

Mineral Industry Surveys

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SILICON IN SEPTEMBER 2021

Domestic production of silicon materials was 35,800 metric tons (t) in September 2021, slightly more than August 2021 production and 48% more than September 2020 production (fig. 1, table 1). Net shipments were 24,300 t, 5% less than shipments in August 2021 and 36% more than shipments in September 2020. Total production and net shipments during the first 9 months of 2021 were 10% more and 6% more, respectively, than those during the same period in 2020 (fig. 1; table 1).

Ending stocks were 12,100 t in September 2021, 10% more than ending stocks in August 2021. Owing to domestic physical inventory adjustments, these were 48% less than those in September 2020 (fig. 1; table 1). In September 2021, the leading recipients for silicon metal, more than 99.99% silicon trade category, were Taiwan, Japan, and Germany, in descending order (table 3). The leading import sources for silicon metal, 99.00%–99.99% silicon trade category, were Canada, Brazil, and Thailand, in descending order, and the leading import sources for ferrosilicon, 55%-80% grade, were Malaysia, Brazil, and Canada, in descending order (table 4).

Adjustments in stocks included in-plant consumption of ferrosilicon to produce magnesium ferrosilicon and other alloys. All comparative statistics were calculated based on unrounded, gross-weight figures.

Prices

The average U.S. spot price for silicon metal was 180.60 cents per pound in September 2021, 15% more than the average price in August 2021 and 89% more than the average price in September 2020. The average U.S. spot price for ferrosilicon, 50% grade, was 189.00 cents per pound, 50% more than the average price in August 2021 and 84% more than the average price in September 2020. The average U.S. spot price for ferrosilicon, 75% grade, was 219.90 cents per pound, 18% more than the average price in August 2021 and more than double that in September 2020 (fig. 2).

Ferrosilicon price increases were attributed to supply disruptions, high freight and production costs, and strong demand (Liu, 2021).

References Cited

Liu, Siyi, 2021, Chromium— Steel demand for ferro-alloys will remain despite soaring prices, panelists at IFA say, Fastmarkets MB., November 16. (Accessed December 2, 2021, at <https://www.metalbulletin.com/Article/4016633/Steel-demand-for-ferro-alloys-will-remain-despite-soaring-prices-panelists-at-IFA-say.html>.)

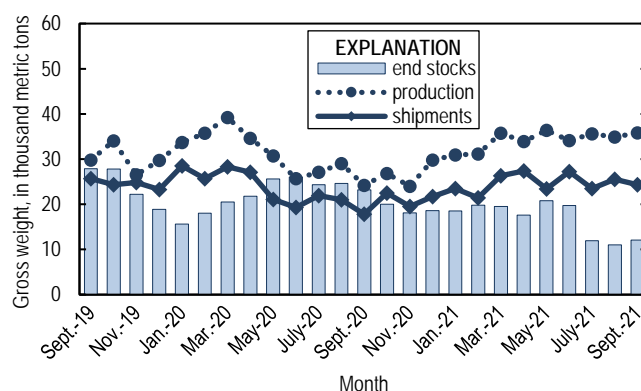


Figure 1. Monthly domestic production of total silicon materials, net shipments, and end stocks from September 2019 through September 2021 (may include revisions to previously published data).

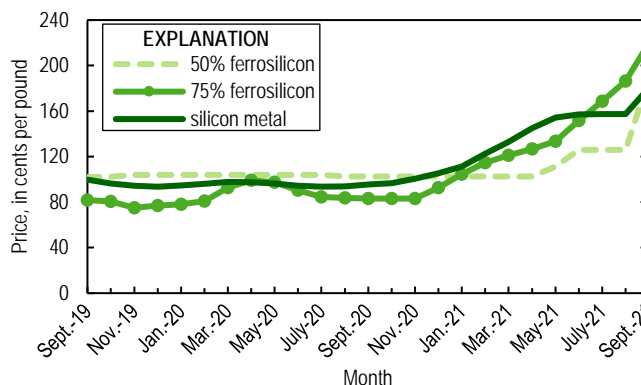


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from September 2019 through September 2021. Source: CRU Group and S&P Global Platts Metals Week.

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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
2020:			
January–December	360,000	275,000	18,600
January–September	280,000 ^r	211,000 ^r	23,200 ^r
September	24,200	17,800	23,200
October	26,800	22,500	20,000
November	24,000	19,500	18,100
December	29,800	21,700	18,600
2021:			
January	30,900	23,500	18,500
February	31,100	21,400	19,800
March	35,700	26,300	19,500
April	33,900	27,400	17,600
May	36,400	23,400	20,800
June	34,100	27,200	19,700
July	35,600	23,500	11,900 ⁵
August	34,900	25,500	11,000 ⁵
September	35,800	24,300	12,100 ⁵
January–September	308,000	223,000	12,100 ⁵

^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 U.S. Geological Survey estimates.

⁴Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

⁵Decreased end of period stocks attributable to domestic physical inventory adjustment.

TABLE 2
PRICES FOR FERROSILICON AND SILICON METAL IN SEPTEMBER 2021

		Low	Average	High	Average low, mid, and high
Ferrosilicon:					
50% ferrosilicon ¹	cents per pound of contained silicon	188.00	XX	190.00	188.00–189.00–190.00
75% ferrosilicon ²	do.	200.00	219.90	225.00	XX
Silicon metal, 553 grade ³	cents per pound	158.00	180.60	220.00	XX

do. Ditto. 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 2021^{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	--	--	--	31	19	\$48,100
Canada	601	361	\$843,000	3,080	1,850	5,230,000
China	9	5	13,500	9	5	13,500
Colombia	--	--	--	2	1	9,360
Dominican Republic	33	20	72,300	172	103	289,000
India	--	--	--	3	2	4,180
Japan	--	--	--	32	19	108,000
Mexico	58	38	136,000	1,060	676	2,350,000
Poland	--	--	--	3	2	5,310
Singapore	7	4	10,500	15	9	25,600
Total	708	428	1,070,000	4,400	2,680	8,080,000
Other ferrosilicon:						
Belgium	18	7	13,500	593	272	586,000
Brazil	39	20	76,000	442	221	874,000
Canada	24	6	45,000	188	89	491,000
India	--	--	--	57	28	84,700
Mexico	355	175	698,000	2,760	1,360	5,390,000
Spain	--	--	--	197	99	311,000
Sweden	--	--	--	100	45	186,000
Switzerland	20	9	37,600	320	141	569,000
Turkey	60	27	112,000	400	181	730,000
United Kingdom	60	29	119,000	338	154	639,000
Other [5 countries and (or) localities]	5	3	8,940	95	35	114,000
Total	580	276	1,110,000	5,490	2,620	9,980,000
Total ferrosilicon	1,290	704	2,190,000	9,880	5,300	18,100,000
Metal:						
More than 99.99% silicon:						
China	237	237	8,790,000	2,850	2,850	65,600,000
Germany	550	550	12,300,000	4,520	4,520	101,000,000
Japan	900	900	29,100,000	15,000	15,000	337,000,000
Korea, Republic of	216	216	9,850,000	3,600	3,600	89,500,000
Malaysia	164	164	5,390,000	1,790	1,790	47,300,000
Netherlands	--	--	--	315	315	409,000
Norway	45	45	1,780,000	834	834	19,700,000
Singapore	126	126	2,610,000	1,190	1,190	24,700,000
Taiwan	1,050	1,050	6,550,000	5,630	5,630	47,300,000
Vietnam	334	334	9,790,000	3,910	3,910	64,500,000
Other [39 countries and (or) localities]	37	37	1,350,000	406	406	14,700,000
Total	3,660	3,660	87,600,000	40,100	40,100	812,000,000
99.00%–99.99% silicon:						
China	--	--	--	12	12	16,900
Dominican Republic	15	15	45,000	15	15	45,000
El Salvador	3	3	4,320	3	3	4,320
France	--	--	--	51	51	72,400
Germany	--	--	--	128	127	235,000
Japan	--	--	--	8	7	10,600
Korea, Republic of	--	--	--	42	41	44,800
Mauritania	--	--	--	3	3	4,220
Mexico	--	--	--	19	19	38,600
Netherlands	163	163	53,000	365	364	281,000
Other [5 countries and (or) localities]	2	2	3,240	11	11	15,000
Total	184	183	106,000	657	653	767,000

See footnotes at end of table.

TABLE 3—Continued
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN SEPTEMBER 2021^{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:						
Other silicon:						
Belgium	--	--	--	200	195	\$259,000
Canada	8	8	\$18,600	56	55	173,000
China	62	61	82,400	280	271	369,000
Germany	--	--	--	73	71	104,000
Japan	--	--	--	37	36	279,000
Mexico	--	--	--	16	16	75,300
Netherlands	--	--	--	128	124	157,000
South Africa	13	13	17,200	62	60	\$102,000
Taiwan	--	--	--	57	54	230,000
United Kingdom	--	--	--	48	47	67,100
Other [12 countries and (or) localities]	2	2	3,290	31	30	101,000
Total	86	83	122,000	987	958	1,920,000
Total silicon metal	3,930	3,930	87,800,000	41,700	41,700	815,000,000

-- 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.

TABLE 4
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN SEPTEMBER 2021^{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	--	--	--	160	99	\$364,000
France	--	--	--	306	185	851,000
Germany	--	--	--	1	1	2,120
Russia	--	--	--	8	4	19,600
South Africa	--	--	--	36	22	79,900
Total	--	--	--	511	310	1,320,000
55%–80% silicon, other:						
Brazil	3,190	2,410	\$5,250,000	14,000	10,600	17,900,000
Canada	870	630	1,920,000	9,060	6,590	19,300,000
France	98	65	238,000	1,200	820	3,030,000
Iceland	332	256	872,000	5,240	4,040	9,070,000
Kazakhstan	648	500	1,850,000	11,900	9,130	22,400,000
Malaysia	3,760	2,700	6,390,000	12,200	9,070	17,000,000
Norway	850	653	1,490,000	4,670	3,600	6,900,000
Paraguay	104	77	181,000	1,830	1,380	2,210,000
Russia	378	290	748,000	41,100	31,200	71,200,000
South Africa	356	250	536,000	2,190	1,560	3,630,000
Other [10 countries and (or) localities]	505	378	1,090,000	2,110	1,570	4,980,000
Total	11,100	8,210	20,600,000	106,000	79,600	178,000,000
80%–90% ferrosilicon, Germany	--	--	--	27	22	25,500
More than 90% ferrosilicon:						
Canada	1	1	18,000	1	1	18,000
China	--	--	--	15	14	59,100
Total	1	1	18,000	16	15	77,100
Magnesium ferrosilicon:						
Argentina	--	--	--	285	106	253,000
Brazil	49	10	36,700	791	324	938,000
Canada	820	379	1,450,000	8,440	3,890	14,600,000
China	--	--	--	34	17	70,100
Germany	16	6	48,700	112	46	232,000
India	93	43	192,000	489	223	900,000
Panama	--	--	--	49	22	36,700
Russia	20	9	41,000	20	9	41,000
South Africa	--	--	--	130	61	85,200
Total	999	447	1,760,000	10,300	4,700	17,200,000
Other ferrosilicon:						
Canada	629	202	839,000	5,730	1,850	7,470,000
China	--	--	--	58	26	83,900
France	--	--	--	38	18	101,000
Germany	5	2	10,800	9	3	31,600
Mexico	--	--	--	7	3	19,300
Russia	30	14	75,300	142	68	304,000
Slovakia	50	22	88,200	288	92	507,000
South Africa	--	--	--	85	11	125,000
Spain	--	--	--	25	11	42,500
Total	713	240	1,010,000	6,380	2,080	8,680,000
Total ferrosilicon	12,800	8,900	23,400,000	123,000	86,700	205,000,000

See footnotes at end of table.

TABLE 4—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN SEPTEMBER 2021^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–September ³		Value
				Gross weight	Contained weight	
Metal—Continued:						
More than 99.99% silicon:						
Brazil	94	94	\$219,000	1,150	1,150	\$2,760,000
China	3	3	113,000	35	35	2,860,000
Germany	63	63	6,790,000	398	398	39,900,000
Japan	4	4	975,000	129	129	9,000,000
Korea, Republic of	23	23	70,300	23	23	205,000
Malaysia	--	--	--	86	86	994,000
Norway	--	--	--	7	7	108,000
Taiwan	32	32	3,400,000	372	372	35,100,000
Thailand	--	--	--	48	48	130,000
Vietnam	22	22	57,900	96	96	241,000
Other [10 countries and (or) localities]	1	1	45,700	10	10	888,000
Total	241	241	11,700,000	2,360	2,360	92,300,000
99.00%–99.99% silicon:						
Australia	177	176	524,000	3,080	3,060	7,500,000
Brazil	880	873	2,060,000	17,500	17,400	38,300,000
Canada	1,870	1,860	4,590,000	21,300	21,200	51,000,000
China	--	--	--	6	6	24,500
Germany	--	--	--	11	11	32,900
Malaysia	--	--	--	116	115	214,000
Norway	408	406	1,000,000	6,130	6,090	15,600,000
Switzerland	--	--	--	20	20	53,400
Thailand	532	529	1,440,000	3,470	3,450	8,620,000
Vietnam	--	--	--	67	67	165,000
Other [2 countries and (or) localities]	--	--	--	(4)	(4)	13,700
Total	3,860	3,840	9,610,000	51,800	51,400	121,000,000
Other silicon:						
Australia	360	355	1,000,000	2,480	2,420	6,180,000
Brazil	1,100	1,090	2,810,000	6,280	6,180	14,800,000
Canada	--	--	--	172	166	416,000
China	2	2	4,050	141	136	197,000
France	--	--	--	371	359	691,000
Germany	--	--	--	233	226	678,000
Japan	--	--	--	117	112	142,000
Norway	596	585	1,130,000	4,530	4,400	7,730,000
South Africa	64	62	134,000	112	110	218,000
Thailand	--	--	--	336	331	602,000
Other [8 countries and (or) localities]	48	47	119,000	351	340	966,000
Total	2,170	2,140	5,200,000	15,100	14,800	32,600,000
Total silicon metal	6,280	6,220	26,500,000	69,200	68,500	246,000,000

-- 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.