

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 30%, 11%, and 12%, respectively, of manganese demand. 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 \$510 million.

Salient Statistics—United States:¹	2005	2006	2007	2008	2009^e
Production, mine ²	—	—	—	—	—
Imports for consumption:					
Manganese ore	656	572	602	571	300
Ferromanganese	255	358	315	448	100
Silicomanganese ³	327	400	414	365	130
Exports:					
Manganese ore	13	2	29	48	19
Ferromanganese	14	22	29	23	28
Shipments from Government stockpile excesses: ⁴					
Manganese ore	34	73	101	9	-9
Ferromanganese	36	56	68	18	29
Consumption, reported: ⁵					
Manganese ore ⁶	368	365	351	386	410
Ferromanganese	286	297	272	304	150
Consumption, apparent, manganese ⁷	773	1,060	975	868	390
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	4.39	3.22	3.10	12.15	5.77
CNF ⁸ China, Ryan's Notes	3.21	2.33	6.05	14.70	⁹ 5.84
Stocks, producer and consumer, yearend:					
Manganese ore ⁶	337	153	114	285	110
Ferromanganese	30	31	20	25	20
Net import reliance ¹⁰ as a percentage of apparent consumption	100	100	100	100	100

Recycling: Manganese was recycled incidentally as a minor 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 (2005-08): Manganese ore: Gabon, 57%; South Africa, 17%; Australia, 10%; Brazil, 5%; and other, 11%. Ferromanganese: South Africa, 52%; China, 20%; Republic of Korea, 7%; Mexico, 6%, and other, 15%. Manganese contained in all manganese imports: South Africa, 34%; Gabon, 21%; China, 10%; Australia, 7%; and other, 28%.

Tariff:	Item	Number	Normal Trade Relations
			12-31-09
	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).

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Government Stockpile:

Material	Stockpile Status—9-30-09 ¹¹			
	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2009	Disposals FY 2009
Manganese ore:				
Battery grade	—	—	18	—
Chemical grade	—	—	23	—
Metallurgical grade	5	5	227	—
Ferromanganese, high-carbon	403	403	91	34
Synthetic dioxide	—	—	3	—

Events, Trends, and Issues: Global financial problems that began during the third quarter of 2008 continued to affect the manganese market in 2009. U.S. steel production in 2009 was 40% less than that in 2008. Imports of manganese materials were significantly less in 2009 than in 2008—47%, 78%, and 64% less for manganese ore, ferromanganese, and silicomanganese, respectively. As a result, U.S. manganese apparent consumption decreased by an estimated 55% to 390,000 metric tons in 2009, the lowest since the late 1930s. The annual average domestic manganese ore contract price followed the decrease in the average international price for metallurgical-grade ore that was set between Japanese consumers and major suppliers in 2009. The average weekly spot market price for 48% manganese ore, CNF China, also decreased 28% to \$5.84 per metric ton unit through the first 10 months in 2009, owing to high levels of manganese ore stocks in China and pricing competition between major manganese ore producers. However, U.S. average weekly spot prices for high-carbon ferromanganese and silicomanganese through October 2009 were 4% higher and 44% higher, respectively, than those at the start of the year, owing to lower inventory levels caused by production cutbacks, by one major domestic producer, and reduced imports.

World Mine Production and Reserves (metal content): Reserves estimates have been revised from those previously published for Australia (upward), Brazil (downward), and South Africa (upward), as reported by the Government of Australia and the major manganese producers in Brazil and South Africa.

	Mine production		Reserves ¹²
	2008	2009 ^e	
United States	—	—	—
Australia	2,320	1,600	87,000
Brazil	1,380	990	29,000
China	^e 2,200	2,400	40,000
Gabon	1,600	810	52,000
India	^e 960	960	56,000
Mexico	170	94	4,000
South Africa	2,900	1,300	130,000
Ukraine	^e 490	310	140,000
Other countries	<u>1,310</u>	<u>1,200</u>	<u>Small</u>
World total (rounded)	13,300	9,600	540,000

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 80% of the world's identified manganese resources, and Ukraine accounts for 10%.

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

^eEstimated — 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 manganiferous 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.

⁶Exclusive 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 2009.

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

¹¹See Appendix B for definitions.

¹²See Appendix C for definitions. Reserve base estimates were discontinued in 2009; see [Introduction](#).