

# Mineral Industry Surveys

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## SILICON IN OCTOBER 2023

Domestic production and net shipments of silicon materials in October 2023 were withheld to avoid disclosing proprietary data (table 1). Ending stocks in October 2023 were 26,000 metric tons (t) unchanged from those in September 2023 and 5% more than those in October 2022.

On a contained weight basis, total ferrosilicon imports were 11,700 t in October 2023, 90% more than those in September 2023 and 58% more than those in October 2022 (fig. 1, table 4). Total silicon metal imports, on a contained weight basis were 4,770 t in October 2023, 15% less than those in September 2023 and 52% less than those in October 2022.

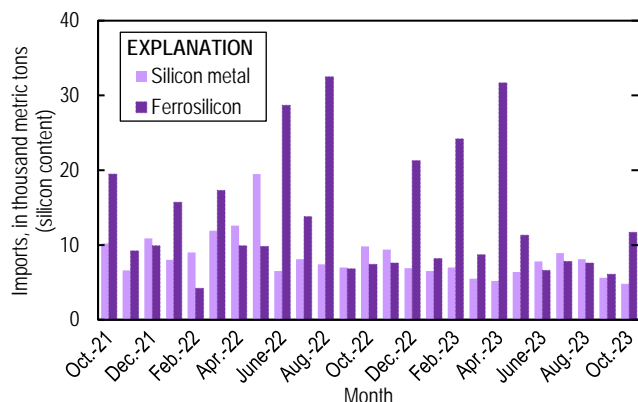


Figure 1. Ferrosilicon and silicon metal imports (excluding solar and semiconductor grades) from October 2021 through October 2023. Source: U.S. Census Bureau.

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

## Prices

The average U.S. spot price for silicon metal was 145.75 cents per pound in October 2023, 5% less than the average price in September 2023 and 49% less than the average price in October 2022. The average U.S. spot price for ferrosilicon, 75% grade, was 117.13 cents per pound, 7% less than the average price in September 2023 and 49% less than the average price in October 2022 (fig. 2, table 2). The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022 and no other published sources were available.

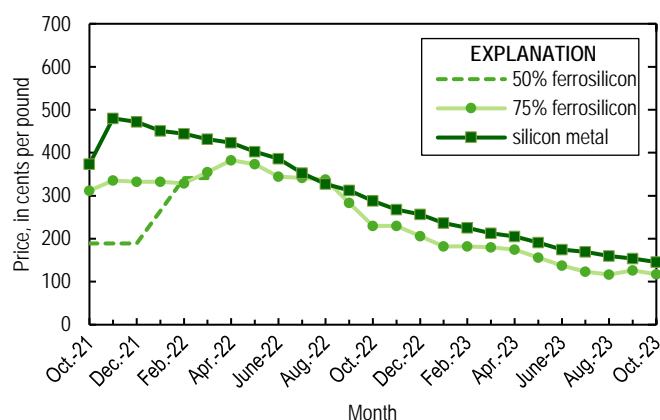


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon, 50% and 75% grades, contained silicon, from October 2021 through October 2023. The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022. Source: CRU Group and S&P Global Platts Metals Week.

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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–December	348,000	249,000	21,600
January–October	W	W	W
October	25,500	17,100	24,700
November	22,600	20,600	22,800
December	19,900	W	21,600
2023:			
January	26,600	W	21,700
February	W	19,500	19,400
March	W	22,500	23,400
April	W	21,700	24,700
May	W	20,400	23,400
June	W	18,600	27,200
July	W	W	26,500
August	W	20,700	26,600
September	W	W	25,900
October	W	W	26,000
January–October	W	W	26,000

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 OCTOBER 2023

		Low	Average	High	Average low, mid, and high
Ferrosilicon (75%) <sup>1</sup>	do.	95.00	117.13	127.00	XX
Silicon metal, 553 grade <sup>2</sup>	cents per pound	141.00	145.75	152.00	XX

do. Ditto. XX Not applicable.

<sup>1</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>2</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 OCTOBER 2023<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–October <sup>3</sup>		
				Gross weight	Silicon content	Value
Ferrosilicon:						
More than 55% silicon:						
Belgium	--	--	--	214	135	\$195,000
Canada	70	42	\$168,000	2,130	1,280	4,350,000
France	--	--	--	52	35	114,000
Germany	--	--	--	80	62	177,000
India	--	--	--	66	43	154,000
Japan	--	--	--	24	14	37,500
Mexico	--	--	--	2,850	1,800	4,580,000
Netherlands	915	549	1,430,000	668	401	399,000
Thailand	173	104	115,000	78	47	184,000
Turkey	--	--	--	305	268	942,000
Other [4 countries and (or) localities]	28	17	42,700	47	28	71,600
Total	1,190	712	1,760,000	6,510	4,110	11,200,000
Other ferrosilicon:						
Belgium	--	--	--	252	110	320,000
Brazil	20	10	53,200	194	97	694,000
Canada	13	7	52,100	438	107	689,000
China	--	--	--	2	1	4,270
Germany	--	--	--	60	27	111,000
Mexico	61	25	190,000	582	260	2,030,000
Spain	--	--	--	60	30	159,000
Switzerland	--	--	--	20	9	37,800
Turkey	--	--	--	220	99	515,000
Total	94	41	296,000	1,830	740	4,560,000
Total ferrosilicon	1,280	754	2,050,000	8,340	4,850	15,800,000
Metal:						
More than 99.99% silicon:						
China	13	13	1,190,000	908	908	38,100,000
Denmark	21	21	3,140,000	177	177	21,600,000
Germany	47	47	2,120,000	2,060	2,060	82,900,000
Japan	675	675	33,400,000	7,830	7,830	375,000,000
Korea, Republic of	39	39	2,130,000	507	507	23,600,000
Malaysia	399	399	4,970,000	1,660	1,660	53,300,000
Singapore	85	85	2,170,000	1,150	1,150	35,300,000
Taiwan	602	602	8,580,000	2,660	2,660	51,700,000
Turkey	135	135	3,860,000	649	649	20,900,000
Vietnam	1,350	1,350	28,600,000	13,300	13,300	393,000,000
Other [28 countries and (or) localities]	18	18	468,000	320	320	16,800,000
Total	3,380	3,380	90,600,000	31,300	31,300	1,110,000,000
99.00%–99.99% silicon:						
Belgium	--	--	--	123	111	167,000
Equatorial Guinea	--	--	--	23	23	32,400
France	--	--	--	42	41	58,600
India	--	--	--	11	11	15,900
Italy	--	--	--	17	17	23,800
Japan	--	--	--	10	10	14,200
Korea, Republic of	--	--	--	20	22	31,000
Malaysia	12	12	17,000	49	49	69,700
Norway	--	--	--	33	33	86,300
Taiwan	2	2	3,510	21	21	29,600
Other [9 countries and (or) localities]	--	--	--	24	36	56,800
Total	15	14	20,500	373	373	585,000

See footnotes at end of table.

TABLE 3—Continued  
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN OCTOBER 2023<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–October <sup>3</sup>		
				Gross weight	Silicon content	Value
Metal—Continued:						
Other silicon:						
Belgium	--	--	--	61	59	\$93,200
Canada	44	42	\$157,000	1,060	1,030	3,530,000
China	--	--	--	97	94	128,000
Germany	(4)	(4)	4,410	205	201	498,000
India	--	--	--	22	21	31,400
Mexico	99	96	356,000	365	354	1,450,000
Netherlands	76	74	62,500	497	482	401,000
South Africa	48	46	63,000	152	147	200,000
Trinidad and Tobago	--	--	--	40	39	85,300
Vietnam	76	72	1,150,000	567	540	10,100,000
Other [12 countries and (or) localities]	(4)	(4)	2,800	24	27	113,000
Total	342	331	1,790,000	3,090	3,000	16,600,000
Total silicon metal	3,740	3,720	92,400,000	34,700	34,700	1,130,000,000

-- Zero.

<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>May include revisions to previously published data.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–October <sup>3</sup>		
				Gross weight	Silicon content	Value
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
Bhutan	--	--	--	54	41	\$93,500
Brazil	--	--	--	513	323	555,000
China	--	--	--	30	17	60,500
France	37	22	\$132,000	293	183	1,160,000
India	--	--	--	312	248	683,000
Kazakhstan	--	--	--	1,300	1,270	2,490,000
South Africa	5	5	10,600	5	5	10,600
Thailand	--	--	--	108	65	247,000
Total	42	27	143,000	2,610	2,160	5,300,000
55%–80% silicon, other:						
Brazil	4,320	3,230	6,180,000	28,200	21,200	50,100,000
Canada	1,190	862	3,930,000	12,800	9,300	44,500,000
Iceland	1,780	1,350	3,490,000	11,700	8,960	25,500,000
India	135	93	332,000	1,990	1,460	4,410,000
Kazakhstan	2,480	1,700	5,110,000	12,700	9,290	28,400,000
Malaysia	3,500	2,430	5,390,000	18,800	13,700	34,600,000
Paraguay	175	131	348,000	2,230	1,670	4,770,000
Russia	--	--	--	52,100	39,700	134,000,000
South Africa	167	123	670,000	824	607	3,820,000
Vietnam	658	491	909,000	4,210	3,090	6,570,000
Other [9 countries and (or) localities]	293	210	762,000	2,810	2,020	8,400,000
Total	14,700	10,600	27,100,000	148,000	111,000	345,000,000
More than 90% ferrosilicon:						
China	--	--	--	16	14	39,300
India	(4)	(4)	3,080	(4)	(4)	3,080
Total	(4)	(4)	3,080	16	14	42,400
Magnesium ferrosilicon:						
Brazil	207	95	280,000	2,260	1,020	4,170,000
Canada	1,040	480	3,490,000	11,700	5,390	40,600,000
China	--	--	--	202	92	294,000
Germany	--	--	--	230	104	415,000
India	182	82	409,000	1,470	662	3,480,000
Paraguay	--	--	--	77	36	221,000
Thailand	100	47	196,000	827	384	1,670,000
Total	1,530	704	4,380,000	16,800	7,690	50,800,000
Other ferrosilicon:						
Canada	818	269	1,510,000	8,200	2,730	14,100,000
China	--	--	--	137	61	278,000
France	--	--	--	41	18	82,500
India	9	4	19,800	46	22	186,000
Norway	--	--	--	23	12	62,800
Paraguay	26	13	83,300	190	93	571,000
Slovakia	--	--	--	36	18	91,400
Spain	--	--	--	68	30	80,300
Thailand	27	14	58,900	27	14	58,900
Turkey	--	--	--	24	11	76,500
Other [3 countries and (or) localities]	--	--	--	47	21	129,000
Total	880	300	1,670,000	8,840	3,030	15,700,000
Total ferrosilicon	17,100	11,700	33,300,000	177,000	124,000	417,000,000
Metal:						
More than 99.99% silicon:						
Brazil	91	91	478,000	1,080	1,080	4,720,000
China	2	2	288,000	92	92	17,400,000
Denmark	(4)	(4)	2,860	1	1	125,000
Finland	(4)	(4)	312,000	1	1	881,000
Germany	50	50	2,860,000	556	556	46,400,000
Japan	1	1	257,000	44	44	4,950,000
Korea, Republic of	(4)	(4)	4,200	(4)	(4)	123,000
Norway	--	6	--	39	39	228,000
Spain	--	--	--	1	1	11,400

Taiwan	18	18	2,240,000	250	250	30,700,000
Other [8 countries and (or) localities]	(4)	(4)	5,830	1	1	185,000
Total	163	163	6,440,000	2,060	2,060	106,000,000
99.00%–99.99% silicon:						
Australia	205	203	638,000	2,520	2,500	10,100,000

See footnotes at end of table.

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–October <sup>3</sup>		
				Gross weight	Silicon content	Value
Metal—Continued:						
99.00%–99.99% silicon:						
Brazil	869	862	\$2,460,000	14,500	14,400	\$53,600,000
Canada	1,390	1,380	4,700,000	20,800	20,700	95,200,000
Germany	--	--	--	289	288	843,000
Iceland	--	--	--	161	160	487,000
Laos	200	199	456,000	2,900	2,880	7,450,000
Malaysia	--	--	--	1,070	1,070	4,380,000
Norway	741	736	2,940,000	5,050	5,020	24,800,000
South Africa	21	21	44,100	21	21	44,100
Thailand	--	--	--	1,600	1,590	5,210,000
Other [4 countries and (or) localities]	--	--	--	6	6	53,200
Total	3,420	3,400	11,200,000	49,000	48,600	202,000,000
Other silicon:						
Belgium	--	--	--	100	96	344,000
Brazil	673	662	1,780,000	8,290	8,110	35,400,000
Canada	--	--	--	2,220	1,990	12,100,000
France	20	19	66,600	157	154	584,000
Iceland	--	--	--	125	96	431,000
Japan	8	8	33,500	53	51	235,000
Laos	--	--	--	300	296	915,000
Malaysia	325	314	786,000	1,760	1,720	4,800,000
Norway	199	196	574,000	2,320	2,280	8,650,000
Thailand	--	--	--	240	236	1,180,000
Other [6 countries and (or) localities]	8	7	32,400	143	137	635,000
Total	1,230	1,210	3,280,000	15,700	15,200	65,300,000
Total silicon metal	4,820	4,770	21,000,000	66,700	65,800	373,000,000

-- Zero.

<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>May include revisions to previously published data.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.