 2%. Ferromanganese: Australia, 19%; Malaysia, 18%; South Africa, 17%; Norway, 15%; and other, 31%. Silicomanganese: Georgia, 28%; South Africa, 22%; Australia, 21%; and other, 29%. Manganese contained in principal manganese imports:⁸ Gabon, 25%; South Africa, 19%; Australia, 12%; Georgia, 8%; and other, 36%.

Tariff:	Item	Number	Normal Trade Relations 12–31–22
	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>	<u>Inventory as of 9–30–22</u>	<u>FY 2022</u>		<u>FY 2023</u>	
		<u>Potential acquisitions</u>	<u>Potential disposals</u>	<u>Potential acquisitions</u>	<u>Potential disposals</u>
Manganese ore, metallurgical grade	291	—	292	—	151
Ferromanganese, high carbon	104	—	45	—	45
Manganese metal, electrolytic	—	5	—	5	—

Events, Trends, and Issues: Global production of steel, the leading use of manganese, decreased in 2022 compared with production in 2021 owing to supply chain disruptions resulting from the conflict between Russia and Ukraine and intermittent coronavirus disease 2019 (COVID-19) pandemic-related lockdowns in China. Global production of manganese ore was estimated to be unchanged from that in 2021. The leading countries for manganese ore production were, in descending order on a contained-weight basis, South Africa, Gabon, and Australia. On a contained-weight basis, total U.S. manganese imports were estimated to have increased by almost 20% in 2022 compared with those in 2021. By September 2022, average spot market prices for manganese ore, 44% grade, from China had increased by 23% compared with the annual average spot price in 2021.

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

	<u>Mine production</u>		<u>Reserves</u> ¹⁰
	<u>2021</u>	<u>2022^e</u>	
United States	—	—	—
Australia	3,260	3,300	11270,000
Brazil	542	400	270,000
Burma	206	200	NA
China	991	990	280,000
Côte d'Ivoire	362	360	NA
Gabon	4,340	4,600	61,000
Georgia	224	220	NA
Ghana	940	940	13,000
India	453	480	34,000
Kazakhstan, concentrate	90	110	5,000
Malaysia	356	360	NA
Mexico	226	230	5,000
South Africa	7,200	7,200	640,000
Ukraine, concentrate	600	400	140,000
Vietnam	146	150	NA
Other countries	150	150	Small
World total (rounded)	20,100	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.

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 as imports – exports ± adjustments for Government and industry stock changes. 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 as imports – exports ± adjustments for Government and industry stock changes.

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 135 million tons.