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 eight firms with plants principally in the East and Midwest. 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 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, transportation, and machinery end uses accounted for about 28%, 14%, and 11%, respectively, of manganese consumption. Most of the rest went to a variety of other iron and steel applications. In 2016, the value of domestic consumption, estimated from foreign trade data, was about $560 million.

Salient Statistics—United States:[1]	2012	2013	2014	2015	2016[e]
Production, mine[2]	—	—	—	—	—
Imports for consumption:					
Manganese ore	506	549	387	441	300
Ferromanganese	401	331	365	292	230
Silicomanganese[3]	348	329	463	319	320
Exports:					
Manganese ore	2	1	1	1	1
Ferromanganese	5	2	6	5	9
Silicomanganese	6	6	3	1	2
Shipments from Government stockpile excesses:[4]					
Manganese ore	—	—	—	—	—
Ferromanganese	6	1	24	29	41
Consumption, reported:[5]					
Manganese ore	538	523	508	451	360
Ferromanganese	382	368	360	344	320
Silicomanganese	150	152	146	138	130
Consumption, apparent, manganese[6]	843	794	838	707	630
Price, average, 46% to 48% Mn metallurgical ore, dollars per metric ton unit, contained Mn:[7]					
Cost, insurance, and freight (c.i.f.), U.S. ports[e]	4.97	4.61	4.49	3.53	3.10
C.i.f, China, CRU Ryan's Notes	4.84	5.29	4.72	3.22	[7]3.38
Stocks, producer and consumer, yearend:					
Manganese ore[5]	203	217	189	187	110
Ferromanganese	31	27	23	21	19
Silicomanganese	19	6	10	21	19
Net import reliance[8] 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 (2012–15): Manganese ore: Gabon, 69%; South Africa, 15%; Australia, 9%; Ghana, 2%; and other, 5%. Ferromanganese: South Africa, 57%; Australia, 11%; Norway, 10%; Republic of Korea, 9%; and other, 13%. Manganese contained in principal manganese imports:[9] South Africa, 33%; Gabon, 21%; Australia, 11%; Georgia, 10%; and other, 25%.

Tariff: Item	Number	Normal Trade Relations 12–31–16
Ores and concentrates	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	8111.00.4700/4990	14% ad val.

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

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MANGANESE

Government Stockpile:

Stockpile Status—9–30–16[10]

Material	Inventory	Authorized for disposal	Disposals FY 2016
Manganese ore, metallurgical grade	292	292	—
Ferromanganese, high-carbon	239	45	45

Events, Trends, and Issues: U.S. manganese apparent consumption was projected to decrease by 11% to 630,000 tons in 2016 compared with that in 2015. This was primarily a result of the significant decrease in manganese ore imports and, to a lesser extent, a decrease in ferromanganese imports in response to declining domestic manganese alloys production; specific alloy production data was withheld to avoid disclosing company proprietary data. The annual average domestic manganese ore contract price followed the 18% decrease in the average Australian export unit value for metallurgical-grade ore during the first 6 months of 2016. The Australian export unit value was used as a surrogate for the recently discontinued use of an international benchmark price for manganese ore. Historically, the international benchmark price represented the annual average contract price negotiated between producers in Australia and consumers in Japan.

World Mine Production and Reserves (metal content): Reserves for Brazil and China have been revised based on data reported by the Governments of those countries.

	Mine production		Reserves[11]
	2015	2016[e]	
United States	—	—	—
Australia	2,450	2,500	91,000
Brazil	1,090	1,100	116,000
China	3,000	3,000	43,000
Gabon	2,020	2,000	22,000
Ghana	416	480	12,000
India	900	950	52,000
Kazakhstan	222	160	5,000
Malaysia	201	200	NA
Mexico	220	220	5,000
South Africa	5,900	4,700	200,000
Ukraine	410	320	140,000
Other countries	678	680	Small
World total (rounded)	17,500	16,000	690,000

World Resources: 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 about 78% of the world's identified manganese resources, and Ukraine accounts for about 10%.

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

[e]Estimated. NA Not available. — Zero.
[1]Manganese content typically ranges from 35% to 54% for manganese ore and from 74% to 95% for ferromanganese.
[2]Excludes insignificant quantities of low-grade manganiferous ore.
[3]Imports more nearly represent amount consumed than does reported consumption.
[4]Net quantity, in manganese content, defined as stockpile shipments – receipts. If receipts, a negative quantity is shown.
[5]Consumers only, exclusive of ore consumed and stocks at iron and steel plants.
[6]Thousand tons, manganese content; based on estimated average content for all components, except imports, for which content is reported. Manganese consumption is not calculated as the sum of manganese ore and ferromanganese consumption because manganese in ore used to produce ferromanganese would be counted twice.
[7]Average weekly price through September 2016.
[8]Defined as imports – exports + adjustments for Government and industry stock changes.
[9]Includes imports of ferromanganese, manganese ore, silicomanganese, synthetic manganese dioxide, and unwrought manganese metal.
[10]See Appendix B for definitions.
[11]See Appendix C for resource and reserve definitions and information concerning data sources.