

Mineral Industry Surveys

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SILICON IN AUGUST 2023

Domestic production of silicon materials in August 2023 was withheld to avoid disclosing proprietary data (table 1). Net shipments in August 2023 were 21,600 metric tons (t), 4% less than those in August 2022. Ending stocks in August 2023 were 23,700 metric tons (t), 3% less than those in July 2023.

On a contained weight basis, total ferrosilicon imports were 7,630 t in August 2023, slightly less than those in July 2023 and 77% less than those in August 2022 (fig. 1, table 4). Total silicon metal imports, on a contained weight basis were 8,110 t in August 2023, 9% less than those in July 2023 and 10% more than those in August 2022.

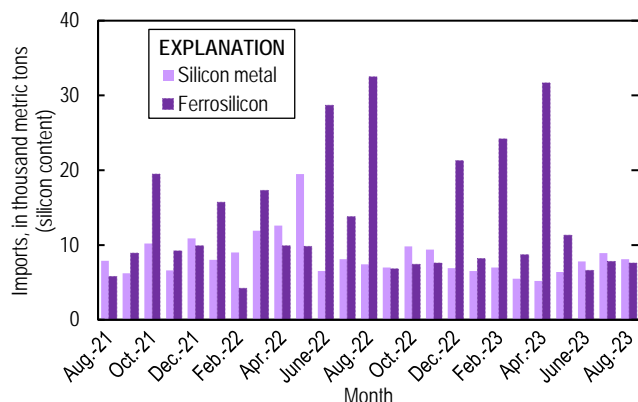


Figure 1. Ferrosilicon and silicon metal imports (excluding solar and semiconductor grades) from August 2021 through August 2023. Source: U.S. Census Bureau.

In August 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 August 2023, on a contained-weight basis in descending order of quantity, leading import sources for ferrosilicon, 55%–80% grade, were Iceland, Brazil, and Canada, 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 160.20 cents per pound in August 2023, 5% less than the average price in July 2023 and 51% less than the average price in August 2022. The average U.S. spot price for ferrosilicon, 75% grade, was 116.7 cents per pound, 5% less than the average price in July 2023 and 65% less than the average price in August 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.

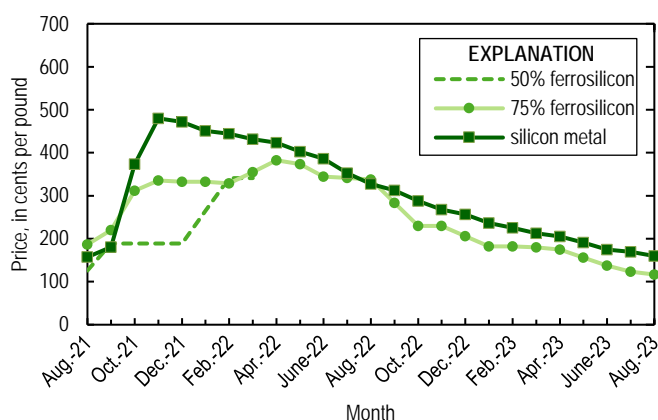


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon, 50% and 75% grades, contained silicon, from August 2021 through August 2023. The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022. Source: CRU Group and S&P Global Platts Metals Week.

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TABLE 1
PRODUCTION, SHIPMENTS, AND STOCKS OF SILICON ALLOYS
AND METAL IN THE UNITED STATES^{1, 2, 3}

(Metric tons, gross weight)

	Gross production ⁴	Net shipments	Producers' stocks, end of period
2022:			
January–December	348,000	249,000	21,600
January–August	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
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	23,500
June	W	20,100	25,400
July	W	W	24,500
August	W	21,600	23,700
January–August	W	W	23,700

W Withheld to avoid disclosing company proprietary data.

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

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

³Includes USGS estimates.

⁴Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

TABLE 2
PRICES FOR FERROSILICON AND SILICON METAL IN AUGUST 2023

		Low	Average	High	Average low, mid, and high
Ferrosilicon (75%) ¹	do.	110.00	116.70	125.00	XX
Silicon metal, 553 grade ²	cents per pound	154.00	160.20	168.00	XX

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

¹S&P Global Platts Metals Week, in U.S. warehouse, U.S. origin and imported material. Average price reported for all transactions during the month.

²S&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 AUGUST 2023^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–August ³		
				Gross weight	Silicon content	Value
Ferrosilicon:						
More than 55% silicon:						
Belgium	--	--	--	214	135	\$195,000
Canada	85	51	\$177,000	1,950	1,170	3,960,000
France	--	--	--	52	35	114,000
Germany	--	--	--	80	62	177,000
India	24	14	37,500	66	43	154,000
Japan	24	14	37,500	24	14	37,500
Mexico	852	525	1,320,000	1,780	1,150	2,930,000
Netherlands	100	60	68,200	495	297	284,000
Thailand	47	28	74,000	78	47	184,000
Turkey	--	--	--	305	268	942,000
Other [2 countries and (or) localities]	--	--	--	18	11	28,900
Total	1,130	693	1,720,000	5,060	3,230	9,000,000
Other ferrosilicon:						
Belgium	36	16	34,000	216	94	286,000
Brazil	--	--	--	175	87	641,000
Canada	64	18	143,000	421	99	633,000
China	--	--	--	2	1	4,270
Germany	--	--	--	60	27	111,000
Mexico	56	28	234,000	456	209	1,650,000
Spain	20	10	51,700	60	30	159,000
Switzerland	--	--	--	20	9	37,800
Turkey	--	--	--	220	99	515,000
Total	175	72	463,000	1,630	655	4,040,000
Total ferrosilicon	1,310	766	2,180,000	6,690	3,890	13,000,000
Metal:						
More than 99.99% silicon:						
China	37	37	2,510,000	839	839	34,300,000
Denmark	20	20	2,940,000	136	136	15,500,000
Germany	142	142	4,790,000	1,870	1,870	74,200,000
Japan	940	940	46,700,000	6,410	6,410	306,000,000
Korea, Republic of	26	26	1,870,000	426	426	19,200,000
Malaysia	4	4	645,000	1,080	1,080	42,100,000
Singapore	103	103	2,640,000	1,020	1,020	31,800,000
Taiwan	135	135	2,560,000	1,940	1,940	41,400,000
Turkey	60	60	1,970,000	349	349	11,900,000
Vietnam	1,470	1,470	38,500,000	11,000	11,000	339,000,000
Other [27 countries and (or) localities]	8	8	786,000	263	263	15,500,000
Total	2,950	2,950	106,000,000	25,300	25,300	931,000,000
99.00%–99.99% silicon:						
Belgium	--	--	--	80	68	107,000
Equatorial Guinea	--	--	--	23	23	32,400
France	--	--	--	42	41	58,600
India	--	--	--	11	11	15,900
Japan	--	--	--	10	10	14,200
Korea, Republic of	--	--	--	20	22	31,000
Malaysia	25	25	35,700	25	25	35,700
Norway	--	--	--	33	33	86,300
Pakistan	--	--	--	6	6	8,690
Taiwan	2	2	2,840	19	18	26,100
Other [7 countries and (or) localities]	2	2	2,950	15	27	43,800
Total	29	29	41,500	284	284	460,000

See footnotes at end of table.

TABLE 3—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN AUGUST 2023^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–August ³		
				Gross weight	Silicon content	Value
Metal—Continued:						
Other silicon:						
Belgium	--	--	--	60	59	\$86,500
Canada	176	171	\$592,000	972	944	3,210,000
China	38	37	50,200	80	77	105,000
Germany	(4)	(4)	7,190	191	186	474,000
India	--	--	--	22	21	27,900
Mexico	25	24	112,000	257	250	1,060,000
Netherlands	--	--	--	420	408	339,000
South Africa	--	--	--	78	76	103,000
Trinidad and Tobago	13	13	21,000	40	39	85,300
Vietnam	--	--	--	397	378	7,500,000
Other [10 countries and (or) localities]	6	5	13,600	23	26	98,500
Total	259	251	796,000	2,540	2,460	13,100,000
Total silicon metal	3,240	3,230	107,000,000	28,100	28,100	945,000,000

-- Zero.

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

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

³May include revisions to previously published data.

⁴Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN AUGUST 2023^{1, 2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–August ³		
				Gross weight	Silicon content	Value
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
Bhutan	--	--	--	54	41	\$93,500
Brazil	513	323	\$555,000	513	323	555,000
China	--	--	--	30	17	60,500
France	19	14	69,100	256	161	1,030,000
India	54	41	107,000	276	221	618,000
Kazakhstan	--	--	--	1,300	1,270	2,490,000
Thailand	54	32	124,000	54	32	124,000
Total	640	410	855,000	2,480	2,070	4,970,000
55%–80% silicon, other:						
Brazil	1,820	1,370	3,090,000	22,200	16,800	41,400,000
Canada	1,280	935	4,440,000	10,500	7,670	37,100,000
Iceland	2,330	1,770	4,650,000	8,170	6,260	18,900,000
India	595	442	1,070,000	1,710	1,260	3,710,000
Kazakhstan	100	74	170,000	10,200	7,550	23,200,000
Malaysia	892	669	1,480,000	13,400	9,940	26,200,000
Paraguay	252	187	538,000	1,910	1,430	4,130,000
Russia	173	132	423,000	52,100	39,700	134,000,000
South Africa	114	83	576,000	657	483	3,150,000
Vietnam	337	252	481,000	3,510	2,570	5,590,000
Other [8 countries and (or) localities]	486	346	1,300,000	2,280	1,650	6,990,000
Total	8,380	6,260	18,200,000	127,000	95,300	305,000,000
More than 90% ferrosilicon, China	--	--	--	16	14	39,300
Magnesium ferrosilicon:						
Brazil	65	29	155,000	1,970	882	3,790,000
Canada	1,200	546	3,930,000	9,790	4,490	33,900,000
China	--	--	--	202	92	294,000
Germany	--	--	--	230	104	415,000
India	224	100	526,000	1,090	493	2,620,000
Paraguay	10	5	39,000	77	36	221,000
Thailand	45	20	88,900	558	258	1,120,000
Total	1,550	700	4,730,000	13,900	6,360	42,400,000
Other ferrosilicon:						
Canada	716	252	1,390,000	6,610	2,190	11,300,000
China	--	--	--	92	41	174,000
France	--	--	--	41	18	82,500
Germany	--	--	--	23	10	50,400
India	--	--	--	37	18	166,000
Norway	--	--	--	23	12	62,800
Paraguay	14	7	65,300	144	70	427,000
Spain	16	7	18,200	68	30	80,300
Turkey	--	--	--	24	11	76,500
United Kingdom	--	--	--	20	9	67,500
Other [2 countries and (or) localities]	--	--	--	20	11	63,000
Total	746	266	1,480,000	7,100	2,410	12,600,000
Total ferrosilicon	11,300	7,630	25,300,000	150,000	106,000	365,000,000
Metal:						
More than 99.99% silicon:						
Brazil	116	116	648,000	903	903	3,790,000
China	1	1	81,200	87	87	16,500,000
Denmark	(4)	(4)	48,500	1	1	122,000
Finland	(4)	(4)	213,000	(4)	(4)	289,000
Germany	96	96	6,570,000	492	492	40,500,000
Japan	14	14	742,000	41	41	4,170,000
Norway	--	--	--	39	39	228,000
Poland	--	--	--	(4)	(4)	4,290
Spain	(4)	(4)	2,530	1	1	11,400
Taiwan	21	21	2,610,000	220	220	27,000,000
Other [8 countries and (or) localities]	(4)	(4)	42,200	1	1	164,000
Total	249	249	11,000,000	1,790	1,790	92,900,000
99.00%–99.99% silicon:						
Australia	586	582	2,000,000	2,060	2,040	8,680,000

See footnotes at end of table.

TABLE 4—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN AUGUST 2023^{1, 2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Silicon content	Value	January–August ³		
				Gross weight	Silicon content	Value
Metal—Continued:						
99.00%–99.99% silicon:						
Belgium	--	--	--	4	4	\$26,800
Brazil	1,450	1,440	\$4,710,000	12,000	12,000	46,500,000
Canada	2,690	2,670	11,500,000	17,500	17,300	82,500,000
Germany	--	--	--	289	288	843,000
Iceland	--	--	--	161	160	487,000
Laos	800	795	2,000,000	1,850	1,840	4,960,000
Malaysia	--	--	--	1,070	1,070	4,380,000
Norway	1,080	1,080	4,460,000	4,240	4,220	21,600,000
Thailand	168	167	453,000	1,600	1,590	5,210,000
Other [3 countries and (or) localities]	1	(4)	4,130	2	2	26,400
Total	6,780	6,730	25,100,000	40,800	40,500	175,000,000
Other silicon:						
Belgium	--	--	--	100	96	344,000
Brazil	788	775	2,120,000	7,040	6,880	32,000,000
Canada	--	--	--	2,220	1,990	12,100,000
France	--	--	--	117	115	450,000
Iceland	--	--	--	125	96	431,000
Laos	--	--	--	300	296	915,000
Malaysia	200	197	490,000	1,310	1,290	3,710,000
Norway	137	135	389,000	2,050	2,010	7,880,000
South Africa	--	--	--	50	49	145,000
Thailand	--	--	--	240	236	1,180,000
Other [6 countries and (or) localities]	21	20	55,900	120	115	620,000
Total	1,150	1,130	3,060,000	13,700	13,200	59,900,000
Total silicon metal	8,180	8,110	39,100,000	56,200	55,500	328,000,000

-- Zero.

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

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

³May include revisions to previously published data.

⁴Less than ½ unit.

Source: U.S. Census Bureau.