

IRON ORE¹

(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 1997 was estimated at \$1.7 billion. Iron ore was produced by 14 companies operating 14 mines, 10 concentration plants, and 10 pelletizing plants. The mines included 13 open pits and 1 underground operation. Virtually all ore was concentrated before shipment. Nine mines operated by five companies accounted for 98.7% of production.

<u>Salient Statistics—United States:</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997^e</u>
Production, usable	55.7	58.4	62.5	62.1	62.0
Shipments	56.3	57.6	61.1	62.2	60.0
Imports for consumption	14.1	17.5	17.3	18.4	18.0
Exports	5.1	5.0	5.3	6.3	5.0
Consumption: Reported (ore and total agglomerate) ³	76.8	80.2	83.1	79.3	78.0
Apparent	66.2	70.9	72.4	72.0	73.7
Price, ⁴ U.S. dollars per metric ton	24.65	24.49	28.36	30.76	30.41
Stocks, mine, dock, and consuming plant, yearend, excluding byproduct ore	21.3	21.3	23.5	25.7	27.0
Employment, mine, concentrating and pelletizing plant, quarterly average, number	7,800	7,200	7,400	7,400	7,500
Net import reliance ⁵ as a percent of apparent consumption (iron in ore)	14	18	14	14	15

Recycling: Insignificant.

Import Sources (1993-96): Canada, 54%; Brazil, 25%; Venezuela, 16%; Australia, 3%; and other, 2%.

<u>Tariff: Item</u>	<u>Number</u>	<u>Most favored nation (MFN) 12/31/97</u>	<u>Non-MFN⁶ 12/31/97</u>
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 1996. The U.S. steel industry was undergoing structural changes potentially negative to the iron ore sector. Flat-rolled 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 provided potential benefit to 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. International prices are negotiated between seller and buyer on an annual basis.

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 sixth in world production, but only accounted for 6% of the total. 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.

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World pig iron production levels have remained nearly flat since 1990, with 1997 production virtually the same as in 1990. During this period China, Europe, the Former Soviet Union (FSU),⁸ Japan, and North America have accounted for 82% of the world's pig iron production. In 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, the Republic of 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 accounted for about 30% of the world total of exports in 1997, while the next largest exporter accounted 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 to Asian markets and the consequent lower freight rates.

World Mine Production, Reserves, and Reserve Base:⁹

	Mine production		Crude ore		Iron content	
	1996	1997 ^e	Reserves	Reserve base	Reserves	Reserve base
United States	62	62	16,000	25,000	3,800	6,000
Australia	147	150	18,000	32,200	11,300	20,100
Brazil	180	190	11,000	17,000	6,500	10,000
Canada	36	38	12,000	26,000	4,600	10,000
China ^e	250	260	25,000	49,700	7,500	14,900
India	67	70	5,400	12,000	3,300	6,300
Kazakstan	13	15	7,600	9,300	2,800	3,500
Liberia	—	—	900	1,600	500	800
Mauritania	11	12	400	700	200	300
Russia	70	70	34,300	42,000	12,700	15,600
South Africa	31	30	4,000	9,300	2,500	5,900
Sweden	20	20	3,000	4,600	1,600	2,400
Ukraine	48	45	21,800	27,000	8,000	10,000
Other countries	86	70	7,400	16,000	2,300	6,300
World total (may be rounded)	1,020	1,030	167,000	272,000	68,000	112,000

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.

^eEstimated.

¹See also Iron and Steel Scrap.

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

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

⁴Calculated based on price of eastern Canadian ore.

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

⁶See Appendix B.

⁷Analogous 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.

⁸As constituted before Dec. 1991.

⁹See Appendix D for definitions.