

# Mineral Industry Surveys

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## SILICON IN OCTOBER 2019

Domestic production of silicon materials was 35,700 metric tons (t) in October 2019, a 19% increase from September 2019 production and 22% less than October 2018 production (fig. 1, table 1). Net shipments were 23,800 t, 5% less than shipments in September 2019 and 26% less than shipments in October 2018. Total production and net shipments during the first 10 months of 2019 were 19% less and 11% less, respectively, than those during the same period in 2018 (table 1).

Ending stocks were 25,100 t in October 2019, 4% less than stocks in September 2019 and 3% more than those in October 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.

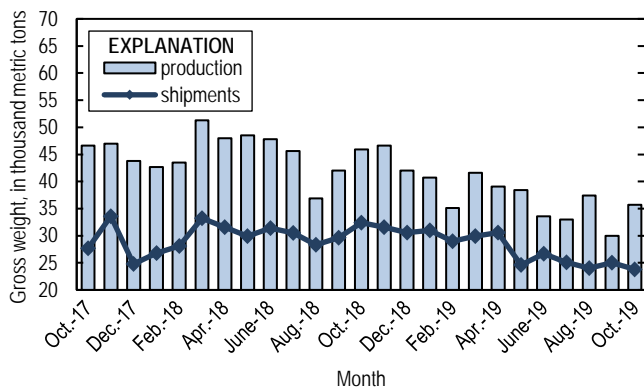


Figure 1. Monthly domestic production of total silicon materials and net shipments from October 2017 through October 2019 (may include revisions to previously published data).

### Prices

The average U.S. spot price for silicon metal was 96.4 cents per pound in October 2019, 3% less than the average price in September 2019 and 23% less than that in October 2018. The average U.S. spot price for ferrosilicon, 50% grade, was essentially unchanged when compared with the average price in September 2019 and was slightly less than that in October 2018. The average U.S. spot price for ferrosilicon, 75% grade, was slightly less when compared with the average price in September 2019 and 23% less than that in October 2018 (fig. 2).

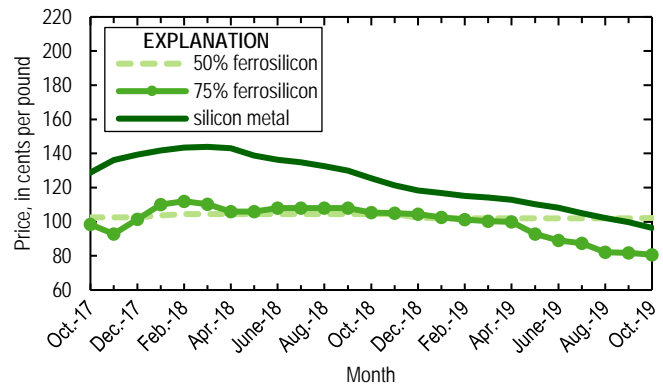


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from October 2017 through October 2019. Source: CRU Group and S&P Global Platts.

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TABLE 1  
 PRODUCTION, SHIPMENTS, AND STOCKS OF SILICON ALLOYS  
 AND METAL IN THE UNITED STATES<sup>1,2,3</sup>

(Metric tons, gross weight)

	Gross production <sup>4</sup>	Net shipments	Producers' stocks, end of period
2018:			
January–December	541,000	364,000	24,000
January–October	452,000	302,000 <sup>r</sup>	24,400 <sup>r</sup>
October	45,900	32,400	24,400
November	46,600	31,600	24,900
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	33,600	26,700	28,200
July	33,000	25,100	27,700
August	37,400	24,000	30,500
September	30,000	25,000	26,100
October	35,700	23,800	25,100
January–October	365,000	270,000	25,100

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes ferrosilicon, miscellaneous silicon alloys, and silicon metal, excluding semiconductor and solar grades, except where noted.

<sup>3</sup>Includes USGS estimates.

<sup>4</sup>Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

TABLE 2  
PRICES FOR FERROSILICON AND SILICON METAL IN OCTOBER 2019

		Low	Average	High	Average low, mid, and high
Ferrosilicon:					
50% ferrosilicon <sup>1</sup>	cents per pound of contained silicon	101.00	XX	105.00	101.20–102.20–103.20
75% ferrosilicon <sup>2</sup>	do.	80.00	80.70	82.00	XX
Silicon metal, 553 grade <sup>3</sup>	cents per pound	94.00	96.40	99.00	XX

do. Ditto. XX Not applicable.

<sup>1</sup>CRU Group transaction price, duty paid, f.o.b. Pittsburgh, producing plant or Chicago/Pittsburgh warehouse. Average price reported for price range.

<sup>2</sup>S&P Global Platts, in U.S. warehouse, U.S. origin and imported material. Average price reported for all transactions during the month.

<sup>3</sup>S&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 OCTOBER 2019<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–October <sup>3</sup>		
				Gross weight	Contained weight	Value
<b>Ferrosilicon:</b>						
More than 55% silicon:						
Brazil	--	--	--	24	14	\$37,000
Canada	388	233	\$505,000	4,670	2,800	6,400,000
Dominican Republic	--	--	--	39	23	86,200
Germany	--	--	--	62	37	63,000
Hong Kong	20	12	10,500	2,480	1,490	1,380,000
Jamaica	--	--	--	9	6	14,400
Mexico	123	75	267,000	1,510	925	3,250,000
South Africa	76	58	66,400	171	125	174,000
Sweden	--	--	--	200	120	242,000
United Kingdom	--	--	--	21	12	30,900
Other [5 countries and (or) localities]	(4)	(4)	2,630	17	10	31,300
Total	607	378	851,000	9,210	5,570	11,700,000
Other ferrosilicon:						
Belgium	36	15	25,200	482	220	491,000
Brazil	20	10	38,000	313	156	608,000
Canada	15	8	49,800	313	156	489,000
France	20	9	32,300	180	82	280,000
Korea, Republic of	--	--	--	580	253	661,000
Luxembourg	18	9	31,000	198	91	310,000
Mexico	42	19	102,000	1,530	601	2,820,000
Spain	20	10	35,200	199	100	352,000
Turkey	--	--	--	299	140	522,000
United Kingdom	--	--	--	755	341	1,240,000
Other [5 countries and (or) localities]	19	9	9,150	313	145	408,000
Total	190	89	323,000	5,160	2,290	8,190,000
Total ferrosilicon	797	467	1,170,000	14,400	7,850	19,900,000
<b>Metal:</b>						
More than 99.99% silicon:						
China	434	434	4,870,000	4,990	4,990	43,300,000
Germany	476	476	8,800,000	5,070	5,070	86,000,000
Hong Kong	50	50	260,000	750	750	3,990,000
Japan	808	808	28,200,000	7,450	7,450	297,000,000
Korea, Republic of	1,030	1,030	17,200,000	6,190	6,190	123,000,000
Malaysia	158	158	2,000,000	503	503	25,400,000
Norway	33	33	16,000	756	756	5,530,000
Taiwan	177	177	1,810,000	2,920	2,920	36,500,000
United Kingdom	1	1	122,000	230	230	4,980,000
Vietnam	700	700	8,840,000	2,840	2,840	42,500,000
Other [40 countries and (or) localities]	61	61	662,000	437	437	9,930,000
Total	3,930	3,930	72,800,000	32,100	32,100	678,000,000
99.00%–99.99% silicon:						
China	--	--	--	5	5	7,640
Dominican Republic	--	--	--	5	5	6,800
France	2	2	3,050	10	10	14,300
India	4	4	5,360	4	4	5,360
Japan	--	--	--	2	2	2,660
Mexico	3	3	8,580	21	21	53,200
Taiwan	--	--	--	2	2	2,780
United Kingdom	--	--	--	168	131	264,000
Total	9	9	17,000	217	179	357,000
Other silicon:						
Belgium	8	8	11,100	391	380	483,000

See footnotes at end of table.

TABLE 3—Continued  
 U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN OCTOBER 2019<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–October <sup>3</sup>		
				Gross weight	Contained weight	Value
Metal—Continued:						
Other silicon:						
Canada	6	6	\$30,600	196	191	\$425,000
China	59	57	77,500	132	128	177,000
France	--	--	--	19	18	16,600
Hong Kong	2	2	22,200	6	6	65,800
Japan	3	3	4,230	12	11	15,600
Korea, Republic of	13	12	17,000	36	35	47,300
Mexico	4	3	14,200	38	37	115,000
Netherlands	--	--	--	369	359	412,000
South Africa	1	(4)	8,640	61	59	112,000
Other [9 countries and (or) localities]	1	1	11,700	18	17	175,000
Total	96	93	197,000	1,280	1,240	2,040,000
Total silicon metal	4,030	4,030	73,000,000	33,600	33,500	680,000,000

-- Zero.

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

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>May include revisions to previously published data.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN OCTOBER 2019<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–October <sup>3</sup>		
				Gross weight	Contained weight	Value
<b>Ferrosilicon:</b>						
55%–80% silicon, more than 3% Ca:						
Azerbaijan	--	--	--	48	37	\$50,600
Brazil	--	--	--	691	517	773,000
China	--	--	--	229	147	545,000
France	72	45	\$199,000	576	359	1,650,000
India	--	--	--	19	12	51,000
South Africa	18	11	38,900	112	70	262,000
Total	90	56	238,000	1,680	1,140	3,330,000
55%–80% silicon, other:						
Brazil	469	354	525,000	14,300	10,800	17,300,000
Canada	855	615	1,940,000	10,500	7,620	23,800,000
France	109	75	565,000	1,460	1,030	6,980,000
Iceland	1,750	1,370	1,810,000	10,600	8,230	13,000,000
Kazakhstan	3,880	2,960	5,000,000	9,850	7,550	14,100,000
Kuwait	--	--	--	804	614	849,000
Malaysia	282	212	265,000	19,500	14,900	24,000,000
Paraguay	578	456	605,000	6,880	5,390	8,710,000
Russia	--	--	--	61,900	46,900	78,100,000
South Africa	277	198	549,000	1,600	1,110	3,480,000
Other [7 countries and (or) localities]	82	60	340,000	1,930	1,410	5,650,000
Total	8,280	6,310	11,600,000	139,000	106,000	196,000,000
80%–90% ferrosilicon, Brazil	--	--	--	348	304	396,000
More than 90% ferrosilicon, Brazil	40	38	84,000	145	138	305,000
<b>Magnesium ferrosilicon:</b>						
Argentina	--	--	--	318	145	379,000
Brazil	2	1	2,800	2	1	2,800
Canada	1,170	536	2,090,000	9,580	4,400	17,500,000
China	--	--	--	31	16	66,500
France	36	18	4,740	36	18	4,740
Germany	6	2	15,200	61	20	173,000
India	38	17	67,800	1,000	418	1,300,000
Norway	--	--	--	127	59	249,000
Thailand	--	--	--	75	34	130,000
Total	1,250	574	2,180,000	11,200	5,110	19,900,000
<b>Other ferrosilicon:</b>						
Canada	946	339	1,160,000	8,300	2,860	10,100,000
China	--	--	--	112	43	244,000
France	--	--	--	62	28	142,000
Germany	4	2	20,900	8	3	43,400
India	--	--	--	310	131	462,000
Mexico	--	--	--	14	6	23,200
Russia	21	10	42,700	197	96	384,000
Slovakia	20	3	32,600	254	56	428,000
Turkey	--	--	--	22	10	15,500
United Kingdom	5	2	34,800	10	5	89,000
Other [2 countries and (or) localities]	--	--	--	9	4	16,200
Total	996	356	1,290,000	9,300	3,240	11,900,000
Total ferrosilicon	10,700	7,330	15,400,000	162,000	116,000	232,000,000
<b>Metal:</b>						
More than 99.99% silicon:						
Brazil	136	136	371,000	3,430	3,430	10,300,000
China	14	14	1,680,000	48	48	5,770,000
Denmark	(4)	(4)	15,500,000	4	4	16,900,000
Finland	1	1	96,600	2	2	603,000
Germany	14	14	1,570,000	429	429	25,300,000

See footnotes at end of table.

TABLE 4—Continued  
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN OCTOBER 2019<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–October <sup>3</sup>		
				Gross weight	Contained weight	Value
Metal—Continued:						
More than 99.99% silicon:						
Iceland	--	--	--	7	7	\$451,000
Japan	29	29	\$1,420,000	695	695	32,600,000
Korea, Republic of	(4)	(4)	11,200	7	7	273,000
Norway	--	--	--	52	52	490,000
Taiwan	14	14	1,460,000	208	208	16,700,000
Other [12 countries and (or) localities]	1	1	49,000	4	4	295,000
Total	209	209	22,200,000	4,890	4,890	110,000,000
99.00%–99.99% silicon:						
Australia	89	88	182,000	3,130	3,110	7,770,000
Bosnia and Herzegovina	570	566	966,000	7,970	7,920	16,600,000
Brazil	1,360	1,350	3,300,000	18,400	18,300	47,400,000
Canada	1,750	1,740	4,480,000	25,300	25,100	69,200,000
Iceland	260	258	390,000	4,090	4,060	7,890,000
Kazakhstan	60	60	161,000	7,410	7,340	14,300,000
Laos	720	713	1,660,000	2,920	2,890	6,990,000
Malaysia	600	596	958,000	2,260	2,240	4,180,000
Norway	512	509	1,320,000	6,640	6,590	19,200,000
Thailand	1,000	994	2,480,000	5,550	5,520	13,600,000
Other [7 countries and (or) localities]	38	37	87,000	471	467	1,110,000
Total	6,960	6,910	16,000,000	84,100	83,500	208,000,000
Other silicon:						
Australia	192	189	488,000	2,120	2,010	5,360,000
Bosnia and Herzegovina	--	--	--	341	324	771,000
Brazil	1,290	1,250	3,010,000	8,730	8,520	21,400,000
Canada	303	290	721,000	656	635	1,650,000
France	--	--	--	285	273	459,000
Iceland	80	79	137,000	660	651	1,050,000
Japan	30	29	36,500	298	286	386,000
Kazakhstan	--	--	--	326	315	494,000
Netherlands	19	18	61,100	267	259	721,000
Norway	481	471	786,000	5,680	5,560	9,300,000
Other [10 countries and (or) localities]	54	52	98,600	829	804	2,310,000
Total	2,450	2,380	5,340,000	20,200	19,600	43,900,000
Total silicon metal	9,620	9,500	43,500,000	109,000	108,000	362,000,000

-- Zero.

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

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>May include revisions to previously published data.

<sup>4</sup>Less than ½ unit.

Source: U.S. Census Bureau.