

IRON ORE¹

(Data in million metric tons, usable ore, unless otherwise noted)

Domestic Production and Use: In 2017, mines in Michigan and Minnesota shipped 97% of the usable iron ore products in the United States—the remaining 3% of domestic iron ore was produced for nonsteel end uses—with an estimated value of \$3.2 billion. Seven open-pit iron ore mines, each including a concentration and pelletizing plant, and two iron metallic plants, including one direct-reduced iron (DRI) plant and one hot-briquetted iron (HBI) plant, operated during the year to supply steelmaking raw materials. The United States was estimated to have produced 1.8% and consumed 1.4% of the world's iron ore output.

Salient Statistics—United States: ²	2013	2014	2015	2016	2017^e
Production:					
Iron ore	52.8	56.1	46.1	41.8	46.3
Iron metallics	0.5	2.0	1.4	1.5	2.1
Shipments	53.4	55.0	43.5	43.6	44.7
Imports for consumption	3.2	5.1	4.6	3.0	3.5
Exports	11.0	12.1	7.5	8.8	12.0
Consumption:					
Reported (ore and total agglomerate)	44.2	44.4	38.5	34.5	29.0
Apparent ³	47.1	47.0	39.7	39.4	36.1
Value, U.S. dollars per metric ton	87.42	84.43	81.19	73.11	75.00
Stocks, mine, dock, and consuming plant, yearend, excluding byproduct ore	2.35	4.46	7.86	6.10	7.70
Employment, mine, concentrating and pelletizing plant, number	5,644	6,273	4,802	4,710	4,500
Net import reliance ⁴ as a percentage of apparent consumption (iron content of ore)	E	E	E	E	E

Recycling: None. See Iron and Steel Scrap.

Import Sources (2013–16): Canada, 47%; Brazil, 39%; and other, 14%.

Tariff: Item	Number	Normal Trade Relations 12–31–17
Iron ores and concentrates:		
Concentrates	2601.11.0030	Free.
Coarse ores	2601.11.0060	Free.
Other ores	2601.11.0090	Free.
Pellets	2601.12.0030	Free.
Briquettes	2601.12.0060	Free.
Sinter	2601.12.0090	Free.
Roasted iron pyrites	2601.20.0000	Free.

Depletion Allowance: 15% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: U.S. iron ore production was estimated to have increased in 2017 owing to one mine that restarted in early 2017 and two mines that operated for the full year following periods of being idled in 2016. Despite an overall increase in raw steel production from 79 million tons in 2016 to an estimated 82 million tons in 2017, the share of steel produced by basic oxygen furnace, the process that uses iron ore, decreased to 39% from 45% in 2013. Continued volatility in global spot iron ore prices in 2017 and continued lower iron ore prices suppressed development of new iron ore projects and exploration activities. In October 2017, the spot price for iron ore fines (62% iron content) imported into China (cost and freight into Tianjin port) was \$61.66 per ton, an increase from \$59.09 in October 2016, but down from the 2017 high of \$89.44 in February and the recent high of \$132.57 in October 2013.

During 2017, bankruptcy proceedings continued for a company's project to develop a 7-million-metric-ton-per-year iron ore mine and processing plant in Minnesota and another company that owned a pellet plant in Indiana and three tailings reclamation operations in Minnesota. A third company purchased the holdings of both bankrupt companies.

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The new owner planned to restart two of the reclamation operations in Minnesota and complete the integrated iron facility. One of the tailings operations was expected to reopen in 2018. The integrated operation was expected to be complete in late 2019 or early 2020 with subsequent plans to develop a DRI or HBI facility on-site.

Globally, iron ore production in 2017 increased by 20 million tons from that of 2016, following an increase of 30 million tons in 2016 from that of 2015. Over the 5-year period from 2012 through 2016, global iron ore production increased by 280 million tons. Production of iron ore from Australia and India, the leading and fourth-ranked iron ore producers in the world, respectively, collectively increased by 90 million tons from 2015 to 2016 and by about 30 million tons from 2016 to 2017, whereas production from China, the third-ranked producer, decreased by 27 million tons and 13 million tons. The global iron and steel market continued to attempt to rebalance following an ongoing glut in production for raw steel and steel products from China and iron ore from Australia and Brazil. Global steel consumption was forecast to increase from 1.52 billion tons in 2016 to 1.54 billion tons and 1.55 billion tons in 2017 and 2018, respectively.

Despite the global increase in production, 27 of the top 50 iron-ore-producing countries decreased production. Global steel production increased only slightly in 2017 as iron ore production from the world's leading mining companies increased, but small-scale and high-cost iron ore producers continued to idle operations. Countries in West Africa which were affected by the Ebola virus, specifically Sierra Leone, continued to face difficulties in producing iron ore owing to declines in price and labor shortages.

World Mine Production and Reserves: Reserves for Australia were revised based on Government information. In the United States, reserves were adjusted to reflect the permanent closure of a mine in 2016.

	Mine production				Reserves ⁵	
	Usable ore		Iron content		Crude ore	Iron content
	2016	2017 ^e	2016	2017 ^e		
United States	42	46	26	28	2,900	760
Australia	858	880	531	545	⁶ 50,000	⁶ 24,000
Brazil	430	440	275	280	23,000	12,000
Canada	47	47	29	29	6,000	2,300
China	348	340	216	210	21,000	7,200
India	185	190	114	120	8,100	5,200
Iran	35	35	23	23	2,700	1,500
Kazakhstan	34	34	10	10	2,500	900
Russia	101	100	60	60	25,000	14,000
South Africa	66	68	42	42	1,200	770
Sweden	27	27	16	16	3,500	2,200
Ukraine	63	63	39	39	⁷ 6,500	⁷ 2,300
Other countries	<u>116</u>	<u>110</u>	<u>72</u>	<u>68</u>	<u>18,000</u>	<u>9,500</u>
World total (rounded)	2,350	2,400	1,450	1,500	170,000	83,000

World Resources: U.S. resources are estimated to be 110 billion tons of iron 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 prior to commercial use. World resources are estimated to be greater than 800 billion tons of crude ore containing more than 230 billion tons of iron.

Substitutes: The only source of primary iron is iron ore, used directly as direct-shipment ore or converted to briquettes, concentrates, DRI, iron nuggets, pellets, or sinter. DRI, iron nuggets, and scrap are extensively used for steelmaking in electric arc furnaces and in iron and steel foundries. Technological advancements have been made, which allow hematite to be recovered from tailings basins and pelletized.

^eEstimated. E Net exporter.

¹Data are for iron ore used as a raw material in steelmaking unless otherwise noted. See also Iron and Steel and Iron and Steel Scrap.

²Salient statistics are for all forms of iron ore used in steelmaking, except iron metallica, which include DRI, hot-briquetted iron, and iron nuggets. Iron metallica production is listed separately and based on consumption of imported iron ore.

³Defined as production + imports – exports + adjustments for industry stock changes.

⁴Defined as imports – exports + adjustments for industry stock changes.

⁵See [Appendix C](#) for resource and reserve definitions and information concerning data sources.

⁶For Australia, Joint Ore Reserves Committee-compliant reserves were about 24 billion tons for crude ore and 10 billion tons for iron content.

⁷For Ukraine, reserves consist of the A+B categories of the former Soviet Union's reserves classification system.