

IRON ORE¹(Data in million metric tons of usable ore,² unless noted)

Domestic Production and Use: The value of usable ore shipped from mines in Minnesota, Michigan, and six other States in 1999 was estimated to be \$1.6 billion. Twelve iron ore production complexes with 12 mines, 10 concentration plants, and 10 pelletizing plants were in operation during the year. The mines included 11 open pits and 1 underground operation. Virtually all ore was concentrated before shipment. Nine mines operated by five companies accounted for 99.5% of production. Iron ore was consumed at 22 steel plants operating in 10 States, mostly in the Midwest.

Salient Statistics—United States:	1995	1996	1997	1998	1999^e
Production, usable	62.5	62.1	63.0	62.9	57.0
Shipments	61.1	62.2	62.8	63.2	56.0
Imports for consumption	17.6	18.4	18.6	17.0	13.0
Exports	5.3	6.3	6.3	6.0	6.5
Consumption: Reported (ore and total agglomerate) ³	83.1	79.6	79.5	78.2	73.0
Apparent	72.7	72.0	73.0	71.3	68.4
Price, ⁴ U.S. dollars per metric ton	28.32	28.48	30.06	31.14	31.00
Stocks, mine, dock, and consuming plant, yearend, excluding byproduct ore	23.5	25.7	27.9	30.6	25.7
Employment, mine, concentrating and pelletizing plant, quarterly average, number	7,380	7,580	7,450	7,290	7,200
Net import reliance ⁵ as a percent of apparent consumption (iron in ore)	14	14	14	12	17

Recycling: Insignificant.

Import Sources (1995-98): Canada, 54%; Brazil, 29%; Venezuela, 11%; Australia, 4%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12/31/99
Concentrates	2601.11.0030	Free.
Coarse ores	2601.11.0060	Free.
Fine ores	2601.11.0090	Free.
Pellets	2601.12.0030	Free.
Briquettes	2601.12.0060	Free.
Sinter	2601.12.0090	Free.

Depletion Allowance:⁶ 15% (Domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: Worldwide, nearly all iron ore is used in steelmaking; in the United States, steelmaking accounts for about 97% of iron ore consumption. Iron ore production and consumption are concentrated in a few countries. In 1999, iron ore was produced in at least 50 countries; the 15 largest of these countries produced nearly 96% of the world total and no other country had as much as a 1% share.

The majority of U.S. iron ore trade involves Canada. Since 1990, about 54% of U.S. imports originated in Canada and 99% of U.S. exports were shipped there. The reasons for this are ownership and proximity. Canadian steel mills have partial ownership in three of the nine iron ore operations that produce 99.5% of U.S. ore. One U.S. steelmaker and one merchant iron ore company own part of one of the three Canadian iron ore producers. The proximity of the producers and consumers, in particular in the Great Lakes region, means lower shipping costs.

From 1994 through 1998, the United States ranked sixth in iron ore production and third in pig iron production. Although world pig iron production levels have changed little over the past 20 years, production by area during that period changed considerably. Pig iron production fell in Asia, Europe, the Commonwealth of Independent States (CIS), and North America and rose in Asia. This trend is expected to continue.

Domestic iron ore production and consumption levels were lower than those of 1998 as the result of record imports of low-priced steel. Several producers temporarily closed their plants in response.

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Steel consumption in the United States lagged behind that of 1998. Much of that consumption was satisfied by steel imports, which were cheaper for U.S. consumers partly because of the strength of the U.S. dollar against foreign currencies. In addition, foreign producers who could not sell steel products in their weak economies increased their exports to the United States. 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 benefits 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).

World Mine Production, Reserves, and Reserve Base:⁷

	Mine production		Crude ore		Iron content	
	1998	1999 ^e	Reserves	Reserve base	Reserves	Reserve base
United States	63	57	10,000	23,000	6,400	14,000
Australia	153	150	18,000	40,000	11,000	25,000
Brazil	195	190	7,600	17,000	4,800	11,000
Canada	39	35	1,700	3,900	1,100	2,500
China	210	205	25,000	50,000	7,800	15,000
India	75	75	2,800	6,200	1,800	3,900
Kazakhstan	9	10	8,300	19,000	4,500	10,000
Mauritania	11	11	700	1,500	400	1,000
Russia	72	70	20,000	45,000	11,000	25,000
South Africa	33	33	1,000	2,300	650	1,500
Sweden	21	21	3,500	7,800	2,200	5,000
Ukraine	51	50	22,000	50,000	12,000	28,000
Other countries	88	85	17,000	38,000	10,000	23,000
World total (may be rounded)	1,020	992	140,000	300,000	74,000	160,000

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 as much as 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 value of ore at mines.

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

⁶Analogous 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.

⁷See Appendix C for definitions.