MANGANESE

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

Domestic Production and Use: Manganese ore containing 35% or more manganese was not produced domestically in 1995. Manganese ore was consumed mainly by about 15 firms with plants principally in the Eastern and Midwestern United States. The majority of ore consumption was related to steel production, directly in pig iron manufacture and indirectly through upgrading ore to ferroalloys and metal. Ore was used otherwise for such nonmetallurgical purposes as producing dry cell batteries, as an ingredient in plant fertilizers and animal feed, and as a colorant for brick. Leading identifiable end uses of manganese were construction, machinery, and transportation, which were estimated, on a revised basis, to be 23%, 14%, and 12%, respectively, of total manganese demand. Most of the rest went to a variety of other iron and steel applications. Value of domestic consumption was estimated from foreign trade data as about $400 million.

Salient Statistics—United States:[1]	1991	1992	1993	1994	1995[e]
Production, mine[2]	—	—	—	—	—
Imports for consumption:					
Manganese ore	234	247	232	331	300
Ferromanganese	320	304	347	336	350
Silicomanganese[3]	258	257	316	273	300
Exports:					
Manganese ore	66	13	16	15	12
Ferromanganese	15	13	18	11	10
Shipments from Government stockpile excesses:[4]					
Manganese ore	173	425	254	134	120
Ferromanganese	(67)	(128)	(1)	9	32
Consumption, reported:[5]					
Manganese ore	472	438	389	449	470
Ferromanganese	346	339	341	347	360
Consumption, apparent, manganese[6]	598	596	696	694	710
Price, average value, 46% to 48% Mn metallurgical ore, dollars per mtu cont. Mn, c.i.f. U.S. ports	3.72	3.25	2.60	2.40	2.40
Stocks, producer and consumer, yearend:					
Manganese ore	275	276	302	269	250
Ferromanganese	50	28	30	36	33
Net import reliance[7] as a percent of apparent consumption	100	100	100	100	100

Recycling: Scrap recovery specifically for manganese was negligible, but a significant amount was recycled through processing operations as a minor component of ferrous and nonferrous scrap and steel slag.

Import Sources (1991-94): Manganese ore: Gabon, 62%; Australia, 18%; Brazil, 7%; Mexico, 7%; and other, 6%. Ferromanganese: South Africa, 33%; France, 25%; Brazil, 11%; Mexico, 9%; and other, 22%. Manganese contained in all manganese imports: South Africa, 25%; Gabon, 14%; France, 12%; Brazil, 11%; and other, 38%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/95	Non-MFN[8] 12/31/95
Ore and concentrate	2602.00.0040/60	Free	2.2¢/kg of contained Mn.
Manganese dioxide	2820.10.0000	4.7% ad val.	25% ad val.
High-carbon ferromanganese	7202.11.5000	1.5% ad val.	10.5% ad val.
Silicomanganese	7202.30.0000	3.9% ad val.	23% ad val.
Metal, unwrought	8111.00.4500	14% ad val.	20% ad val.

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

Government Stockpile: Committed inventories and disposals tabulated may include nonstockpile-grade material. The Defense Logistics Agency, U.S. Department of Defense, listed additional uncommitted inventories of nonstockpile-grade materials, as follows: 16,400 tons of natural battery ore, 81 tons of chemical ore, and 392,000 tons of metallurgical ore. The Government's disposal program extended to all types of ore plus electrolytic metal.

Prepared by **Thomas S. Jones, (703) 648-4973.**

MANGANESE

Stockpile Status—9-30-95

Material	Uncommitted inventory	Committed inventory	Authorized for disposal	Disposals Jan.-Sept. 95
Battery: Natural ore	112	1	112	0.2
Synthetic dioxide	3	—	3	—
Chemical ore	149	2	149	4
Metallurgical ore	888	188	888	25
Ferromanganese:				
High-carbon	965	—	760	18
Medium-carbon	18	—	—	2
Silicomanganese	2	—	—	—
Electrolytic metal	12	1	12	1

Events, Trends, and Issues: The price of metallurgical ore was unchanged, but, beginning late in the first quarter of 1995, a rising price trend developed for ferromanganese and silicomanganese. Domestic demand for manganese ferroalloys was strengthened by the greatest level of raw steel production since 1981. A large price increase for silicomanganese also was driven by an even greater price escalation for ferrosilicon and switching of foreign ferroalloy producers back to ferrochromium from silicomanganese. Antidumping actions taken in December 1994 promoted diversification of the U.S. silicomanganese supply. Manganese is an essential element for people, animals, and plants, but it can be harmful in excessive amounts. Thus, manganese can be an industrial poison, but is not a hazard generally.

World Mine Production, Reserves, and Reserve Base:[9]

	Mine production		Reserves	Reserve base
	1994	1995[e]		
United States	—	—	—	—
Australia	[e]980	950	26,000	72,000
Brazil	[e]897	820	21,000	56,000
China	[e]1,180	1,180	40,000	100,000
Gabon	[e]663	720	45,000	150,000
Georgia	[e]240	200	7,000	49,000
India	[e]607	640	24,000	36,000
Mexico	112	120	4,000	9,000
South Africa	[e]1,210	1,300	370,000	4,000,000
Ukraine	[e]1,052	1,100	135,000	520,000
Other countries	[e]243	300	Small	Small
World total (rounded)	[e]7,190	7,300	680,000	5,000,000

World Resources: Land-based resources are large but irregularly distributed; those of the United States are very low grade and have potentially high extraction costs. South Africa and the Former Soviet Union (FSU) account for more than 80% of the world's identified resources; South Africa accounts for more than 80% of the total exclusive of China and the FSU.

Substitutes: There is no satisfactory substitute for manganese in its major applications.

[e]Estimated.

[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]More nearly represents amount consumed than does reported consumption; internal evaluation indicates that reported consumption of silicomanganese is considerably understated.

[4]Net quantity including effect of stockpile upgrading program. Data in parentheses denote increases in inventory.

[5]Total manganese consumption cannot be approximated from consumption of manganese ore and ferromanganese because of the use of ore in making manganese ferroalloys and metal.

[6]Thousand metric tons, manganese content. Based on estimates of average content for all significant components except imports, for which content is reported.

[7]Defined as imports - exports + adjustments for Government and industry stock changes.

[8]See Appendix B.

[9]Thousand metric tons, manganese content. See Appendix C for definitions.