

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/national-minerals-information-center/mineral-industry-surveys>

SILICON IN SEPTEMBER 2022

Domestic production of silicon materials was 26,700 metric tons (t) in September 2022, essentially unchanged from August 2022 production and 21% less than September 2021 production (fig. 1, table 1). Net shipments were 17,700 t, 20% less than those in August 2022 and 22% less than those in September 2021. During the first 9 months of 2022, total production was slightly less than that during the same period in 2021 and net shipments were 5% less than those during the same period in 2021 (fig. 1; table 1). Ending stocks were 25,600 t, 8% more than those in August 2022 and more than double those in September 2021.

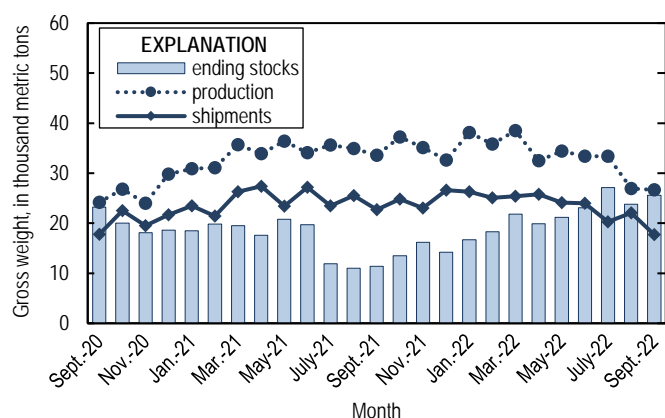


Figure 1. Monthly domestic production of total silicon materials, net shipments, and ending stocks from September 2020 through September 2022 (may include revisions to previously published data).

In September 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 Germany (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 Norway, Thailand and Brazil and the leading import sources for ferrosilicon, 55%–80% grade, were Brazil, Canada, and Iceland (table 4).

Prices

The average U.S. spot price for silicon metal was 312.50 cents per pound in September 2022, 5% less than the average price in August 2022 and 73% more than the average price in September 2021. The average U.S. spot price for ferrosilicon, 75% grade, was 283.75 cents per pound, 16% less than the average price in August 2022 and 29% more than the average price in September 2021 (fig. 2). The average spot prices for ferrosilicon, 50% grade, have not been available since March 2022.

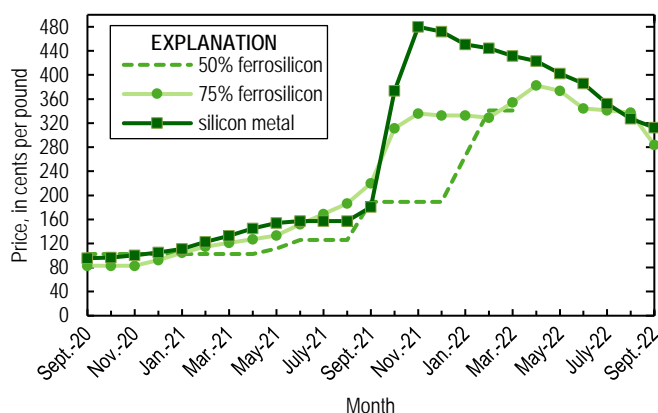


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from September 2020 through September 2022. The average spot prices for ferrosilicon, 50% grade, have not been available since March 2022. Source: CRU Group and S&P Global Platts Metals Week.

List services and web feed subscribers are the first to receive notification of USGS minerals information publications and data releases. For information on how to subscribe, go to <https://www.usgs.gov/centers/national-minerals-information-center/minerals-information-publication-list-services>.

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–September	306,000 ^r	221,000 ^r	11,400 ^r
September	33,600	22,700	11,400
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 ^r	20,300 ^r	27,100 ^r
August	26,900 ^r	22,100 ^r	23,800 ^r
September	26,700	17,700	25,600
January–September	300,000	211,000	25,600

^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 SEPTEMBER 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	283.75	340.00	XX
Silicon metal, 553 grade ³	cents per pound	295.00	312.50	325.00	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 SEPTEMBER 2022^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–September ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
More than 55% silicon:						
Brazil	--	--	--	25	15	\$38,400
Canada	532	319	\$889,000	6,390	3,830	11,000,000
France	--	--	--	17	10	27,000
Germany	--	--	--	152	91	237,000
India	--	--	--	40	28	67,200
Mexico	301	181	470,000	1,520	913	2,450,000
Singapore	15	9	23,900	22	13	34,400
United Arab Emirates	--	--	--	2	1	3,250
Total	849	509	1,380,000	8,160	4,900	13,900,000
Other ferrosilicon:						
Belgium	108	47	103,000	270	119	260,000
Brazil	50	25	143,000	281	140	760,000
Canada	--	--	--	1,270	244	1,680,000
China	2	1	5,160	14	7	34,500
Dominican Republic	--	--	--	63	9	78,800
France	--	--	--	74	32	91,500
Malaysia	--	--	--	15	7	10,000
Mexico	92	30	238,000	1,600	586	3,900,000
Turkey	--	--	--	40	18	101,000
United Kingdom	--	--	--	97	48	406,000
Other [3 countries and (or) localities]	--	--	--	28	10	101,000
Total	252	103	488,000	3,750	1,220	7,420,000
Total ferrosilicon	1,100	612	1,870,000	11,900	6,130	21,300,000
Metal:						
More than 99.99% silicon:						
China	241	241	8,180,000	2,620	2,620	87,200,000
Germany	342	342	12,000,000	4,210	4,210	132,000,000
Japan	727	727	34,600,000	7,970	7,970	349,000,000
Korea, Republic of	22	22	691,000	627	627	25,100,000
Malaysia	175	175	4,740,000	2,310	2,310	95,500,000
Singapore	50	50	1,510,000	1,550	1,550	41,900,000
Taiwan	185	185	3,870,000	3,620	3,620	76,000,000
Thailand	(4)	(4)	110,000	234	234	9,440,000
Turkey	95	95	3,280,000	588	588	20,000,000
Vietnam	932	932	36,100,000	9,110	9,110	321,000,000
Other [32 countries and (or) localities]	13	13	974,000	564	564	23,500,000
Total	2,780	2,780	106,000,000	33,400	33,400	1,180,000,000
99.00%–99.99% silicon:						
Belgium	--	--	--	124	121	344,000
Czechia	--	--	--	57	57	169,000
France	--	--	--	33	33	47,200
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	--	--	--	565	556	1,070,000
Other silicon:						
Belgium	(4)	(4)	8,320	192	186	355,000
Canada	25	24	174,000	165	160	514,000
China	42	40	54,800	116	112	153,000
Germany	--	--	--	136	132	287,000
Japan	1	1	2,790	5	5	7,590
Korea, Republic of	--	--	--	3	3	4,360
Mexico	14	13	63,000	394	383	1,840,000
Netherlands	--	--	--	205	199	224,000
South Africa	9	9	12,300	83	80	113,000
Trinidad and Tobago	--	--	--	29	29	56,700
Other [8 countries and (or) localities]	(4)	(4)	8,890	13	13	62,300
Total	91	89	324,000	1,340	1,300	3,610,000
Total silicon metal	2,870	2,870	106,000,000	35,300	35,300	1,190,000,000

-- 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 SEPTEMBER 2022^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–September ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
China	--	--	--	1,770	1,020	\$2,850,000
France	54	33	\$231,000	394	234	1,460,000
Mexico	--	--	--	2	2	6,660
Norway	--	--	--	276	210	1,350,000
South Africa	54	34	333,000	266	197	954,000
Total	108	67	564,000	2,710	1,660	6,630,000
55%–80% silicon, other:						
Brazil	1,850	1,390	4,550,000	19,000	14,300	49,500,000
Canada	1,120	797	4,610,000	9,690	6,950	37,700,000
China	626	472	1,130,000	23,900	18,000	53,900,000
France	191	129	949,000	1,180	844	4,110,000
Iceland	997	772	4,490,000	5,980	4,590	25,400,000
Kazakhstan	--	--	--	4,560	3,450	23,500,000
Malaysia	--	--	--	20,200	14,700	72,600,000
Norway	962	733	4,740,000	4,190	3,140	17,100,000
Russia	--	--	--	67,800	51,600	313,000,000
South Africa	257	176	1,150,000	1,690	1,190	4,780,000
Other [10 countries and (or) localities]	321	231	1,090,000	4,030	2,950	10,800,000
Total	6,320	4,700	22,700,000	162,000	122,000	613,000,000
80%–90% ferrosilicon, China	3	3	3,570	3	3	3,570
More than 90% ferrosilicon, India	--	--	--	2	2	4,530
Magnesium ferrosilicon:						
Brazil	--	--	--	3,750	1,720	8,540,000
Canada	2,040	933	5,990,000	14,600	6,680	45,900,000
China	--	--	--	2,650	1,210	6,370,000
Germany	68	31	152,000	308	139	499,000
India	930	422	2,580,000	3,760	1,710	10,200,000
Norway	385	178	1,400,000	1,160	536	4,240,000
Russia	--	--	--	93	44	225,000
Slovakia	--	--	--	87	39	113,000
Thailand	104	46	269,000	1,230	559	3,100,000
Zambia	365	164	319,000	365	164	319,000
Other [1 country or locality]	--	--	--	53	24	89,000
Total	3,900	1,770	10,700,000	28,000	12,800	79,600,000
Other ferrosilicon:						
Brazil	--	--	--	208	91	318,000
Canada	609	200	1,170,000	6,010	1,980	11,200,000
China	--	--	--	164	52	301,000
Germany	--	--	--	9	4	39,100
India	--	--	--	19	9	81,700
Norway	45	23	127,000	63	31	145,000
Paraguay	--	--	--	173	87	468,000
Slovakia	--	--	--	564	248	1,040,000
Spain	--	--	--	51	22	98,500
United Kingdom	--	--	--	6	3	13,600
Other [1 country or locality]	1	(4)	3,460	2	1	6,850
Total	655	223	1,300,000	7,270	2,530	13,700,000
Total ferrosilicon	11,000	6,760	35,300,000	200,000	139,000	713,000,000
Metal:						
More than 99.99% silicon:						
Brazil	142	142	507,000	1,530	1,530	4,750,000
China	8	8	1,480,000	333	333	11,500,000
Denmark	(4)	(4)	72,800	2	2	313,000
Germany	65	65	4,660,000	549	549	42,700,000
Israel	--	--	--	20	20	70,900
Japan	3	3	577,000	58	58	7,680,000
Norway	--	--	--	69	69	508,000
Taiwan	47	47	6,120,000	487	487	63,200,000
Thailand	--	--	--	72	72	466,000
Turkey	--	--	--	19	19	93,400
Other [11 countries and (or) localities]	1	1	355,000	5	5	729,000
Total	267	267	13,800,000	3,140	3,140	132,000,000
99.00%–99.99% silicon:						
Australia	--	--	--	700	695	4,060,000

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–September ³		
				Gross weight	Contained weight	Value
Metal—Continued:						
99.00%–99.99% silicon:						
Austria	--	--	--	50	50	\$200,000
Brazil	233	231	\$762,000	9,180	9,110	36,400,000
Canada	--	--	--	6,940	6,890	23,900,000
Germany	75	75	198,000	680	676	1,720,000
Malaysia	--	--	--	363	361	1,150,000
Norway	1,130	1,120	11,700,000	4,420	4,390	26,500,000
Slovakia	--	--	--	314	312	1,510,000
Thailand	576	571	3,570,000	1,870	1,850	9,910,000
Turkey	--	--	--	250	249	1,230,000
Other [3 countries and (or) localities]	--	--	--	43	43	130,000
Total	2,010	2,000	16,200,000	24,800	24,600	107,000,000
Other silicon:						
Australia	--	--	--	2,840	2,740	9,200,000
Belgium	20	20	91,300	278	258	474,000
Brazil	2,660	2,570	20,800,000	26,300	25,100	86,900,000
Canada	1,760	1,560	13,500,000	24,000	21,900	144,000,000
Laos	200	196	596,000	200	196	596,000
Malaysia	--	--	--	290	285	231,000
Netherlands	(4)	(4)	3,040	792	723	1,200,000
Norway	302	292	1,640,000	5,360	5,140	27,400,000
Slovakia	--	--	--	1,520	1,480	3,520,000
Thailand	72	71	458,000	3,970	3,750	12,500,000
Other [11 countries and (or) localities]	22	22	98,500	542	523	1,120,000
Total	5,040	4,730	37,200,000	66,100	62,100	287,000,000
Total silicon metal	7,320	7,000	67,200,000	94,100	89,900	526,000,000

-- 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.