

Mineral Industry Surveys

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SILICON IN OCTOBER 2022

Domestic production of silicon materials was 25,500 metric tons (t) in October 2022, 4% less than September 2022 production and 32% less than October 2021 production (fig. 1, table 1). Net shipments were 18,500 t, 4% more than those in September 2022 and 26% less than those in October 2021. During the first 10 months of 2022, total production was 5% 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 24,300 t, 5% less than those in September 2022 and 80% more than those in October 2021.

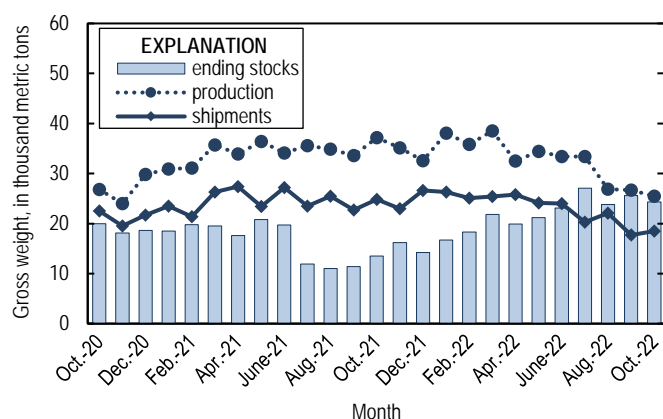


Figure 1. Monthly domestic production of total silicon materials, net shipments, and ending stocks from October 2020 through October 2022 (may include revisions to previously published data).

In October 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 Vietnam, Japan, 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, Norway, and Thailand and the leading import sources for ferrosilicon, 55%–80% grade, were Brazil, Kazakhstan, and Canada (table 4).

Prices

The average U.S. spot price for silicon metal was 287.50 cents per pound in October 2022, 8% less than the average price in September 2022 and 23% less than the average price in October 2021. The average U.S. spot price for ferrosilicon, 75% grade, was 230.00 cents per pound, 19% less than the average price in September 2022 and 26% less than the average price in October 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.

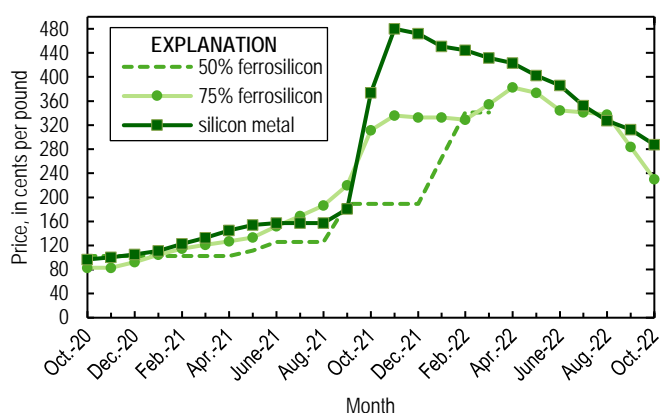


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from October 2020 through October 2022. The average spot prices for ferrosilicon, 50% grade, have not been available since March 2022. Source: CRU Group and S&P Global Platts Metals Week.

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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–October	344,000 ¹	246,000	13,500
October	37,200	24,800	13,500
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
January–October	325,000	229,000	24,300

¹Revised.

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 OCTOBER 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	280.00	287.50	295.00	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 OCTOBER 2022^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–October ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
More than 55% silicon:						
Brazil	15	9	\$24,000	40	24	\$62,400
Canada	647	388	1,100,000	7,030	4,220	12,100,000
Czechia	4	2	5,990	4	2	5,990
France	--	--	--	17	10	27,000
Germany	--	--	--	152	91	237,000
India	--	--	--	40	28	67,200
Mexico	138	86	250,000	1,660	999	2,700,000
Singapore	--	--	--	22	13	34,400
United Arab Emirates	--	--	--	2	1	3,250
Total	804	486	1,380,000	8,970	5,390	15,200,000
Other ferrosilicon:						
Belgium	36	16	34,600	306	136	295,000
Brazil	19	10	71,300	300	150	831,000
Canada	112	21	141,000	1,380	265	1,820,000
China	6	3	16,100	20	10	50,600
Dominican Republic	--	--	--	63	9	78,800
France	--	--	--	74	32	91,500
Malaysia	--	--	--	15	7	10,000
Mexico	57	23	195,000	1,660	609	4,090,000
Turkey	--	--	--	40	18	101,000
United Kingdom	--	--	--	97	48	406,000
Other [3 countries and (or) localities]	--	--	--	28	10	101,000
Total	229	73	458,000	3,980	1,300	7,870,000
Total ferrosilicon	1,030	558	1,840,000	13,000	6,680	23,100,000
Metal:						
More than 99.99% silicon:						
China	172	172	6,930,000	2,790	2,790	94,100,000
Germany	307	307	10,400,000	4,510	4,510	142,000,000
Japan	1,080	1,080	48,700,000	9,040	9,040	398,000,000
Korea, Republic of	23	23	1,690,000	650	650	26,800,000
Malaysia	110	110	4,680,000	2,420	2,420	100,000,000
Singapore	227	227	6,380,000	1,780	1,780	48,300,000
Taiwan	393	393	10,100,000	4,020	4,020	86,100,000
Thailand	(4)	(4)	3,750	234	234	9,450,000
Turkey	119	119	3,860,000	707	707	23,900,000
Vietnam	1,600	1,600	62,500,000	10,700	10,700	383,000,000
Other [34 countries and (or) localities]	39	39	1,530,000	603	603	25,100,000
Total	4,060	4,060	157,000,000	37,500	37,500	1,340,000,000
99.00%–99.99% silicon:						
Belgium	--	--	--	124	121	344,000
Czechia	57	57	111,000	114	113	280,000
France	17	17	23,600	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
United Kingdom	--	--	--	75	75	165,000
Total	74	73	135,000	639	629	1,200,000
Other silicon:						
Belgium	--	--	--	192	186	355,000
Canada	9	9	31,800	175	170	546,000
China	--	--	--	116	112	153,000
Germany	--	--	--	136	132	287,000
Japan	--	--	--	5	5	7,590
Korea, Republic of	3	3	4,360	7	6	8,720
Mexico	34	33	201,000	428	416	2,040,000
Netherlands	104	101	146,000	309	300	371,000
South Africa	1	(4)	8,960	83	81	122,000
Trinidad and Tobago	--	--	--	29	29	56,700
Other [9 countries and (or) localities]	(4)	(4)	3,260	13	13	65,600
Total	151	147	396,000	1,490	1,450	4,010,000
Total silicon metal	4,290	4,280	157,000,000	39,600	39,500	1,340,000,000

-- 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 OCTOBER 2022^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–October ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
China	--	--	--	1,770	1,020	\$2,850,000
France	--	--	--	394	234	1,460,000
India	21	19	\$57,800	21	19	57,800
Mexico	--	--	--	2	2	6,660
Norway	--	--	--	276	210	1,350,000
South Africa	--	--	--	266	197	954,000
Total	21	19	57,800	2,730	1,680	6,680,000
55%–80% silicon, other:						
Brazil	2,890	2,180	6,100,000	21,900	16,400	55,600,000
Canada	874	622	3,360,000	10,600	7,570	41,000,000
China	492	371	967,000	24,400	18,400	54,900,000
France	142	105	732,000	1,320	949	4,840,000
Iceland	499	379	2,430,000	6,480	4,970	27,800,000
Kazakhstan	1,190	855	6,000,000	5,750	4,310	29,500,000
Malaysia	11	8	37,000	20,200	14,700	72,700,000
Norway	277	207	1,300,000	4,460	3,350	18,400,000
Russia	--	--	--	67,800	51,600	313,000,000
South Africa	502	366	1,960,000	2,200	1,560	6,740,000
Other [10 countries and (or) localities]	559	405	1,440,000	4,590	3,350	12,200,000
Total	7,430	5,490	24,300,000	170,000	127,000	637,000,000
80%–90% ferrosilicon, China	--	--	--	3	3	3,570
More than 90% ferrosilicon						
China	174	160	420,000	174	160	420,000
India	--	--	--	2	2	4,530
Total	174	160	420,000	176	162	424,000
Magnesium ferrosilicon:						
Brazil	501	247	1,180,000	4,250	1,970	9,720,000
Canada	2,040	929	6,060,000	16,600	7,610	52,000,000
China	2	1	4,240	2,650	1,220	6,370,000
Germany	--	--	--	308	139	499,000
India	345	156	1,070,000	4,110	1,870	11,300,000
Norway	215	99	823,000	1,380	636	5,070,000
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	3,100	1,430	9,140,000	31,100	14,300	88,800,000
Other ferrosilicon:						
Brazil	--	--	--	208	91	318,000
Canada	695	201	1,220,000	6,710	2,180	12,400,000
China	--	--	--	164	52	301,000
Germany	9	4	22,600	18	8	61,700
India	48	21	83,800	67	30	165,000
Norway	--	--	--	63	31	145,000
Paraguay	11	5	54,400	184	92	522,000
Slovakia	67	29	117,000	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	829	260	1,500,000	8,100	2,790	15,200,000
Total ferrosilicon	11,600	7,370	35,400,000	212,000	146,000	748,000,000
Metal:						
More than 99.99% silicon:						
Brazil	71	71	252,000	1,600	1,600	5,010,000
Canada	5	5	15,000	5	5	15,000
China	7	7	1,150,000	340	340	12,600,000
Germany	69	69	4,820,000	619	619	47,500,000
Israel	--	--	--	20	20	70,900
Japan	2	2	311,000	60	60	7,990,000
Norway	--	--	--	69	69	508,000
Taiwan	57	57	7,310,000	544	544	70,500,000
Thailand	--	--	--	72	72	466,000
Turkey	--	--	--	19	19	93,400
Other [13 countries and (or) localities]	1	1	178,000	8	8	1,220,000
Total	212	212	14,000,000	3,350	3,350	146,000,000
99.00%–99.99% silicon:						
Australia	105	105	631,000	806	800	4,690,000

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–October ³		
				Gross weight	Contained weight	Value
Metal—Continued:						
99.00%–99.99% silicon:						
Brazil	1,060	1,050	\$4,310,000	10,200	10,200	\$40,700,000
Canada	--	--	--	6,940	6,890	23,900,000
Germany	--	--	--	680	676	1,720,000
Laos	100	99	298,000	100	99	298,000
Malaysia	--	--	--	363	361	1,150,000
Norway	737	732	6,200,000	5,150	5,120	32,700,000
Slovakia	20	20	67,600	334	331	1,580,000
Thailand	552	547	3,020,000	2,420	2,400	12,900,000
Turkey	--	--	--	250	249	1,230,000
Other [7 countries and (or) localities]	90	90	193,000	183	182	523,000
Total	2,660	2,640	14,700,000	27,500	27,300	121,000,000
Other silicon:						
Australia	197	194	1,460,000	3,040	2,940	10,700,000
Belgium	21	21	93,000	299	279	567,000
Brazil	6,010	5,790	49,500,000	32,300	30,900	136,000,000
Canada	598	590	4,340,000	24,600	22,500	148,000,000
Laos	--	--	--	200	196	596,000
Malaysia	--	--	--	290	285	231,000
Netherlands	12	6	61,800	803	728	1,260,000
Norway	343	338	2,580,000	5,700	5,480	30,000,000
Slovakia	20	20	67,500	1,540	1,500	3,590,000
Thailand	--	--	--	3,970	3,750	12,500,000
Other [12 countries and (or) localities]	26	25	149,000	568	548	1,270,000
Total	7,230	6,980	58,300,000	73,400	69,100	345,000,000
Total silicon metal	10,100	9,830	87,000,000	104,000	99,700	613,000,000

-- 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.

Source: U.S. Census Bureau.