

Mineral Industry Surveys

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SILICON IN NOVEMBER 2022

Domestic production of silicon materials was 21,700 metric tons (t) in November 2022, 15% less than October 2022 production and 38% less than November 2021 production (fig. 1, table 1). Net shipments were 19,700 t, 7% more than those in October 2022 and 14% less than those in November 2021. During the first 11 months of 2022, total production was 8% less than that during the same period in 2021 and net shipments were 7% less than those during the same period in 2021 (fig. 1; table 1). Ending stocks were 21,200 t, 13% less than those in October 2022 and 31% more than those in November 2021.

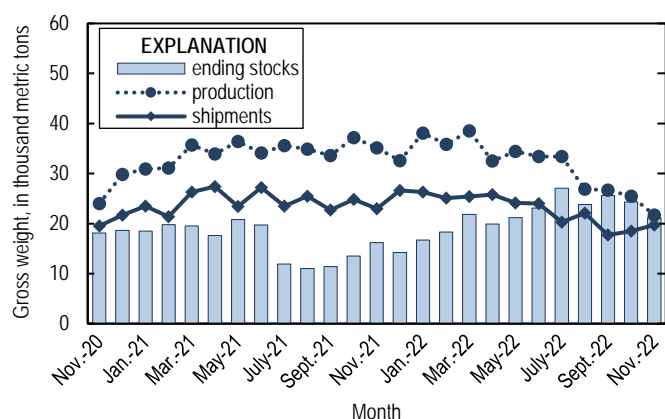


Figure 1. Monthly domestic production of total silicon materials, net shipments, and ending stocks from November 2020 through November 2022 (may include revisions to previously published data).

In November 2022, on a contained-weight basis in descending order of quantity, the leading destinations for silicon metal, more than 99.99% silicon trade category, were Japan, Vietnam, and Taiwan (table 3). On a contained-weight basis in descending order of quantity, the leading import sources for silicon metal, 99.00%–99.99% silicon trade category, were Brazil, Republic of Korea, and Norway and the leading import sources for ferrosilicon, 55%–80% grade, were Brazil, China, and Iceland (table 4).

Prices

The average U.S. spot price for silicon metal was 268.00 cents per pound in November 2022, 7% less than the average price in October 2022 and 44% less than the average price in November 2021. The average U.S. spot price for ferrosilicon, 75% grade, was 230.00 cents per pound, unchanged from the average price in October 2022 and 31% less than the average price in November 2021 (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.

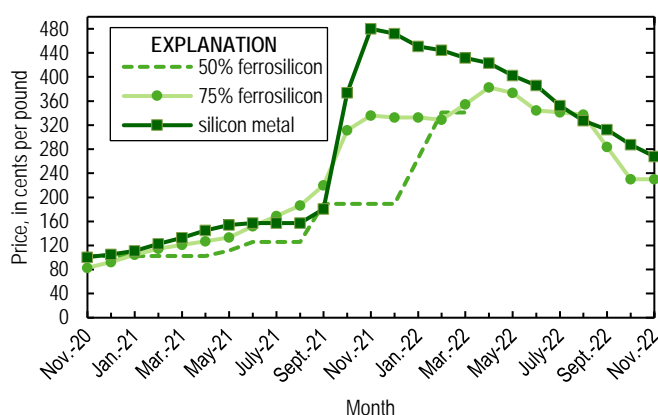


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from November 2020 through November 2022. The average spot prices for ferrosilicon, 50% grade, have not been available since March 2022. Source: CRU Group and S&P Global Platts Metals Week.

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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
2021:			
January–December	411,000	295,000	14,200
January–November	379,000 ^r	269,000 ^r	16,200 ^r
November	35,100	23,000	16,200
December	32,600	26,600	14,200
2022:			
January	38,100	26,300	16,700
February	35,800	25,100	18,300
March	38,500	25,400	21,800
April	32,500	25,800	19,900
May	34,400	24,100	21,200
June	33,400	24,000	23,100
July	33,400	20,300	27,100
August	26,900	22,100	23,800
September	26,700	17,700	25,600
October	25,500	18,500	24,300
November	21,700	19,700	21,200
January–November	347,000	249,000	21,200

^rRevised.

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 NOVEMBER 2022

		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.	205.00	230.00	255.00	XX
Silicon metal, 553 grade ³	cents per pound	265.00	268.00	275.00	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 NOVEMBER 2022^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
More than 55% silicon:						
Brazil	--	--	--	40	24	\$62,400
Canada	726	436	\$1,500,000	7,760	4,650	13,600,000
Czechia	--	--	--	4	2	5,990
France	--	--	--	17	10	27,000
Germany	80	61	173,000	232	153	410,000
India	--	--	--	40	28	67,200
Mexico	116	69	180,000	1,780	1,070	2,880,000
Singapore	--	--	--	22	13	34,400
Thailand	9	5	14,300	9	5	14,300
United Arab Emirates	--	--	--	2	1	3,250
Total	931	572	1,870,000	9,900	5,960	17,100,000
Other ferrosilicon:						
Belgium	54	24	51,700	360	160	346,000
Brazil	--	--	--	300	150	831,000
Canada	26	5	32,200	1,410	270	1,850,000
China	--	--	--	20	10	50,600
Dominican Republic	--	--	--	63	9	78,800
France	--	--	--	74	32	91,500
Malaysia	--	--	--	15	7	10,000
Mexico	136	30	301,000	1,790	640	4,390,000
Turkey	40	18	85,400	80	36	187,000
United Kingdom	--	--	--	97	48	406,000
Other [3 countries and (or) localities]	--	--	--	28	10	101,000
Total	255	77	471,000	4,240	1,370	8,350,000
Total ferrosilicon	1,190	649	2,340,000	14,100	7,330	25,500,000
Metal:						
More than 99.99% silicon:						
China	164	164	6,890,000	2,960	2,960	101,000,000
Germany	312	312	11,400,000	4,830	4,830	154,000,000
Japan	1,210	1,210	56,100,000	10,300	10,300	454,000,000
Korea, Republic of	78	78	3,430,000	728	728	30,200,000
Malaysia	40	40	4,590,000	2,460	2,460	105,000,000
Singapore	144	144	4,100,000	1,920	1,920	52,400,000
Taiwan	362	362	7,910,000	4,380	4,380	94,000,000
Thailand	--	--	--	234	234	9,450,000
Turkey	225	225	8,320,000	932	932	32,200,000
Vietnam	635	635	25,300,000	11,300	11,300	409,000,000
Other [36 countries and (or) localities]	73	73	2,950,000	675	675	28,000,000
Total	3,250	3,250	131,000,000	40,700	40,700	1,470,000,000
99.00%–99.99% silicon:						
Belgium	--	--	--	124	121	344,000
Czechia	--	--	--	114	113	280,000
France	--	--	--	50	50	70,800
Germany	--	--	--	258	253	310,000
Korea, Republic of	--	--	--	13	13	18,500
Mexico	--	--	--	1	1	9,630
Singapore	--	--	--	2	2	3,320
Taiwan	5	5	6,410	5	5	6,410
United Kingdom	--	--	--	75	75	165,000
Total	5	5	6,410	643	634	1,210,000
Other silicon:						
Belgium	--	--	--	192	186	355,000
Canada	3	3	22,900	178	173	569,000
China	--	--	--	116	112	153,000
Germany	--	--	--	136	132	287,000
Japan	--	--	--	5	5	7,590
Korea, Republic of	3	3	4,360	10	10	13,100
Mexico	24	23	65,200	452	439	2,100,000
Netherlands	--	--	--	309	300	371,000
South Africa	13	13	17,300	96	94	139,000
Trinidad and Tobago	--	--	--	29	29	56,700
Other [9 countries and (or) localities]	(4)	(4)	7,860	14	13	73,400
Total	44	43	118,000	1,540	1,490	4,130,000
Total silicon metal	3,300	3,290	131,000,000	42,900	42,800	1,470,000,000

-- 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 NOVEMBER 2022^{1, 2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
China	26	16	\$67,600	1,790	1,040	\$2,920,000
France	72	43	302,000	466	277	1,760,000
India	--	--	--	21	19	57,800
Mexico	--	--	--	2	2	6,660
Norway	--	--	--	276	210	1,350,000
South Africa	--	--	--	266	197	954,000
Total	98	59	369,000	2,830	1,740	7,050,000
55%–80% silicon, other:						
Brazil	3,790	2,840	6,020,000	25,700	19,300	61,600,000
Canada	851	604	3,260,000	11,400	8,180	44,300,000
China	1,150	876	2,090,000	25,500	19,300	57,000,000
France	173	126	991,000	1,500	1,080	5,830,000
Iceland	997	768	4,420,000	7,480	5,740	32,200,000
Kazakhstan	325	249	1,090,000	6,070	4,550	30,600,000
Malaysia	190	144	353,000	20,400	14,800	73,000,000
Norway	236	181	1,210,000	4,700	3,530	19,600,000
Russia	--	--	--	67,800	51,600	313,000,000
South Africa	288	202	1,280,000	2,480	1,760	8,020,000
Other [10 countries and (or) localities]	272	191	965,000	4,860	3,550	13,200,000
Total	8,270	6,180	21,700,000	178,000	133,000	659,000,000
80%–90% ferrosilicon, China	--	--	--	3	3	3,570
More than 90% ferrosilicon						
China	--	--	--	174	160	420,000
India	--	--	--	2	2	4,530
Total	--	--	--	176	162	424,000
Magnesium ferrosilicon:						
Brazil	208	94	433,000	4,460	2,060	10,200,000
Canada	1,740	798	5,880,000	18,400	8,410	57,900,000
China	--	--	--	2,650	1,220	6,370,000
Germany	--	--	--	308	139	499,000
India	462	210	1,240,000	4,570	2,080	12,500,000
Norway	24	11	98,200	1,400	647	5,160,000
Russia	--	--	--	93	44	225,000
Slovakia	--	--	--	87	39	113,000
Thailand	--	--	--	1,230	559	3,100,000
Zambia	--	--	--	365	164	319,000
Other [1 country or locality]	--	--	--	53	24	89,000
Total	2,440	1,110	7,640,000	33,600	15,400	96,400,000
Other ferrosilicon:						
Brazil	--	--	--	208	91	318,000
Canada	683	209	1,310,000	7,390	2,390	13,700,000
China	--	--	--	164	52	301,000
Germany	--	--	--	18	8	61,700
India	--	--	--	67	30	165,000
Norway	23	12	64,500	85	43	210,000
Paraguay	11	5	53,800	196	97	576,000
Slovakia	--	--	--	631	278	1,160,000
Spain	--	--	--	51	22	98,500
United Kingdom	--	--	--	6	3	13,600
Other [1 country or locality]	--	--	--	2	1	6,850
Total	717	226	1,430,000	8,820	3,010	16,600,000
Total ferrosilicon	11,500	7,580	31,100,000	223,000	154,000	779,000,000
Metal:						
More than 99.99% silicon:						
Brazil	73	73	261,000	1,670	1,670	5,270,000
Canada	--	--	--	5	5	15,000
China	28	28	1,580,000	369	369	14,200,000
Germany	52	52	3,400,000	671	671	50,900,000
Israel	--	--	--	20	20	70,900
Japan	2	2	520,000	62	62	8,510,000
Norway	--	--	--	69	69	508,000
Taiwan	57	57	7,580,000	601	601	78,100,000
Thailand	--	--	--	72	72	466,000
Turkey	--	--	--	19	19	93,400
Other [14 countries and (or) localities]	(4)	(4)	187,000	9	9	1,410,000
Total	214	214	13,500,000	3,570	3,570	160,000,000
99.00%–99.99% silicon:						
Australia	--	--	--	806	800	4,690,000

See footnotes at end of table.

TABLE 4—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 2022^{1, 2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November ³		
				Gross weight	Contained weight	Value
Metal—Continued:						
99.00%–99.99% silicon:						
Brazil	2,480	2,460	\$9,850,000	12,700	12,600	\$50,500,000
Canada	--	--	--	6,940	6,890	23,900,000
Germany	100	100	267,000	780	776	1,990,000
Korea, Republic of	1,010	1,010	2,180,000	1,010	1,010	2,180,000
Malaysia	--	--	--	363	361	1,150,000
Norway	636	632	5,870,000	5,790	5,750	38,500,000
Slovakia	71	70	362,000	405	402	1,940,000
Thailand	96	95	502,000	2,510	2,490	13,400,000
Turkey	--	--	--	250	249	1,230,000
Other [8 countries and (or) localities]	--	--	--	283	281	821,000
Total	4,390	4,370	19,000,000	31,900	31,600	140,000,000
Other silicon:						
Australia	--	--	--	3,040	2,940	10,700,000
Belgium	--	--	--	299	279	567,000
Brazil	3,620	3,490	26,700,000	36,000	34,300	163,000,000
Canada	--	--	--	24,600	22,500	148,000,000
Laos	300	294	915,000	500	490	1,510,000
Malaysia	--	--	--	290	285	231,000
Netherlands	29	15	157,000	832	743	1,420,000
Norway	592	582	4,000,000	6,300	6,060	34,000,000
Slovakia	110	109	532,000	1,650	1,600	4,120,000
Thailand	288	284	1,490,000	4,260	4,030	14,000,000
Other [12 countries and (or) localities]	62	61	282,000	630	608	1,550,000
Total	5,000	4,830	34,100,000	78,400	73,900	379,000,000
Total silicon metal	9,600	9,410	66,600,000	114,000	109,000	680,000,000

-- 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.