

Mineral Industry Surveys

For information, contact:

Emily K. Schnebele, Silicon Commodity Specialist
National Minerals Information Center
Telephone: (703) 648-4945
Email: eschnebele@usgs.gov

Joshua Braunstein (Data)

Telephone: (703) 648-7958

Email: jbrownstein@usgs.gov

Internet: [https://www.usgs.gov/centers/](https://www.usgs.gov/centers/national-minerals-information-center/mineral-industry-surveys)

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SILICON IN APRIL 2023

Domestic production of silicon materials in April 2023 was withheld to avoid disclosing proprietary data (table 1). Net shipments in April 2023 were 21,700 metric tons (t), 3% less than those in March 2023 and 7% less than those in April 2022. Ending stocks in April 2023 were 24,700 t, 6% more than those in March 2023 and 28% more than those in April 2022.

On a contained weight basis, total ferrosilicon imports were 31,700 t in April 2023, more than triple those in March 2023 and in April 2022 (fig. 1, table 4). Total silicon metal imports, on a contained weight basis were 5,150 t in April 2023, 7% less than those in March 2023 and 59% less than those in April 2022.

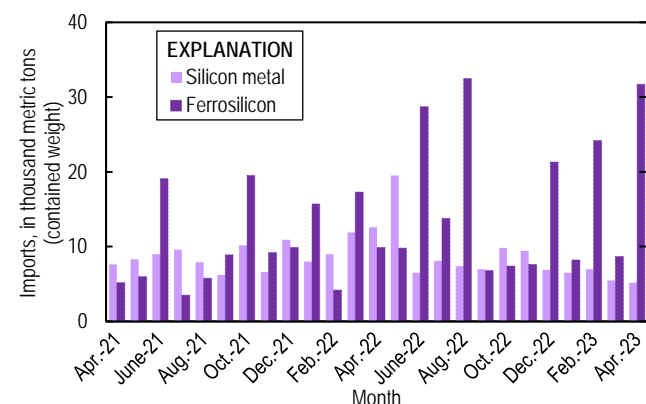


Figure 1. Ferrosilicon and silicon metal imports (excluding solar and semiconductor grades) from April 2021 through April 2023. Source: U.S. Census Bureau.

In April 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 Malaysia (table 3). In April 2023, on a contained-weight basis in descending order of quantity, leading import sources for ferrosilicon, 55%–80% grade, were Russia, 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 205.00 cents per pound in April 2023, 4% less than the average price in March 2023 and 52% less than the average price in April 2022. The average U.S. spot price for ferrosilicon, 75% grade, was 175.00 cents per pound, 3% less than the average price in March 2023 and 54% less than the average price in April 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.

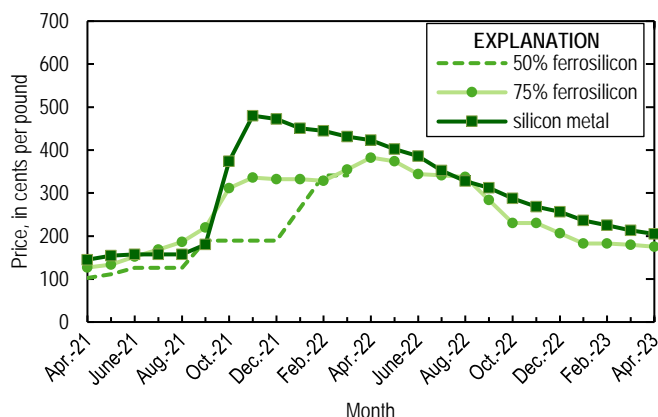


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from April 2021 through April 2023. The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022. Source: CRU Group and S&P Global Platts Metals Week.

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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–April	W	W	19,300 ^r
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
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
January–April	W	W	24,700

^rRevised. 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 APRIL 2023

		Low	Average	High	Average low, mid, and high
Ferrosilicon:					
50% ferrosilicon ¹	cents per pound of contained silicon	NA	XX	NA	NA
75% ferrosilicon ²	do.	170.00	175.00	180.00	XX
Silicon metal, 553 grade ³	cents per pound	200.00	205.00	210.00	XX

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

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

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

³S&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 APRIL 2023^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–April ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
More than 55% silicon:						
Belgium	137	82	\$115,000	137	82	\$115,000
Canada	78	47	194,000	579	348	1,190,000
Germany	--	--	--	80	62	177,000
India	22	15	72,600	22	15	72,600
Israel	--	--	--	3	2	5,000
Mexico	284	201	494,000	486	350	876,000
Netherlands	218	131	82,900	218	131	82,900
Thailand	--	--	--	74	44	178,000
Total	739	476	959,000	1,600	1,030	2,700,000
Other ferrosilicon:						
Belgium	18	7	17,000	54	22	51,000
Brazil	--	--	--	175	87	641,000
Canada	28	5	34,700	204	36	272,000
China	--	--	--	2	1	4,270
Mexico	37	19	157,000	212	106	841,000
Spain	20	10	53,700	20	10	53,700
Turkey	20	9	67,300	160	72	368,000
Total	122	49	329,000	826	334	2,230,000
Total ferrosilicon	861	526	1,290,000	2,430	1,370	4,930,000
Metal:						
More than 99.99% silicon:						
China	150	150	7,020,000	524	524	19,900,000
Germany	240	240	9,260,000	605	605	23,200,000
Japan	698	698	35,000,000	2,810	2,810	128,000,000
Korea, Republic of	128	128	5,220,000	273	273	12,000,000
Malaysia	352	352	11,800,000	434	434	17,800,000
Singapore	28	28	761,000	281	281	7,820,000
Taiwan	229	229	5,780,000	1,300	1,300	28,800,000
Turkey	75	75	2,630,000	169	169	5,930,000
United Kingdom	5	5	825,000	98	98	3,720,000
Vietnam	1,720	1,720	52,200,000	5,310	5,310	180,000,000
Other [19 countries and (or) localities]	40	40	2,810,000	166	166	13,900,000
Total	3,670	3,670	133,000,000	12,000	12,000	441,000,000
99.00%–99.99% silicon:						
Belgium	--	--	--	63	51	83,000
Equatorial Guinea	--	--	--	23	23	32,400
Hong Kong	--	--	--	3	3	4,250
India	--	--	--	11	11	15,900
Korea, Republic of	(4)	2	2,680	13	15	20,800
Mexico	--	--	--	1	1	6,370
Netherlands	(4)	3	4,840	(4)	3	4,840
Pakistan	6	6	8,690	6	6	8,690
Taiwan	--	--	--	14	14	20,100
Thailand	(4)	9	12,500	(4)	9	12,500
Total	6	20	28,700	135	136	209,000
Other silicon:						
Belgium	13	13	17,500	27	27	36,200
Canada	201	195	683,000	213	207	711,000
China	--	--	--	42	40	54,800
Germany	36	35	48,100	75	73	305,000
India	--	--	--	5	4	6,050
Mexico	70	68	181,000	167	162	647,000
Netherlands	38	37	31,200	267	259	214,000
South Africa	22	21	28,900	49	47	64,200
Trinidad and Tobago	--	--	--	17	17	27,700
Vietnam	151	144	2,950,000	151	144	2,950,000
Other [6 countries and (or) localities]	1	5	27,300	9	12	47,800
Total	533	519	3,960,000	1,020	993	5,060,000
Total silicon metal	4,210	4,210	137,000,000	13,100	13,100	446,000,000

-- 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.

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–April ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
China	21	10	\$42,700	21	10	\$42,700
France	36	22	155,000	144	93	614,000
India	36	31	74,700	73	67	153,000
Kazakhstan	--	--	--	1,300	1,270	2,490,000
Total	93	63	272,000	1,530	1,440	3,300,000
55%–80% silicon, other:						
Brazil	2,940	2,210	5,190,000	12,900	9,730	24,500,000
Canada	1,300	943	4,520,000	5,190	3,770	18,600,000
Egypt	--	--	--	396	290	637,000
Iceland	582	443	1,440,000	3,680	2,840	9,470,000
India	248	186	572,000	573	428	1,420,000
Kazakhstan	--	--	--	3,030	2,190	7,710,000
Malaysia	751	537	1,390,000	6,350	4,730	13,300,000
Paraguay	301	225	623,000	978	734	2,200,000
Russia	32,800	25,000	82,500,000	52,000	39,600	134,000,000
Vietnam	1,090	822	1,810,000	2,200	1,590	3,580,000
Other [6 countries and (or) localities]	220	162	810,000	1,150	822	4,520,000
Total	40,200	30,500	98,900,000	88,400	66,700	220,000,000
More than 90% ferrosilicon, China	--	--	--	16	14	39,300
Magnesium ferrosilicon:						
Brazil	106	42	158,000	1,350	606	2,650,000
Canada	1,190	550	4,170,000	5,260	2,410	18,500,000
Germany	--	--	--	138	62	231,000
India	77	35	177,000	192	86	483,000
Paraguay	--	--	--	10	5	39,000
Thailand	8	4	16,500	302	138	639,000
Total	1,380	631	4,520,000	7,250	3,310	22,500,000
Other ferrosilicon:						
Canada	1,420	501	1,810,000	3,530	1,170	5,880,000
China	10	4	17,200	41	18	71,200
France	--	--	--	41	18	82,500
Germany	5	2	9,580	15	7	31,200
India	--	--	--	18	9	84,000
Norway	--	--	--	23	12	62,800
Paraguay	11	5	52,300	99	49	233,000
Spain	--	--	--	52	23	62,100
Turkey	24	11	76,500	24	11	76,500
United Kingdom	--	--	--	20	9	67,500
Other [1 country or locality]	--	--	--	4	2	10,900
Total	1,470	524	1,970,000	3,870	1,320	6,660,000
Total ferrosilicon	43,200	31,700	106,000,000	101,000	72,800	252,000,000
Metal:						
More than 99.99% silicon:						
Brazil	183	183	840,000	475	475	1,910,000
China	23	23	4,160,000	43	43	8,740,000
Germany	102	102	5,330,000	236	236	20,800,000
Ireland	--	--	--	(4)	(4)	2,200
Japan	1	1	296,000	9	9	1,980,000
Korea, Republic of	(4)	(4)	43,200	(4)	(4)	55,900
Norway	17	17	122,000	39	39	228,000
Poland	--	--	--	(4)	(4)	4,290
Spain	--	--	--	(4)	(4)	3,160
Taiwan	25	25	2,960,000	129	129	16,000,000
Other [4 countries and (or) localities]	--	--	--	(4)	(4)	123,000
Total	351	351	13,800,000	931	931	49,800,000
99.00%–99.99% silicon:						
Australia	214	212	953,000	1,030	1,030	5,040,000

See footnotes at end of table.

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–April ³		
				Gross weight	Contained weight	Value
Metal—Continued:						
99.00%–99.99% silicon:						
Belgium	4	4	\$26,800	4	4	\$26,800
Brazil	1,060	1,060	3,850,000	4,240	4,210	16,100,000
Canada	2,160	2,150	9,780,000	7,510	7,450	38,700,000
Germany	--	--	--	10	10	47,900
Iceland	--	--	--	161	160	487,000
Laos	300	298	918,000	300	298	918,000
Malaysia	300	300	1,050,000	850	847	3,840,000
Norway	323	321	1,650,000	1,720	1,710	11,600,000
Thailand	18	18	70,200	450	446	1,910,000
Other [3 countries and (or) localities]	(4)	(4)	2,350	2	2	17,000
Total	4,390	4,360	18,300,000	16,300	16,200	78,800,000
Other silicon:						
Belgium	20	20	79,000	100	96	344,000
Brazil	220	217	588,000	4,390	4,280	23,300,000
Canada	--	--	--	1,710	1,480	9,810,000
France	38	38	140,000	57	56	210,000
Iceland	--	--	--	125	96	431,000
Laos	160	158	488,000	300	296	915,000
Malaysia	--	--	--	50	50	229,000
Norway	7	7	26,700	536	524	2,790,000
South Africa	--	--	--	25	24	72,500
Thailand	--	--	--	240	236	1,180,000
Other [5 countries and (or) localities]	7	7	30,400	27	26	147,000
Total	452	445	1,350,000	7,550	7,160	39,400,000
Total silicon metal	5,190	5,150	33,400,000	24,800	24,300	168,000,000

-- 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.