

# Mineral Industry Surveys

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## SILICON IN JANUARY 2023

Domestic production of silicon materials was 26,600 metric tons (t) in January 2023, 34% more than December 2022 production (table 1). Net shipments in January 2023 were withheld to avoid disclosing proprietary information. Ending stocks in January 2023 were 21,700 t, unchanged from those in December 2022 and 35% more than those in January 2022.

On a contained weight basis, total ferrosilicon imports were 8,200 t in January 2023, 61% less than those in December 2022 and 48% less than those in January 2022 (fig. 1, table 4). Total silicon metal imports were 6,550 t in January 2023, 5% less than those in December 2022 and 18% less than those in January 2022.

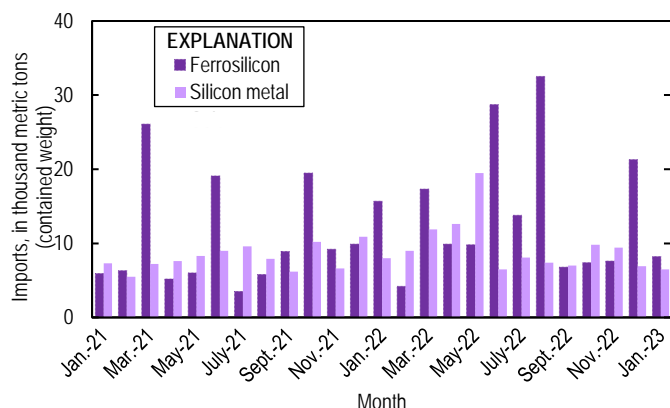


Figure 1. Ferrosilicon and silicon metal imports (excluding solar and semiconductor grades) from January 2021 through January 2023. Source: U.S. Census Bureau.

In January 2023, on a contained-weight basis in descending order of quantity, the leading destinations for silicon metal, more than 99.99% silicon trade category, were Vietnam, Japan, and Germany (table 3). In January 2023, on a contained-weight basis in descending order of quantity, the leading import sources for ferrosilicon, 55%–80% grade, were Malaysia, Brazil, and Canada and the leading import sources for silicon metal, 99.00%–99.99% silicon trade category, were Canada, Australia, and Brazil (table 4).

## Prices

The average U.S. spot price for silicon metal was 236.25 cents per pound in January 2023, 8% less than the average price in December 2022 and 48% less than the average price in January 2022. The average U.S. spot price for ferrosilicon, 75% grade, was 182.50 cents per pound, 12% less than the average price in December 2022 and 45% less than the average price in January 2022 (fig. 2). The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022 and no other published sources were available.

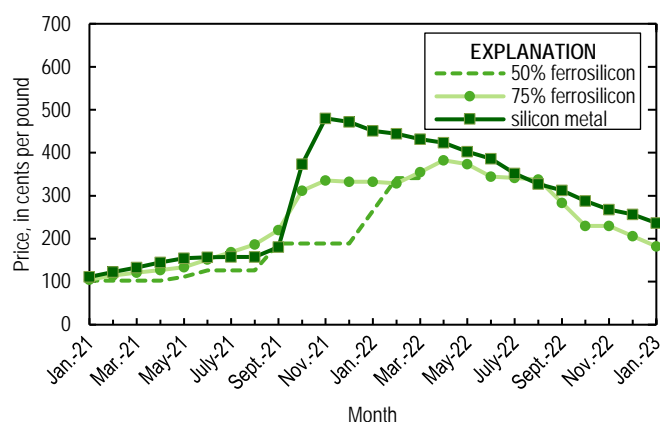


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from January 2021 through January 2023. The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022. Source: CRU Group and S&P Global Platts Metals Week.

## Industry News

Hanwha Qcells USA Inc. (Republic of Korea) announced it will increase its U.S. photovoltaic panel production capacity to 8.4 gigawatts per year by 2024. Construction of the new facility in Cartersville, GA, was expected to start in early 2023 and will cost approximately \$2.5 billion dollars. The new facility will manufacture silicon ingots, wafers, cells, and finished panels (Argus Media group—Argus Metals International, 2023; Pickerel, 2023).

## References Cited

Argus Media group—Argus Metals International, 2023, Qcells invests big in Georgia solar plants: Argus Media group—Argus Metals International, January 11. (Accessed January 11, 2023, via <http://www.argusmedia.com/metals/>.)

Pickerel, Kelly, 2023, Qcells will manufacture every part of a silicon solar panel in the United States: Cleveland, Ohio, Solar Power World, January 11. (Accessed February 27, 2023, at [https://www.solarpowerworldonline.com/2023/01/qcells-will-](https://www.solarpowerworldonline.com/2023/01/qcells-will-manufacture-every-part-of-a-silicon-solar-panel-in-the-united-states/)

[manufacture-every-part-of-a-silicon-solar-panel-in-the-united-states/](https://www.solarpowerworldonline.com/2023/01/qcells-will-manufacture-every-part-of-a-silicon-solar-panel-in-the-united-states/).)

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TABLE 1  
PRODUCTION, SHIPMENTS, AND STOCKS OF SILICON ALLOYS  
AND METAL IN THE UNITED STATES<sup>1, 2, 3</sup>

(Metric tons, gross weight)

	Gross production <sup>4</sup>	Net shipments	Producers' stocks, end of period
2022:			
January	W	24,000	16,100
February	W	23,000	17,700
March	W	W	21,200
April	W	23,500	19,300
May	32,600	22,400	W
June	W	22,400	W
July	W	W	W
August	W	22,500	W
September	W	15,700	W
October	25,500	17,100	24,700
November	22,600	20,600	22,800
December	19,900	W	21,600
January–December	348,000	249,000	21,600
2023, January	26,600	W	21,700

W Withheld to avoid disclosing company proprietary data.

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

<sup>2</sup>Includes ferrosilicon, miscellaneous silicon alloys, and silicon metal, excluding semiconductor and solar grades, except where noted.

<sup>3</sup>Includes USGS estimates.

<sup>4</sup>Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

TABLE 2  
PRICES FOR FERROSILICON AND SILICON METAL IN JANUARY 2023

		Low	Average	High	Average low, mid, and high
Ferrosilicon:					
50% ferrosilicon <sup>1</sup>	cents per pound of contained silicon	NA	XX	NA	NA
75% ferrosilicon <sup>2</sup>	do.	180.00	182.50	185.00	XX
Silicon metal, 553 grade <sup>3</sup>	cents per pound	220.00	236.25	250.00	XX

do. Ditto. NA Not available. XX Not applicable.

<sup>1</sup>CRU Group transaction price, duty paid, f.o.b. Pittsburgh, producing plant or Chicago/Pittsburgh warehouse. Average price reported for price range.

<sup>2</sup>S&P Global Platts Metals Week, in U.S. warehouse, U.S. origin and imported material. Average price reported for all transactions during the month.

<sup>3</sup>S&P Global Platts Metals, duty paid, delivered Midwest, U.S. spot and imported 553 grade silicon metal (minimum 98.50% silicon). Average price reported for all transactions during the month.

TABLE 3  
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN JANUARY 2023<sup>1, 2</sup>

(Metric tons, unless otherwise specified)

Country or locality	January		
	Gross weight	Contained weight	Value
Ferrosilicon:			
More than 55% silicon:			
Canada	273	164	\$522,000
Germany	80	62	177,000
Mexico	4	2	20,200
Thailand	74	44	178,000
Total	432	272	896,000
Other ferrosilicon:			
Belgium	175	87	641,000
Canada	109	19	142,000
Malaysia	2	1	4,270
Mexico	63	32	260,000
Total	349	139	1,050,000
Total ferrosilicon	780	411	1,940,000
Metal:			
More than 99.99% silicon:			
China	68	68	3,280,000
Germany	234	234	8,620,000
Japan	839	839	39,600,000
Korea, Republic of	88	88	3,470,000
Norway	53	53	2,200,000
Singapore	144	144	4,090,000
Taiwan	171	171	4,070,000
Turkey	94	94	3,300,000
United Kingdom	30	30	811,000
Vietnam	1,060	1,060	41,100,000
Other [8 countries and (or) localities]	20	20	2,640,000
Total	2,800	2,800	113,000,000
99.00%–99.99% silicon:			
Belgium	43	31	60,000
Equatorial Guinea	23	23	32,400
Korea, Republic of	7	7	10,200
Taiwan	9	9	13,300
Total	82	70	116,000
Other silicon:			
Australia	(3)	(3)	2,630
Canada	3	3	15,400
India	5	4	6,050
Mexico	68	66	343,000
Netherlands	114	111	91,400
Sweden	(3)	(3)	5,090
Total	190	184	464,000
Total silicon metal	3,070	3,050	114,000,000

<sup>1</sup>Presentation of monthly data is based on the quantities (gross weight) of the leading countries and (or) localities.

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN JANUARY 2023<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	January		
	Gross weight	Contained weight	Value
Ferrosilicon:			
55%–80% silicon, more than 3% Ca, France	18	11	\$75,400
55%–80% silicon, other:			
Brazil	3,530	2,660	7,160,000
Canada	817	584	3,240,000
Germany	101	75	487,000
Iceland	416	318	1,710,000
India	81	60	248,000
Malaysia	3,860	2,900	7,920,000
Paraguay	251	191	648,000
United Kingdom	27	20	92,200
Vietnam	213	158	301,000
Total	9,300	6,970	21,800,000
More than 90% ferrosilicon, China	16	14	39,300
Magnesium ferrosilicon:			
Brazil	382	173	648,000
Canada	1,500	685	5,070,000
Germany	43	19	71,900
Thailand	47	23	105,000
Total	1,970	900	5,900,000
Other ferrosilicon:			
Canada	723	251	1,470,000
China	25	11	43,200
India	1	1	2,380
Italy	4	2	10,900
Norway	23	12	62,800
Paraguay	61	31	87,800
Total	838	306	1,680,000
Total ferrosilicon	12,100	8,200	29,500,000
Metal:			
More than 99.99% silicon:			
Brazil	109	109	389,000
China	4	4	1,140,000
Denmark	(3)	(3)	16,800
Finland	(3)	(3)	72,100
Germany	97	97	6,900,000
Ireland	(3)	(3)	2,200
Japan	2	2	379,000
Taiwan	38	38	4,840,000
Ukraine	(3)	(3)	7,900
Total	249	249	13,700,000
99.00%–99.99% silicon:			
Australia	712	707	3,560,000
Brazil	701	695	2,680,000
Canada	995	989	6,400,000
Germany	10	10	47,900
Malaysia	300	300	1,720,000
Norway	691	687	5,240,000

See footnotes at end of table.

TABLE 4—Continued  
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN JANUARY 2023<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	January		Value
	Gross weight	Contained weight	
Metal—Continued:			
99.00%–99.99% silicon:			
Thailand	288	286	\$1,370,000
Total	3,700	3,670	21,000,000
Other silicon:			
Belgium	20	20	94,500
Brazil	1,440	1,390	9,660,000
Canada	693	594	3,910,000
Japan	5	5	18,700
Netherlands	(3)	(3)	2,880
Norway	392	382	2,160,000
Thailand	240	236	1,180,000
Total	2,790	2,620	17,000,000
Total silicon metal	6,740	6,550	51,700,000

<sup>1</sup>Presentation of monthly data is based on the quantities (gross weight) of the leading countries and (or) localities.

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Less than ½ unit.

Source: U.S. Census Bureau.