

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 28%, 9%, and 8%, 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 \$1.1 billion.

Salient Statistics—United States: ¹	2006	2007	2008	2009	2010^e
Production, mine ²	—	—	—	—	—
Imports for consumption:					
Manganese ore	572	602	571	269	490
Ferromanganese	358	315	448	153	320
Silicomanganese ³	400	414	365	130	310
Exports:					
Manganese ore	2	29	48	15	18
Ferromanganese	22	29	23	24	12
Silicomanganese	<1	3	7	7	19
Shipments from Government stockpile excesses: ⁴					
Manganese ore	73	101	9	-3	—
Ferromanganese	56	68	18	25	30
Consumption, reported: ⁵					
Manganese ore ⁶	365	351	464	422	480
Ferromanganese	297	272	304	254	300
Consumption, apparent, manganese ⁷	1,060	979	844	445	720
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	3.22	3.10	12.15	6.61	8.00
CNF ⁸ China, Ryan's Notes	2.33	6.05	14.70	5.61	⁹ 6.70
Stocks, producer and consumer, yearend:					
Manganese ore ⁶	153	190	255	115	170
Ferromanganese	31	31	27	31	16
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 (2006–09): Manganese ore: Gabon, 54%; South Africa, 17%; Australia, 12%; Brazil, 6%; and other, 11%. Ferromanganese: South Africa, 52%; China, 21%; Republic of Korea, 7%; Mexico, 5%; and other, 15%. Manganese contained in all manganese imports: South Africa, 35%; Gabon, 19%; China, 11%; Australia, 8%; and other, 27%.

Tariff:	Item	Number	Normal Trade Relations
			12-31-10
	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—9-30-10 ¹¹			
	Uncommitted inventory	Authorized for disposal	Disposal plan FY 2010	Disposals FY 2010
Manganese ore ¹²	-9	-9	91	—
Ferromanganese, high-carbon	369	369	91	34

Events, Trends, and Issues: The global economic recovery, as measured by the expansion of global gross domestic product (estimated to increase by 2.7% from that of 2009 by the World Bank), coincided with the growth in the manganese market during 2010. U.S. steel production in 2010 was projected to be 38% more than that in 2009. Imports of manganese materials were significantly more in 2010 than in 2009—82%, 104%, and 139% more for manganese ore, ferromanganese, and silicomanganese, respectively. As a result, U.S. manganese apparent consumption increased by an estimated 66% to 720,000 metric tons in 2010. The annual average domestic manganese ore contract price followed the increase in the average international price for metallurgical-grade ore that was set between Japanese consumers and major suppliers in 2010. However, U.S. average weekly spot prices for high-carbon ferromanganese and silicomanganese through October 2010 were 16% lower than and about the same as, respectively, those at the start of the year, owing to higher inventory levels caused by domestic manganese material production increases and greater ferromanganese imports. Improved economic conditions led to planned expansions at five manganese mines and about 1,400,000 metric tons per year of additional manganese ferroalloy production capacity worldwide in 2010.

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

	Mine production		Reserves ¹³
	2009	2010 ^e	
United States	—	—	—
Australia	2,140	2,400	93,000
Brazil	730	830	110,000
China	^e 2,400	2,800	44,000
Gabon	881	1,400	52,000
India	^e 980	1,100	56,000
Mexico	169	210	4,000
South Africa	1,900	2,200	120,000
Ukraine	^e 375	580	140,000
Other countries	<u>1,240</u>	<u>1,400</u>	<u>Small</u>
World total (rounded)	10,800	13,000	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. — 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 2010.

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

¹¹[See Appendix B for definitions.](#)

¹²Metallurgical grade. Negative inventory reflects adjustment in accounting by the Defense Logistics Agency, DLA Strategic Materials (formerly Defense National Stockpile Center).

¹³[See Appendix C for resource/reserve definitions and information concerning data sources.](#)