

MANGANESE

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

Domestic Production and Use: Manganese ore containing 35% or more manganese has not been produced domestically since 1970. Manganese ore was consumed mainly by eight firms with plants principally in the East and Midwest. Most ore consumption was related to steel production, directly in pig iron manufacture and indirectly through upgrading ore to ferroalloys. Additional quantities of ore were used for such nonmetallurgical purposes as production of dry cell batteries, in plant fertilizers and animal feed, and as a brick colorant. Manganese ferroalloys were produced at two smelters. Construction, machinery, and transportation end uses accounted for about 29%, 10%, and 10%, respectively, of manganese consumption. Most of the rest went to a variety of other iron and steel applications. The value of domestic consumption, estimated from foreign trade data, was about \$1.4 billion.

Salient Statistics—United States: ¹	2008	2009	2010	2011	2012^e
Production, mine ²	—	—	—	—	—
Imports for consumption:					
Manganese ore	571	269	489	552	450
Ferromanganese	448	153	326	348	420
Silicomanganese ³	365	130	297	348	370
Exports:					
Manganese ore	48	15	14	1	2
Ferromanganese	23	24	19	5	4
Silicomanganese	7	19	9	8	6
Shipments from Government stockpile excesses: ⁴					
Manganese ore	9	3	—	-75	—
Ferromanganese	18	25	26	10	7
Consumption, reported: ⁵					
Manganese ore ⁶	464	422	450	532	530
Ferromanganese	304	242	292	303	310
Silicomanganese	113	94	97	106	110
Consumption, apparent, manganese ⁷	844	451	721	699	870
Price, average, 46% to 48% Mn metallurgical ore, dollars per metric ton unit, contained Mn:					
Cost, insurance, and freight (c.i.f.), U.S. ports ^e	12.15	7.95	9.64	7.88	7.40
CNF ⁸ China, Ryan's Notes	14.70	5.61	7.23	5.72	⁹ 5.00
Stocks, producer and consumer, yearend:					
Manganese ore ⁶	255	115	168	250	214
Ferromanganese	27	31	32	25	26
Silicomanganese	24	26	26	22	23
Net import reliance ¹⁰ as a percentage of apparent consumption	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 (2008–11): Manganese ore: Gabon, 61%; Australia, 21%; South Africa, 7%; Brazil, 5%; and other, 6%. Ferromanganese: South Africa, 51%; China, 13%; Ukraine, 8%; Republic of Korea, 7%; and other, 21%. Manganese contained in all manganese imports: South Africa, 25%; Gabon, 22%; Australia, 12%; China, 9%; and other, 32%.

Tariff:	Item	Number	Normal Trade Relations
			12–31–12
	Ore and concentrate	2602.00.0040/60	Free.
	Manganese dioxide	2820.10.0000	4.7% ad val.
	High-carbon ferromanganese	7202.11.5000	1.5% ad val.
	Silicomanganese	7202.30.0000	3.9% ad val.
	Metal, unwrought	8111.00.4700/4900	14% ad val.

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

MANGANESE

Government Stockpile:

Material	Stockpile Status—9–30–12 ¹¹			
	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2012	Disposals FY 2012
Manganese ore ¹²	292	292	91	—
Ferromanganese, high-carbon	345	345	91	8

Events, Trends, and Issues: U.S. steel production in 2012 was projected to be 4% more than that in 2011. Imports of manganese ferroalloys were expected to be substantially more in 2012 than in 2011—21% and 6% more for ferromanganese and silicomanganese, respectively. As a result, U.S. manganese apparent consumption increased by an estimated 24% to 870,000 tons in 2012. The annual average domestic manganese ore contract price followed the decrease in the average international price for metallurgical-grade ore set between Japanese consumers and major suppliers in 2012. More than 6 million metric tons per year of additional manganese ore production capacity was planned worldwide in 2012 through mine expansions and startups, the bulk (72%) of which was in South Africa.

World Mine Production and Reserves (metal content): Reserve estimates have been revised from those previously published for Australia, Gabon, India, and Mexico, based on reports by the Governments of Australia and India and the major manganese producers in Gabon and Mexico.

	Mine production		Reserves ¹³
	2011	2012 ^e	
United States	—	—	—
Australia	3,200	3,400	97,000
Brazil	1,210	1,100	110,000
Burma	234	230	NA
China	2,800	3,000	44,000
Gabon	1,860	2,000	27,000
India	895	810	49,000
Kazakhstan	390	390	5,000
Malaysia	225	230	NA
Mexico	171	170	5,000
South Africa	3,400	3,500	150,000
Ukraine	330	310	140,000
Other countries	1,740	1,700	Small
World total (rounded)	16,000	16,000	630,000

World Resources: Land-based manganese resources are large but irregularly distributed; those of the United States are very low grade and have potentially high extraction costs. South Africa accounts for about 75% of the world's identified manganese resources, and Ukraine accounts for 10%.

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.

²Excludes insignificant quantities of low-grade manganese ore.

³Imports more nearly represent amount consumed than does reported consumption.

⁴Net quantity, in manganese content, defined as stockpile shipments – receipts.

⁵Manganese consumption cannot be estimated as the sum of manganese ore and ferromanganese consumption because so doing would count manganese in ore used to produce ferromanganese twice.

⁶Consumers only, exclusive of ore consumed at iron and steel plants.

⁷Thousand metric tons, manganese content; based on estimated average content for all components except imports, for which content is reported.

⁸Cost and freight (CNF) represents the costs paid by a seller to ship manganese ore by sea to a Chinese port; excludes insurance.

⁹Average weekly price through October 2012.

¹⁰Defined as imports – exports + adjustments for Government and industry stock changes.

¹¹See Appendix B for definitions.

¹²Metallurgical grade.

¹³See Appendix C for resource/reserve definitions and information concerning data sources.