

Mineral Industry Surveys

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SILICON IN MAY 2023

Domestic production of silicon materials in May 2023 was withheld to avoid disclosing proprietary data (table 1). Net shipments in May 2023 were 20,400 metric tons (t), 6% less than those in April 2023 and 9% less than those in May 2022. Ending stocks in May 2023 were 23,500 t, 5% less than those in April 2023.

On a contained weight basis, total ferrosilicon imports were 11,300 t in May 2023, 64% less than those in April 2023 and 16% more than those in May 2022 (fig. 1, table 4). Total silicon metal imports, on a contained weight basis were 6,370 t in May 2023, 24% more than those in April 2023 and 67% less than those in May 2022.

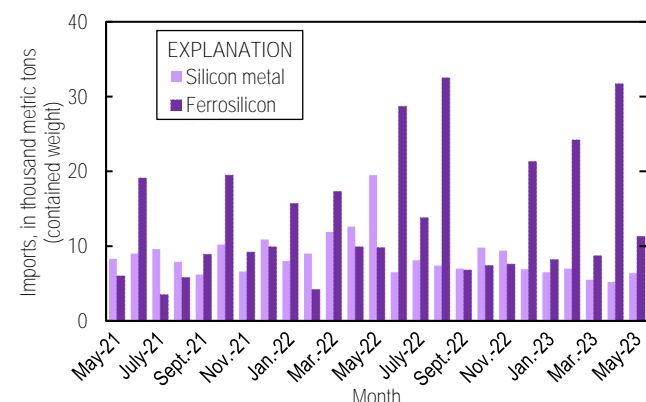


Figure 1. Ferrosilicon and silicon metal imports (excluding solar and semiconductor grades) from May 2021 through May 2023. Source: U.S. Census Bureau.

In May 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 May 2023, on a contained-weight basis in descending order of quantity, leading import sources for ferrosilicon, 55%–80% grade, were Kazakhstan, Malaysia, 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 191.00 cents per pound in May 2023, 7% less than the average price in April 2023 and 53% less than the average price in May 2022. The average U.S. spot price for ferrosilicon, 75% grade, was 156.30 cents per pound, 11% less than the average price in April 2023 and 58% less than the average price in May 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.

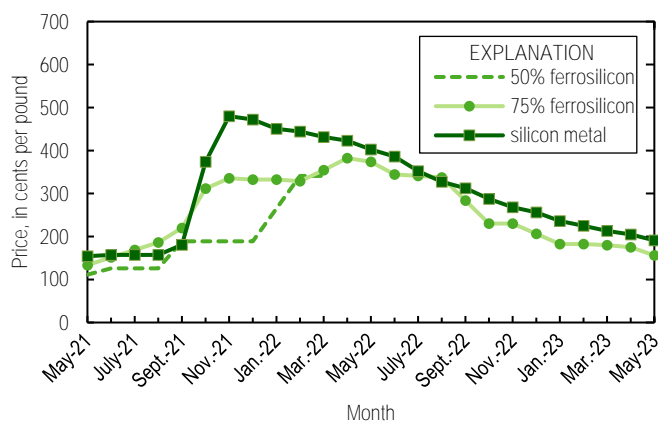


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon, 50% and 75% grades, contained silicon, from May 2021 through May 2023. The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022. Source: CRU Group and S&P Global Platts Metals Week.

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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–May	W	W	W
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
May	W	20,400	23,500
January–May	W	W	23,500

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 MAY 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.	139.00	156.30	180.00	XX
Silicon metal, 553 grade ³	cents per pound	180.00	191.00	205.00	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 MAY 2023^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	Gross weight	January–May ³ Contained weight	Value
Ferrosilicon:						
More than 55% silicon:						
Belgium	--	--	--	137	82	\$115,000
Canada	232	139	\$476,000	811	487	1,670,000
Germany	--	--	--	80	62	177,000
India	20	14	44,100	42	29	117,000
Israel	--	--	--	3	2	5,000
Mexico	195	126	315,000	681	476	1,190,000
Netherlands	78	47	65,000	295	177	148,000
Singapore	15	9	23,900	15	9	23,900
Thailand	--	--	--	74	44	178,000
Turkey	170	160	574,000	170	160	574,000
Total	710	495	1,500,000	2,310	1,530	4,190,000
Other ferrosilicon:						
Belgium	54	24	115,000	108	46	166,000
Brazil	--	--	--	175	87	641,000
Canada	73	11	98,300	277	47	370,000
China	--	--	--	2	1	4,270
Mexico	48	24	197,000	260	130	1,040,000
Spain	20	10	53,700	40	20	107,000
Turkey	40	18	80,000	200	90	448,000
Total	235	87	544,000	1,060	421	2,770,000
Total ferrosilicon	945	581	2,040,000	3,370	1,950	6,970,000
Metal:						
More than 99.99% silicon:						
China	43	43	3,040,000	567	567	22,900,000
Germany	335	335	11,800,000	940	940	35,000,000
Japan	924	924	48,100,000	3,740	3,740	176,000,000
Korea, Republic of	23	23	1,410,000	296	296	13,400,000
Malaysia	162	162	5,670,000	596	596	23,500,000
Singapore	183	183	5,000,000	463	463	12,800,000
Taiwan	233	233	5,340,000	1,530	1,530	34,200,000
Turkey	90	90	3,090,000	259	259	9,020,000
United Kingdom	4	4	610,000	102	102	4,330,000
Vietnam	1,410	1,410	46,300,000	6,720	6,720	226,000,000
Other [20 countries and (or) localities]	23	23	2,460,000	189	189	16,300,000
Total	3,430	3,430	133,000,000	15,400	15,400	573,000,000
99.00%–99.99% silicon:						
Belgium	17	17	24,000	80	68	107,000
Equatorial Guinea	--	--	--	23	23	32,400
France	21	21	29,300	21	21	29,300
Hong Kong	--	--	--	3	3	4,250
India	--	--	--	11	11	15,900
Korea, Republic of	--	--	--	13	15	20,800
Mexico	--	--	--	1	1	6,370
Netherlands	--	--	--	(4)	3	4,840
Pakistan	--	--	--	6	6	8,690
Taiwan	--	--	--	14	14	20,100
Other [1 country or locality]	--	--	--	(4)	9	12,500
Total	38	37	53,300	172	173	262,000
Other silicon:						
Belgium	10	10	13,800	38	37	49,900
Canada	42	41	109,000	256	248	819,000
China	--	--	--	42	40	54,800

Germany	25	24	42,700	100	98	347,000
India	17	16	21,900	22	21	27,900
Mexico	53	52	247,000	220	214	893,000
Netherlands	96	93	77,900	363	353	292,000
South Africa	14	14	18,600	63	61	82,800
Trinidad and Tobago	8	8	10,200	25	24	37,900
Vietnam	189	180	3,550,000	340	324	6,500,000
Other [7 countries and (or) localities]	1	1	14,800	9	13	62,500
Total	456	439	4,110,000	1,480	1,430	9,170,000
Total silicon metal	3,920	3,910	137,000,000	17,000	17,000	583,000,000

-- 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 MAY 2023^{1, 2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–May ³		Value
				Gross weight	Contained weight	
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
China	--	--	--	21	10	\$42,700
France	18	11	\$67,500	162	104	682,000
India	36	27	74,700	109	94	228,000
Kazakhstan	--	--	--	1,300	1,270	2,490,000
Total	54	38	142,000	1,590	1,480	3,440,000
55%–80% silicon, other:						
Brazil	649	484	1,230,000	13,500	10,200	25,700,000
Canada	1,720	1,260	5,690,000	6,910	5,030	24,300,000
Iceland	249	189	564,000	3,930	3,030	10,000,000
India	137	97	314,000	711	525	1,740,000
Kazakhstan	5,640	4,220	11,900,000	8,660	6,400	19,700,000
Malaysia	4,570	3,360	8,640,000	10,900	8,090	21,900,000
Paraguay	125	93	273,000	1,100	828	2,470,000
Russia	--	--	--	52,000	39,600	134,000,000
South Africa	238	178	1,220,000	489	360	2,390,000
Vietnam	372	276	525,000	2,570	1,870	4,100,000
Other [6 countries and (or) localities]	105	78	443,000	1,400	1,010	4,420,000
Total	13,800	10,200	30,800,000	102,000	76,900	251,000,000
More than 90% ferrosilicon, China	--	--	--	16	14	39,300
Magnesium ferrosilicon:						
Brazil	169	75	352,000	1,520	681	3,000,000
Canada	1,210	556	4,270,000	6,470	2,970	22,700,000
Germany	37	17	62,100	175	79	293,000
India	274	123	670,000	466	210	1,150,000
Paraguay	20	10	76,000	30	14	115,000
Thailand	--	--	--	302	138	639,000
Total	1,710	780	5,430,000	8,950	4,090	27,900,000
Other ferrosilicon:						
Canada	793	286	1,290,000	4,330	1,450	7,170,000
China	--	--	--	41	18	71,200
France	--	--	--	41	18	82,500
Germany	--	--	--	15	7	31,200
India	--	--	--	18	9	84,000
Norway	--	--	--	23	12	62,800
Paraguay	6	3	19,100	105	52	252,000
Spain	--	--	--	52	23	62,100
Turkey	--	--	--	24	11	76,500
United Kingdom	--	--	--	20	9	67,500
Other [1 country or locality]	--	--	--	4	2	10,900
Total	799	289	1,310,000	4,670	1,610	7,970,000
Total ferrosilicon	16,400	11,300	37,700,000	117,000	84,100	290,000,000
Metal:						
More than 99.99% silicon:						
Brazil	96	96	343,000	571	571	2,250,000
China	21	21	3,770,000	64	64	12,500,000
Germany	73	73	4,820,000	309	309	25,600,000
Ireland	--	--	--	(4)	(4)	2,200
Japan	1	1	304,000	10	10	2,290,000
Korea, Republic of	--	--	--	(4)	(4)	55,900
Norway	--	--	--	39	39	228,000
Poland	--	--	--	(4)	(4)	4,290
Spain	(4)	(4)	5,700	1	1	8,850
Taiwan	19	19	2,220,000	148	148	18,200,000
Other [4 countries and (or) localities]	(4)	(4)	6,240	(4)	(4)	129,000
Total	210	210	11,500,000	1,140	1,140	61,300,000
99.00%–99.99% silicon:						
Australia	226	225	823,000	1,260	1,250	5,870,000

See footnotes at end of table.

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

(Metric tons, unless otherwise specified)

Country or locality				January–May ³		
	Gross weight	Contained weight	Value	Gross weight	Contained weight	Value
Metal—Continued:						
99.00%–99.99% silicon:						
Belgium	--	--	--	4	4	\$26,800
Brazil	1,160	1,150	\$4,840,000	5,400	5,360	20,900,000
Canada	2,700	2,680	12,300,000	10,200	10,100	51,100,000
Germany	--	--	--	10	10	47,900
Iceland	--	--	--	161	160	487,000
Laos	200	199	520,000	500	497	1,440,000
Malaysia	--	--	--	850	847	3,840,000
Norway	396	394	1,470,000	2,120	2,100	13,100,000
Thailand	168	167	510,000	618	613	2,420,000
Other [3 countries and (or) localities]	(4)	(4)	5,200	2	2	22,200
Total	4,850	4,820	20,500,000	21,100	21,000	99,300,000
Other silicon:						
Belgium	--	--	--	100	96	344,000
Brazil	543	535	1,620,000	4,930	4,810	24,900,000
Canada	19	18	102,000	1,720	1,500	9,910,000
France	20	20	79,000	77	76	289,000
Iceland	--	--	--	125	96	431,000
Japan	7	7	33,700	25	24	111,000
Laos	--	--	--	300	296	915,000
Malaysia	440	430	1,380,000	490	480	1,610,000
Norway	303	298	1,050,000	839	822	3,840,000
Thailand	--	--	--	240	236	1,180,000
Other [6 countries and (or) localities]	36	34	252,000	70	67	394,000
Total	1,370	1,340	4,510,000	8,920	8,500	43,900,000
Total silicon metal	6,430	6,370	36,500,000	31,200	30,600	204,000,000

-- 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.