

# Mineral Industry Surveys

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## IRON ORE IN DECEMBER 2022

Data are reported as gross weight unless otherwise noted and do not include iron metallics such as direct-reduced iron, hot-briquetted iron, iron nuggets, or pig iron.

U.S. mine production and shipments of iron ore in December 2022 were estimated to be 3.6 million metric tons (Mt) and 3.1 Mt, respectively (fig. 1, table 1). Average daily production of iron ore was 117,000 metric tons (t), a 6% decrease from that in November and a 4% increase from that in December 2021. Average daily shipments of iron ore were 101,000 t, a 5% decrease from those in November and a 28% decrease from those in December 2021.

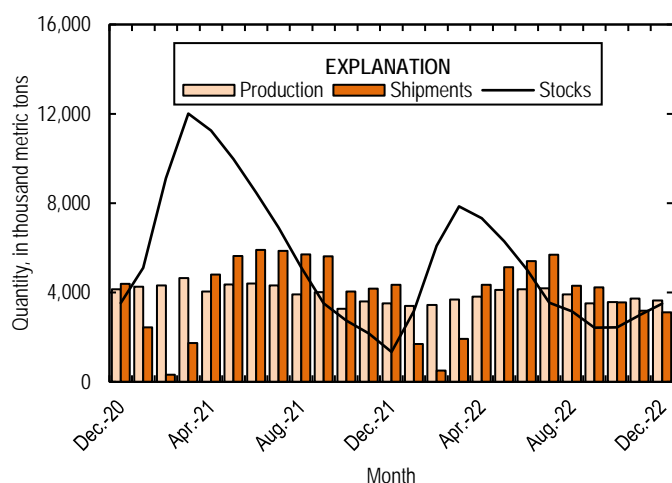


Figure 1. Monthly domestic production, shipments, and stocks of iron ore from December 2020 through December 2022.

Mine stocks were estimated to be 3.5 Mt at the end of December 2022, a 17% increase from those held at the end of November 2022, and a 25% increase from those held at the end of December 2021 (fig. 1, table 1).

U.S. exports of iron ore were 704,000 Mt in December 2022, a 42% decrease from those in November and a 48% decrease from those in December 2021 (fig. 2, tables 3, 6). U.S. imports of iron ore were 145,000 t in December 2022, a 27% decrease from those in November and a 39% decrease from those in December 2021 (fig. 2, tables 4, 6).

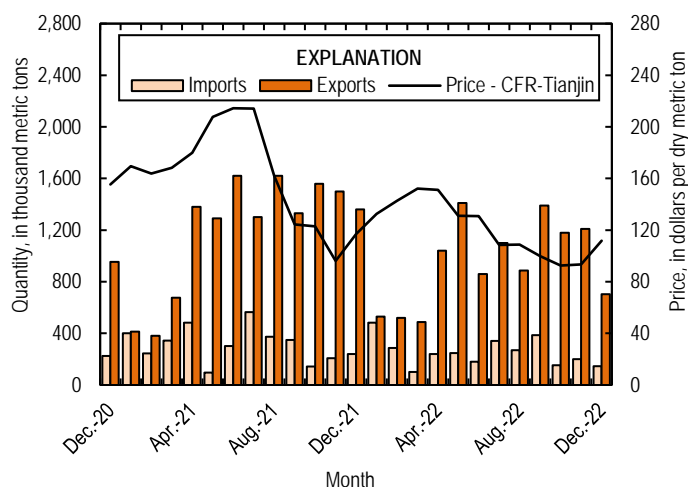


Figure 2. Monthly domestic imports and exports of iron ore and spot prices for imported iron ore fines, 62% iron content, cost and freight (CFR), at Tianjin Port, China, from December 2020 through December 2022. Source: U.S. Census Bureau and IndexMundi, undated.

The spot price for imported iron ore fines, 62% iron content, cost and freight, at Tianjin Port, China, was \$111.84 per dry metric ton in December 2022, a 20% increase from \$93.34 per dry metric ton in November 2022 (fig. 2).

## Annual Review

Yearend totals for iron ore in 2022 were calculated using estimated data, whereas yearend totals for 2021 were calculated using annual totals reported by the companies. Total production in 2022 was an estimated 45.2 Mt, a 5% decrease from 47.5 Mt in 2021. Shipments in 2022 totaled an estimated 43.1 Mt, essentially unchanged from 43.4 Mt in 2021 (table 1).

Pig iron production in 2022 was an estimated 22.2 Mt, a 5% decrease from 23.4 Mt in 2021. Raw steel production totaled 80.5 Mt in 2022, a 6% decrease from 85.8 Mt in 2021 (table 2). Iron ore exports totaled 11.3 Mt in 2022, a 21% decrease from 14.3 Mt in 2021, with a total value of \$1.13 billion in 2022 (tables 3, 6). Iron ore imports totaled 3.04 Mt in 2022, a 19% decrease from 3.74 Mt in 2021, with a total value of \$613 million in 2022 (tables 4, 5, 6).

## Industry News

In November, Mesabi Metallics Company LLC petitioned the Minnesota Supreme Court for a review of State mineral leases that were terminated by the Minnesota Department of Natural Resources after a \$200 million down payment deadline was missed. The funding was required to complete construction of the plant in Nashwauk. Cleveland-Cliffs Inc. leadership announced it was seeking the land and mineral rights to the nearby deposit as the Hibbing Taconite Mine, located in northern Minnesota, was expected to deplete its reserves of iron ore around 2025 (Associated Press, 2022).

In October, U.S. Steel Corp. began construction at its Keetac operations on a \$150 million project to build a direct-reduced (DR) grade pellet plant that could feed a potential future direct-reduced iron (DRI) or hot-briquetted iron (HBI) plant. The plant could vary production from standard blast-furnace grade pellets to DR-grade pellets based on market demand. Construction began in the last quarter of 2022 with the commencement of pellet production expected in 2024 (U.S. Steel Corp., 2022).

The Keetac expansion marks the second iron ore pelletizing plant in the United States to utilize flexible DR-grade pellet capabilities, allowing for greater diversity of feedstock in the steel-making raw materials market. As U.S. steel producers have

increased the share of electric arc furnace market production in the steel industry over the last two decades, competitive feedstock alternatives to steel scrap have also expanded domestically in the last decade, including multiple HBI and DRI plants.

## References Cited

- Associated Press, 2022, Cliffs CEO— Minnesota mine will close without mineral rights: New York, NY, November 18. (Accessed March 15, 2023, at <https://www.usnews.com/news/us/articles/2022-11-18/cliffs-ceo-minnesota-mine-will-close-without-mineral-rights>.)
- U.S. Steel Corp., 2022, U.S. Steel celebrates advancement in metallics strategy with DR-grade pellet capability at Keetac: U.S. Steel Corp. press release, October 5. (Accessed March 15, 2023, at <https://investors.ussteel.com/news/news-details/2022/U.-S.-Steel-Celebrates-Advancement-in-Metallics-Strategy-with-DR-Grade-Pellet-Capability-at-Keetac/default.aspx>.)

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TABLE 1  
U.S. PRODUCTION, SHIPMENTS, AND STOCKS OF IRON ORE<sup>1, 2</sup>

(Thousand metric tons, usable ore)

Period	Production		Shipments <sup>3</sup>		Stocks
	Monthly	Year to date	Monthly	Year to date	End of Month
2021:					
December	3,510	47,500 <sup>r, 4</sup>	4,340	43,400 <sup>r, 4</sup>	3,170 <sup>r, 4</sup>
2022:					
January	3,400	3,400	1,690	1,690	3,170
February	3,440	6,840	510	2,200	6,100
March	3,690	10,500	1,930	4,130	7,860
April	3,820	14,400	4,350	8,480	7,330
May	4,110	18,500	5,140	13,600	6,300
June	4,150	22,600	5,410	19,000	5,040
July	4,190	26,800	5,690	24,700	3,540
August	3,910	30,700	4,300	29,000	3,150
September	3,510	34,200	4,230	33,300	2,430
October	3,570	37,800	3,560	36,800	2,440
November	3,730	41,500	3,190	40,000	2,980
December	3,640	45,200	3,120	43,100	3,500

<sup>r</sup>Revised. XX Not applicable.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Data are estimated based on publicly reported data, employment hours, and historical ratios. Excludes byproduct ores and iron metallics.

<sup>3</sup>Includes rail and vessel.

<sup>4</sup>Year-end data revised to reflect data reported in company reports, government reports, and other sources.

TABLE 2  
U.S. PRODUCTION OF PIG IRON AND RAW STEEL, BY TYPE OF FURNACE<sup>1</sup>

(Thousand metric tons)

Period	Pig iron production <sup>2</sup>		Raw steel production	
	Monthly	Year to date	Monthly	Year to date
2021, December	1,940	23,400	7,100	85,800
2022:				
January	1,920 <sup>r</sup>	1,920 <sup>r</sup>	6,970	6,970
February	1,750 <sup>r</sup>	3,670 <sup>r</sup>	6,370	13,300
March	1,890 <sup>r</sup>	5,560 <sup>r</sup>	6,870	20,200
April	1,910 <sup>r</sup>	7,470 <sup>r</sup>	6,950	27,200
May	1,960 <sup>r</sup>	9,430 <sup>r</sup>	7,120	34,300
June	1,860 <sup>r</sup>	11,290 <sup>r</sup>	6,760	41,000
July	1,900 <sup>r</sup>	13,190 <sup>r</sup>	6,910	47,900
August	1,900 <sup>r</sup>	15,090 <sup>r</sup>	6,910	54,900
September	1,800 <sup>r</sup>	16,890 <sup>r</sup>	6,550	61,400
October	1,820 <sup>r</sup>	18,710 <sup>r</sup>	6,610	68,000
November	1,700 <sup>r</sup>	20,410 <sup>r</sup>	6,200	74,200
December	1,740	22,150	6,330	80,500

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Pig iron data are estimated based on historical ratios.

Source: American Iron and Steel Institute, U.S. Geological Survey estimates.

TABLE 3  
U.S. EXPORTS OF IRON ORE, BY COUNTRY OR LOCALITY AND TYPE <sup>1,2</sup>

Country or locality and type of product	2021	2022				
	January–December	December		January–December		
	Quantity (thousand metric tons)	Quantity (thousand metric tons)	Value <sup>3</sup> (thousand dollars)	Quantity (thousand metric tons)	Value <sup>3</sup> (thousand dollars)	Value <sup>3</sup> (dollars per ton)
Brazil	--	60	6,000	178	17,900	100.28
Canada	8,780 <sup>r</sup>	563	53,700	7,640	721,000	94.48
China	1,600	71	10,500	1,470	209,000	142..09
Netherlands	338	5	1,000	484	72,000	148.73
Spain	448	5	1,000	266	18,000	67.74
Other	3,160 <sup>r</sup>	(4)	106	1,280	95,400	74.40
Total	14,300 <sup>r</sup>	704	72,300	11,300	1,130,000	100.17
Concentrates	1,750	81	12,600	1,800	286,000	159.44
Fine ores	2	(4)	77	3	643	214.33
Pellets	12,100 <sup>r</sup>	622	59,600	9,320	840,000	90.05
Other	507 <sup>r</sup>	--	--	194	6,900	35.58
Total	14,300 <sup>r</sup>	704	72,300	11,300	1,130,000	100.17

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>All countries with quantities less than 5,000 metric tons for the month included in "Other."

<sup>3</sup>Free alongside ship (FAS) value.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE, BY COUNTRY OR LOCALITY AND TYPE<sup>1,2</sup>

Country or locality of origin and type of product	2021	2022				
	January–December	December		January–December		
	Quantity (thousand metric tons)	Quantity (thousand metric tons)	Value <sup>3</sup> (thousand dollars)	Quantity (thousand metric tons)	Value <sup>3</sup> (thousand dollars)	Value <sup>3</sup> (dollars per ton)
Brazil	2,110	68	11,300	1,650	337,000	203.94
Canada	735	77	14,000	808	175,000	217.02
Other	897 <sup>r</sup>	(4)	86	574	100,000	175.05
Total	3,740	145	25,400	3,040	613,000	201.96
Concentrates	233	--	--	61	6,840	112.20
Fine Ores	231	(4)	92	187	23,200	123.89
Pellets	3,260	144	25,300	2,770	581,000	209.47
Other	26	--	--	14	2,300	164.07
Total	3,740	145	25,400	3,040	613,000	201.96

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>All countries with quantities less than 5,000 metric tons for the month included in "Other."

<sup>3</sup>Customs value. Excludes international freight and insurance charges.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE, BY CUSTOMS DISTRICT<sup>1, 2</sup>

(Thousand metric tons)

Customs district (code no.)	Pellets			Total, all products		
	January–December		December	January–December		December
	2021	2022	2022	2021	2022	2022
New Orleans, LA (20)	3,140	2,700	144	3,350	2,860	144
Other	117 <sup>r</sup>	76	--	391 <sup>r</sup>	173	(3)
Total	3,260	2,770	144	3,740	3,040	145

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Customs Districts with less than 5,000 metric tons of imports per month included in "Other."

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IRON ORE TRADE SUMMARY<sup>1</sup>

(Thousand metric tons and thousand dollars)

Period	Exports		Imports	
	Quantity	Value <sup>2</sup>	Quantity	Value <sup>3</sup>
2021:				
December	1,360	115,000	239	55,700
January–December	14,300 <sup>r</sup>	1,290,000	3,740	750,000
2022:				
January	531	48,200	484	112,000
February	521	66,800	286	58,100
March	489	45,900	101	19,800
April	1,040	85,600	239	41,500
May	1,410	127,000	248	47,500
June	860	92,100	181	36,700
July	1,100	124,000	342	64,400
August	888	92,400	270	57,200
September	1,390	140,000	387	84,500
October	1,180	115,000	154	34,300
November	1,210	122,000	199	31,900
December	704	72,300	145	25,400
January–December	11,300	1,130,000	3,040	613,000

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Free alongside ship (FAS) value.

<sup>3</sup>Customs value. Excludes international freight and insurance charges.

Source: U.S. Census Bureau.