IRON ORE[1]

(Data in million metric tons of usable ore,[2] unless otherwise noted)

Domestic Production and Use: Value of usable ore shipped from mines in Minnesota, Michigan, and six other States in 1996 was estimated at $1.7 billion. Iron ore was produced by 17 companies operating 17 mines, 10 concentration plants, and 10 pelletizing plants. The mines included 16 open pits and 1 underground operation. Virtually all ore was concentrated before shipment. Nine mines operated by five companies accounted for 99.2% of production.

Salient Statistics—United States:	1992	1993	1994	1995	1996[e]
Production, usable	55.6	55.7	58.4	62.5	60.0
Shipments	55.6	56.3	57.6	61.1	60.0
Imports for consumption	12.5	14.1	17.5	17.5	17.0
Exports	5.1	5.1	5.0	5.3	5.0
Consumption: Reported (ore and total agglomerate)[3]	75.1	76.8	80.2	83.1	80.0
Apparent	65.6	66.2	70.9	72.5	72.6
Price (Oct.), Lake Superior pellets, cents per ltu of Fe[4]	72.5-74.0	72.5-74.0	72.5-74.0	72.5-74.0	72.5-74.0
Stocks, mine, dock, and consuming plant, yearend, excluding byproduct ore	22.9	21.3	21.3	23.6	23.0
Employment, mine, concentrating and pelletizing plant, quarterly average, number	8,000	7,800	7,200	7,400	7,400
Net import reliance[5] as a percent of apparent consumption (iron in ore)	12	14	18	14	17

Recycling: Insignificant.

Import Sources (1992-95): Canada, 54%; Brazil, 22%; Venezuela, 18%; Australia, 3%; and other, 3%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/96	Non-MFN[6] 12/31/96
Concentrates	2601.11.0030	Free	Free.
Coarse ores	2601.11.0060	Free	Free.
Fine ores	2601.11.0090	Free	Free.
Pellets	2601.12.0030	Free	Free.
Briquettes	2601.12.0060	Free	Free.
Sinter	2601.12.0090	Free	Free.

Depletion Allowance:[7] 15.0% (Domestic), 14.0% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: Domestic iron ore production, consumption, and trade were about the same as in 1995. The U.S. steel industry was undergoing structural changes potentially unfavorable to the iron ore sector. Minimills under construction or proposed were expected to add 10 million to 15 million tons of capacity to the flat-rolled market by the end of the decade. Also, tougher environmental regulations, especially those restricting coke oven gas emissions, were expected to force the closure of some older integrated facilities. However, those changes also may benefit those companies providing alternatives to scrap. Because of concern over the availability of low residue scrap, investment in alternative ironmaking technologies has become more attractive, and a number of companies have moved in that direction. One alternative to scrap is direct-reduced iron (DRI). Five projects were under consideration that, if completed, would increase U.S. DRI capacity from 0.5 to considerably more than 4 million metric tons per year. In Minnesota, a company was formed to pursue the development of DRI on the Mesabi Iron Range.

International prices are negotiated between seller and buyer on an annual basis. Although international prices increased for the second consecutive year, 1996 prices were considerably lower than those of 1991. There was a trend in the international market away from sintering of iron ore toward pelletization. This was driven, in large part, by environmental considerations. Australia and Brazil continued to be the leading exporters of iron ore with a combined total of about 60% of the world total.

Prepared by **William S. Kirk, (703) 648-4962 [Fax: (703) 648-7757].**

IRON ORE

Although iron ore is produced in more than 50 countries, 5 of them account for more than two-thirds of the total. The United States ranked fifth in world production. Most ore was consumed domestically. Virtually all exports consisted of pellets shipped via the Great Lakes to Canadian steel companies that are partners in U.S. taconite projects in Michigan and Minnesota. The United States continued to be a net importer of iron ore.

World pig iron production levels have remained nearly flat since 1990. During this period five areas or countries (China, Europe, the former Soviet Union (FSU),[8] Japan, and North America) accounted for 82% of the world's pig iron production. In three of these (Europe, Japan, and North America), pig iron production has remained virtually constant. Production fell considerably in the FSU and rose dramatically in China. Production has also increased substantially in other parts of Asia, particularly India, South Korea, and Taiwan. This trend is expected to continue.

The increase in consumption in Asia is primarily expected to benefit Australia. Australia and Brazil each account for about 30% of the world total of exports, while the next closest exporter accounts for less than 10% of the world total. Of the two, Australia appears to be better positioned to take advantage of growth of iron ore consumption in Asia because of Australia's proximity and the consequent lower freight rates.

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

	Mine production		Crude ore		Iron content	
	1995	1996[e]	Reserves	Reserve base	Reserves	Reserve base
United States	62	60	16,000	25,000	3,800	6,000
Australia	143	143	18,000	32,200	10,000	18,000
Brazil	186	185	11,000	17,000	6,500	10,000
Canada	39	38	12,000	26,000	4,600	10,000
China[e]	249	250	9,000	9,000	3,500	3,500
India	59	60	5,400	12,000	3,300	6,300
Liberia	—	—	900	1,600	500	800
Mauritania	12	12	400	700	200	300
Russia	78	78	34,300	42,000	12,700	15,600
South Africa	32	32	4,000	9,300	2,500	5,900
Sweden	22	22	3,000	4,600	1,600	2,400
Ukraine	45	45	21,800	27,000	8,000	10,000
Other countries	108	108	15,000	25,300	25,800	35,300
World total (may be rounded)	1,000	1,000	151,000	232,000	83,000	124,000

World Resources: World resources are estimated to exceed 800 billion tons of crude ore containing more than 230 billion tons of iron. U.S. resources are estimated to be about 110 billion tons of ore containing about 27 billion tons of iron. U.S. resources are mainly low-grade taconite-type ores from the Lake Superior district that require beneficiation and agglomeration for commercial use.

Substitutes: Iron ore is the only source of primary iron. In some operations, ferrous scrap constitutes up to 7% of the blast furnace burden. Scrap is extensively used in steelmaking and in iron and steel foundries.

[e]Estimated.

[1]See also Iron and Steel Scrap.

[2]Agglomerates, concentrates, direct-shipping ore, and byproduct ore for consumption.

[3]Includes weight of lime, flue dust, and other additives used in producing sinter for blast furnaces.

[4]Delivered rail of vessel at lower lake ports.

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

[6]See Appendix B.

[7]Analagous to depreciation, but applies to the ore reserve rather than the plant. Federal tax law allows this deduction from taxable corporate income, recognizing that an ore deposit is a depletable asset that must eventually be replaced by another deposit.

[8]As constituted before Dec. 1991.

[9]See Appendix C for definitions.