

IRON ORE¹(Data in million metric tons of usable ore² unless noted)

Domestic Production and Use: In 2006, 98% of the usable ore produced, having an estimated value of \$2.8 billion, was shipped from mines in Michigan and Minnesota. Ten iron ore mines, 8 concentration plants, and 8 pelletizing plants were in operation during the year. The mines included 10 open pits and no underground operations. Almost all ore was concentrated before shipment. Eight mines operated by three companies accounted for greater than 99% of production. The United States produced about 3% of the world's iron ore output and also consumed approximately 3%.

Salient Statistics—United States:	2002	2003	2004	2005	2006^e
Production, usable	51.6	48.6	54.7	54.3	54.0
Shipments	51.5	46.1	54.9	53.2	53.0
Imports for consumption	12.5	12.6	11.8	13.0	11.0
Exports	6.8	6.8	8.4	11.8	8.0
Consumption:					
Reported (ore and total agglomerate) ³	59.7	61.6	64.5	60.1	62.0
Apparent ⁴	57.0	55.2	^e 57.9	^e 56.6	57.0
Price, ⁵ U.S. dollars per metric ton	26.04	32.30	37.92	44.50	52.00
Stocks, mine, dock, and consuming plant, yearend, excluding byproduct ore ⁴	18.3	17.5	^e 17.6	^e 16.5	16.5
Employment, mine, concentrating and pelletizing plant, quarterly average, number	4,740	4,670	4,410	4,450	4,450
Net import reliance ⁶ as a percentage of apparent consumption (iron in ore)	10	12	6	4	5

Recycling: None (see Iron and Steel Scrap section).

Import Sources (2002-05): Canada, 52%; Brazil, 40%; Chile, 2%; Australia, 1%; and other, 5%.

Tariff: Item	Number	Normal Trade Relations 12-31-06
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: 15% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: Following a year of greater than 70% worldwide price increases in 2005, increases of almost 20% for lump and fines in 2006 have resulted from the continued supply deficit. Major iron-ore-mining companies continue to reinvest profits in mine development. It is anticipated that increased capacity within the next few years will bring supply back in line with demand. Iron ore demand growth continues to be dominated by China. In 2005, it is estimated that China increased production of mostly lower grade ores by greater than 30%. Estimates of Chinese imports of higher grade ores, mostly from Australia and Brazil, show an increase of over 20% compared with those of 2005, a slowdown from the one-third growth between 2004 and 2005.

The key indicators of iron ore consumption—international iron ore trade and production of iron ore and pig iron—clearly show that iron ore consumption in China is the major factor upon which the expansion of the international iron ore industry depends. China's increasing activity in overseas joint ventures, increased imports of iron ore, and an expansion in domestic production of low-grade ores indicate that growth of iron ore consumption will continue.

In December 2003, a major Chinese steel company purchased a minority interest in an insolvent iron ore producer in northeastern Minnesota. Pellet production has continued since then, with China accepting iron ore transfer for most of their portion of the United States production from the majority partner's Canadian affiliate. In 2005, production increases on the order of 20% in comparison with those of 2004 were attained by the joint-venture operation. Opening or reopening of lower grade iron ore deposits is being investigated by several small miners in Alaska, Arizona, Missouri, Nevada, New Mexico, and Utah, owing to increased prices and interest by Chinese importers.

IRON ORE

Research and development testing on a value-added iron product—the Mesabi Nugget project—determined that iron ore produced in Minnesota could be converted to direct-reduced iron nuggets of 96% to 98% iron content using noncoking coals, while emitting lower levels of pollutants. Permitting and financing activities for a plant to be built in Minnesota progressed during 2005 and into 2006.

Increased profits and an improved steel market have allowed U.S. iron ore producers to initiate mine and plant improvements. Plant recoveries have been enhanced, and alternative fuel systems with reduced air emissions are being developed at pelletizing plants.

Offsetting these operational improvements are increased operating costs, which have been affecting U.S. iron ore operations. Fuel costs, although leveling off, are substantially higher than originally projected in the fuel-intensive iron ore industry. Lower mining equipment availability may be incurred owing to a worldwide shortage of heavy-equipment tires, exacerbated by recent expansions in the mining industry, increased prices for petroleum-based products, and increased demand for large tires by producers in Australia, Brazil, and China, as the worldwide mining boom continues.

World Mine Production, Reserves, and Reserve Base:⁷ The mine production estimates for China are based on crude ore, rather than usable ore, which is reported for the other countries.

	Mine production		Crude ore Reserve		Iron content Reserve	
	2005	2006 ^e	Reserves	base	Reserves	base
United States	54	54	6,900	15,000	2,100	4,600
Australia	262	270	15,000	40,000	8,900	25,000
Brazil	280	300	23,000	61,000	16,000	41,000
Canada	30	33	1,700	3,900	1,100	2,500
China	420	520	21,000	46,000	7,000	15,000
India	140	150	6,600	9,800	4,200	6,200
Iran	19	20	1,800	2,500	1,000	1,500
Kazakhstan	16	15	8,300	19,000	3,300	7,400
Mauritania	11	11	700	1,500	400	1,000
Mexico	12	13	700	1,500	400	900
Russia	97	105	25,000	56,000	14,000	31,000
South Africa	40	40	1,000	2,300	650	1,500
Sweden	23	24	3,500	7,800	2,200	5,000
Ukraine	69	73	30,000	68,000	9,000	20,000
Venezuela	20	20	4,000	6,000	2,400	3,600
Other countries	42	43	11,000	30,000	6,200	17,000
World total (rounded)	1,540	1,690	160,000	370,000	79,000	180,000

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, used directly or converted to briquettes, concentrates, pellets, or sinter, is the only source of primary iron. In some operations, ferrous scrap constitutes as much as 7% of the blast furnace feedstock. Scrap is extensively used in steelmaking and in iron and steel foundries, but availability of scrap has become an issue during the past several years. Price increases for iron ore of 19% for lump and fine ores during the past year were offset somewhat by a 3% decrease in the price of pellets. The margin between iron ore and scrap export prices has continued to decrease; therefore, the relative attractiveness of scrap has increased.

^eEstimated.

¹See also Iron and Steel and Iron and Steel Scrap.

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

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

⁴Information regarding consumer stocks at receiving docks and plants was not available after 2003 (these stock changes were estimated).

⁵Estimated from reported value of ore at mines.

⁶Defined as imports – exports + adjustments for Government and industry stock changes.

⁷See Appendix C for definitions.