

Mineral Industry Surveys

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SILICON IN DECEMBER 2019

Domestic production of silicon materials was 29,700 metric tons (t) in December 2019, a 12% increase from that of November 2019 production and 29% less than that in December 2018 production (fig. 1, table 1). Net shipments were 23,300 t, 6% less than shipments in November 2019 and 24% less than shipments in December 2018. Total production and net shipments during 2019 were 23% less and 12% less, respectively, than those during 2018 (table 1).

Ending stocks were 18,900 t in December 2019, 15% less than stocks in November 2019 and 21% less than those in December 2018 (table 1). 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.

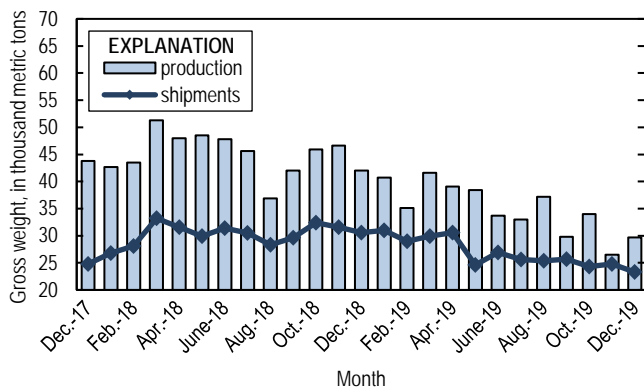


Figure 1. Monthly domestic production of total silicon materials and net shipments from December 2017 through December 2019 (may include revisions to previously published data).

Prices

The average U.S. spot price for silicon metal was 93.63 cents per pound in December 2019, slightly less than the average price in November 2019 and 21% less than that in December 2018. The average U.S. spot price for ferrosilicon, 50% grade, was unchanged from the average price in November 2019 and was slightly more than the average price in December 2018. The average U.S. spot price for ferrosilicon, 75% grade, was slightly more than the average price in November 2019 and 26% less than that in December 2018 (fig. 2).

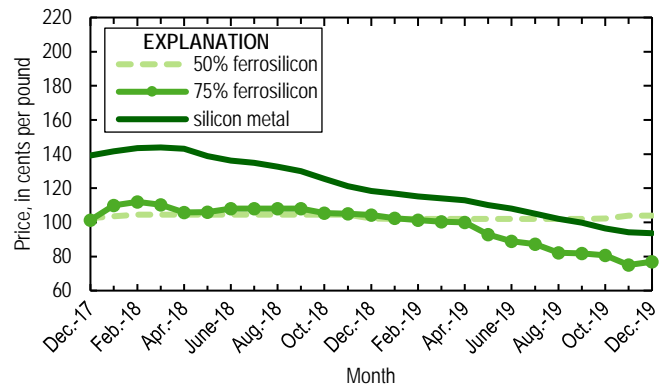


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from December 2017 through December 2019. Source: CRU Group and S&P Global Platts.

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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
2018:			
January–December	541,000	364,000	24,000
December	42,000	30,600	24,000
2019:			
January	40,700	31,000	22,900
February	35,100	29,000	19,400
March	41,600	29,900	22,300
April	39,100	30,600	23,000
May	38,400	24,600	28,400
June	33,700	26,900	29,000
July	33,000	25,600	29,000
August	37,200	25,400	31,800
September	29,800	25,700	27,900
October	34,000	24,300	27,800
November	26,500	24,800	22,200
December	29,700	23,300	18,900
January–December	419,000	321,000	18,900

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 DECEMBER 2019

		Low	Average	High	Average low, mid, and high
Ferrosilicon:					
50% ferrosilicon ¹	cents per pound of contained silicon	103.00	XX	105.00	103.00–104.00–105.00
75% ferrosilicon ²	do.	74.00	76.88	78.00	XX
Silicon metal, 553 grade ³	cents per pound	91.00	93.63	96.00	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, in U.S. warehouse, U.S. origin and imported material. Average price reported for all transactions during the month.

³S&P Global Platts, 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 DECEMBER 2019^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–December ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
More than 55% silicon:						
Brazil	--	--	--	24	14	\$37,000
Canada	199	119	\$273,000	5,140	3,080	7,040,000
Dominican Republic	--	--	--	39	23	86,200
Germany	--	--	--	62	37	63,000
Hong Kong	--	--	--	2,480	1,490	1,380,000
Malaysia	20	12	24,000	20	12	24,000
Mexico	113	70	252,000	1,680	1,030	3,600,000
South Africa	--	--	--	171	125	174,000
Sweden	--	--	--	200	120	242,000
United Kingdom	--	--	--	21	12	30,900
Other [6 countries and (or) localities]	--	--	--	26	16	45,600
Total	332	202	550,000	9,860	5,960	12,700,000
Other ferrosilicon:						
Belgium	18	8	12,600	536	244	529,000
Brazil	59	29	114,000	430	215	836,000
Canada	--	--	--	346	173	523,000
France	--	--	--	200	91	312,000
Korea, Republic of	--	--	--	580	253	661,000
Luxembourg	--	--	--	218	101	341,000
Mexico	29	13	71,000	1,630	649	3,060,000
Spain	61	30	94,000	260	130	446,000
Turkey	--	--	--	299	140	522,000
United Kingdom	--	--	--	775	351	1,280,000
Other [8 countries and (or) localities]	41	19	61,200	374	173	506,000
Total	207	100	353,000	5,650	2,520	9,020,000
Total ferrosilicon	539	301	902,000	15,500	8,480	21,700,000
Metal:						
More than 99.99% silicon:						
China	305	305	3,750,000	5,860	5,860	53,300,000
Germany	242	242	3,800,000	5,680	5,680	95,000,000
Hong Kong	25	25	93,800	820	820	4,360,000
Japan	1,150	1,150	44,000,000	9,050	9,050	357,000,000
Korea, Republic of	806	806	21,100,000	7,110	7,110	146,000,000
Malaysia	3	3	476,000	671	671	28,200,000
Norway	65	65	600,000	985	985	6,220,000
Taiwan	216	216	3,380,000	3,310	3,310	43,500,000
United Kingdom	2	2	387,000	269	269	5,670,000
Vietnam	563	563	6,220,000	3,640	3,640	51,200,000
Other [41 countries and (or) localities]	28	28	612,000	509	509	11,200,000
Total	3,400	3,400	84,400,000	37,900	37,900	802,000,000
99.00%–99.99% silicon:						
Argentina	18	18	25,900	18	18	25,900
China	--	--	--	5	5	7,640
Dominican Republic	--	--	--	5	5	6,800
France	--	--	--	10	10	14,300
India	4	4	5,070	7	7	10,400
Japan	--	--	--	2	2	2,660
Mexico	--	--	--	24	24	59,500
Netherlands	58	58	59,200	58	58	59,200
Taiwan	--	--	--	2	2	2,780
United Kingdom	--	--	--	244	206	343,000
Total	80	80	90,200	376	338	532,000
Other silicon:						
Belgium	--	--	--	391	380	483,000

See footnotes at end of table.

TABLE 3—Continued
 U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN DECEMBER 2019^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–December ³		
				Gross weight	Contained weight	Value
Metal—Continued:						
Other silicon:						
Canada	10	9	\$21,400	228	221	\$491,000
China	30	29	39,000	168	163	225,000
France	3	3	4,620	22	22	21,200
Japan	--	--	--	12	11	15,600
Korea, Republic of	--	--	--	37	36	60,700
Mexico	1	1	14,900	40	39	134,000
Netherlands	40	39	52,700	409	397	465,000
South Africa	13	13	17,300	114	110	181,000
United Kingdom	1	1	9,440	14	14	78,100
Other [9 countries and (or) localities]	(4)	(4)	4,780	20	19	197,000
Total	98	95	164,000	1,450	1,410	2,350,000
Total silicon metal	3,580	3,580	84,700,000	39,700	39,600	805,000,000

-- Zero.

¹Presentation of monthly data is based on the quantities (gross weight) of the leading countries.

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 DECEMBER 2019^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–December ³		
				Gross weight	Contained weight	Value
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
Azerbaijan	--	--	--	48	37	\$50,600
Brazil	--	--	--	691	517	773,000
China	--	--	--	229	147	545,000
France	18	11	\$47,400	612	381	1,750,000
Germany	--	--	--	4	3	11,600
India	--	--	--	19	12	51,000
South Africa	--	--	--	112	70	262,000
Total	18	11	47,400	1,720	1,170	3,440,000
55%–80% silicon, other:						
Brazil	1,080	811	1,160,000	17,000	12,800	20,100,000
Canada	2,010	1,510	2,990,000	13,600	9,880	29,000,000
France	234	168	1,430,000	1,750	1,240	8,570,000
Iceland	1,160	919	1,280,000	13,000	10,200	15,500,000
Kazakhstan	972	744	1,160,000	10,800	8,290	15,200,000
Kuwait	--	--	--	804	614	849,000
Malaysia	1,600	1,190	1,620,000	21,300	16,300	25,800,000
Paraguay	864	683	933,000	8,300	6,510	10,200,000
Russia	273	209	304,000	62,200	47,200	78,400,000
South Africa	242	173	442,000	2,080	1,440	4,400,000
Other [8 countries and (or) localities]	111	82	349,000	2,150	1,580	6,430,000
Total	8,550	6,490	11,700,000	153,000	116,000	215,000,000
80%–90% ferrosilicon, Brazil	218	180	331,000	566	484	727,000
More than 90% ferrosilicon:						
Bosnia and Herzegovina	37	34	60,200	37	34	60,200
Brazil	--	--	--	185	176	389,000
Total	37	34	60,200	222	210	449,000
Magnesium ferrosilicon:						
Argentina	76	34	67,700	470	214	518,000
Brazil	176	82	230,000	178	83	233,000
Canada	450	205	811,000	10,900	5,000	19,900,000
China	--	--	--	31	16	66,500
France	36	18	17,000	72	36	21,700
Germany	23	6	61,600	86	27	245,000
India	30	13	50,900	1,050	439	1,390,000
Norway	24	12	47,800	176	82	345,000
Thailand	--	--	--	75	34	130,000
Total	816	370	1,290,000	13,000	5,930	22,900,000
Other ferrosilicon:						
Canada	845	286	968,000	9,930	3,440	11,900,000
China	27	12	32,600	139	55	277,000
France	--	--	--	62	28	142,000
Germany	6	2	32,900	17	6	86,700
India	19	9	27,600	328	139	490,000
Mexico	--	--	--	14	6	23,200
Russia	--	--	--	197	96	384,000
Slovakia	39	6	66,000	332	68	560,000
Turkey	--	--	--	22	10	15,500
United Kingdom	--	--	--	10	5	89,000
Other [2 countries and (or) localities]	--	--	--	9	4	16,200
Total	936	314	1,130,000	11,100	3,860	14,000,000
Total ferrosilicon	10,600	7,400	14,500,000	180,000	128,000	256,000,000
Metal:						
More than 99.99% silicon:						
Brazil	90	90	245,000	3,610	3,610	10,800,000
China	6	6	837,000	67	67	8,050,000
Denmark	(4)	(4)	30,000	4	4	16,900,000
Finland	1	1	41,000	2	2	644,000

See footnotes at end of table.

TABLE 4—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN DECEMBER 2019^{1,2}

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–December ³		
				Gross weight	Contained weight	Value
Metal—Continued:						
More than 99.99% silicon:						
Germany	28	28	\$1,690,000	493	493	\$29,200,000
Iceland	--	--	--	7	7	451,000
Japan	32	32	1,440,000	755	755	35,300,000
Republic of, Korea	(4)	(4)	16,500	11	11	334,000
Norway	--	--	--	52	52	490,000
Taiwan	16	16	1,890,000	242	242	20,600,000
Other [13 countries and (or) localities]	(4)	(4)	2,320	6	6	341,000
Total	173	173	6,190,000	5,250	5,250	123,000,000
99.00%–99.99% silicon:						
Australia	892	885	1,940,000	4,170	4,140	10,000,000
Bosnia and Herzegovina	980	973	1,580,000	9,260	9,200	18,700,000
Brazil	1,130	1,120	2,410,000	21,100	20,900	53,400,000
Canada	1,950	1,940	4,910,000	27,600	27,400	75,100,000
Iceland	208	206	374,000	5,260	5,220	9,810,000
Kazakhstan	--	--	--	7,450	7,380	14,400,000
Laos	--	--	--	2,920	2,890	6,990,000
Malaysia	348	346	530,000	3,230	3,210	5,670,000
Norway	944	938	2,800,000	8,210	8,150	23,800,000
Thailand	--	--	--	5,550	5,520	13,600,000
Other [7 countries and (or) localities]	--	--	--	563	559	1,300,000
Total	6,460	6,410	14,500,000	95,300	94,600	233,000,000
Other silicon:						
Australia	192	189	448,000	2,690	2,580	6,730,000
Bosnia and Herzegovina	--	--	--	341	324	771,000
Brazil	1,170	1,140	2,430,000	11,500	11,200	27,300,000
Canada	217	209	551,000	1,060	1,030	2,670,000
France	--	--	--	285	273	459,000
Iceland	60	57	70,700	860	846	1,290,000
Japan	(4)	(4)	5,770	342	329	453,000
Kazakhstan	--	--	--	326	315	494,000
Netherlands	19	18	62,500	312	302	870,000
Norway	602	588	951,000	6,350	6,220	10,400,000
Other [10 countries and (or) localities]	8	8	32,000	861	835	2,370,000
Total	2,270	2,210	4,550,000	24,900	24,200	53,800,000
Total silicon metal	8,890	8,790	25,300,000	125,000	124,000	410,000,000

-- Zero.

¹Presentation of monthly data is based on the quantities (gross weight) of the leading countries.

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.