

# Mineral Industry Surveys

**For information, contact:**

Emily K. Schnebele, Silicon Commodity Specialist  
 National Minerals Information Center  
 U.S. Geological Survey  
 989 National Center  
 Reston, VA 20192  
 Telephone: (703) 648-4945, Fax: (703) 648-7757  
 Email: [eschnebele@usgs.gov](mailto:eschnebele@usgs.gov)

Joshua Braunstein (Data)  
 Telephone: (703) 648-7958  
 Fax: (703) 648-7975  
 Email: [jb Braunstein@usgs.gov](mailto:jb Braunstein@usgs.gov)

**Internet:** <https://www.usgs.gov/centers/nmic>

## SILICON IN NOVEMBER 2019

Domestic production of silicon materials was 26,500 metric tons (t) in November 2019, a 22% decrease from that of October 2019 production and 43% less than that in November 2018 production (fig. 1, table 1). Net shipments were 25,300 t, 7% more than shipments in October 2019 and 20% less than shipments in November 2018. Total production and net shipments during the first 11 months of 2019 were 22% less and 11% less, respectively, than those during the same period in 2018 (table 1).

Ending stocks were 20,500 t in November 2019, 22% less than stocks in October 2019 and 17% less than those in November 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.

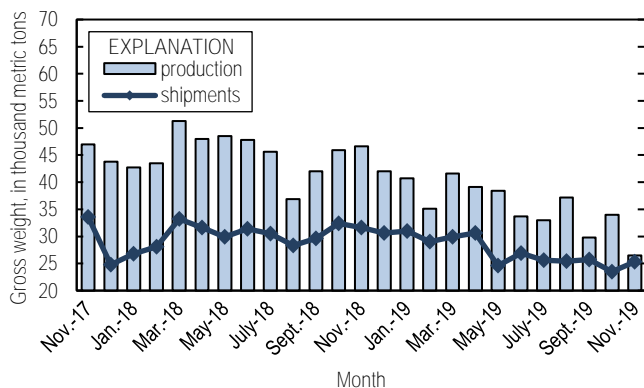


Figure 1. Monthly domestic production of total silicon materials and net shipments from November 2017 through November 2019 (may include revisions to previously published data).

### Prices

The average U.S. spot price for silicon metal was 94.25 cents per pound in November 2019, slightly less than the average price in October 2019 and 22% less than that in November 2018. The average U.S. spot price for ferrosilicon, 50% grade, was slightly more when compared with the average price in October 2019 and was essentially unchanged from the average price in November 2018. The average U.S. spot price for ferrosilicon, 75% grade, was 7% less when compared with the average price in October 2019 and 29% less than that in November 2018 (fig. 2).

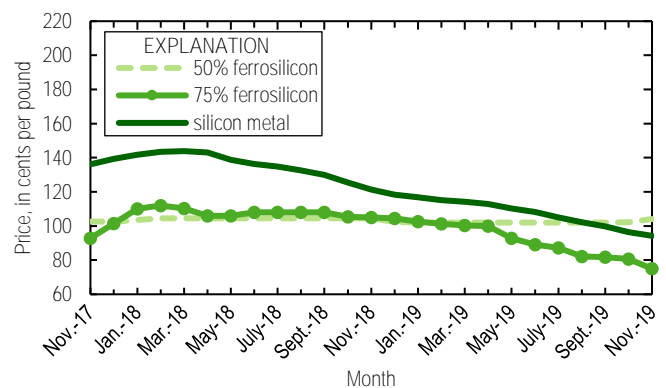


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from November 2017 through November 2019. Source: CRU Group and S&P Global Platts.

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/nmic/minerals-information-publication-list-services>.

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–November	499,000 <sup>r</sup>	333,000 <sup>r</sup>	24,900
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	33,700 <sup>r</sup>	26,900 <sup>r</sup>	29,000 <sup>r</sup>
July	33,000	25,600 <sup>r</sup>	29,000 <sup>r</sup>
August	37,200 <sup>r</sup>	25,400 <sup>r</sup>	31,800 <sup>r</sup>
September	29,800 <sup>r</sup>	25,700 <sup>r</sup>	27,900 <sup>r</sup>
October	34,000 <sup>r</sup>	23,500 <sup>r</sup>	26,400 <sup>r</sup>
November	26,500	25,300	20,500
January–November	389,000	297,000	20,500

<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 NOVEMBER 2019

		Low	Average	High	Average low, mid, and high
Ferrosilicon:					
50% ferrosilicon <sup>1</sup>	cents per pound of contained silicon	103.00	XX	105.00	103.00–104.00–105.00
75% ferrosilicon <sup>2</sup>	do.	74.00	75.00	81.00	XX
Silicon metal, 553 grade <sup>3</sup>	cents per pound	91.00	94.25	97.00	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 NOVEMBER 2019<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November <sup>3</sup>		
				Gross weight	Contained weight	Value
<b>Ferrosilicon:</b>						
More than 55% silicon:						
Brazil	--	--	--	24	14	\$37,000
Canada	269	162	\$370,000	4,940	2,960	6,770,000
Dominican Republic	--	--	--	39	23	86,200
Germany	--	--	--	62	37	63,000
Hong Kong	--	--	--	2,480	1,490	1,380,000
Jamaica	--	--	--	9	6	14,400
Mexico	51	33	103,000	1,570	958	3,350,000
South Africa	--	--	--	171	125	174,000
Sweden	--	--	--	200	120	242,000
United Kingdom	--	--	--	21	12	30,900
Other [5 countries and (or) localities]	--	--	--	17	10	31,300
Total	321	195	474,000	9,530	5,760	12,200,000
Other ferrosilicon:						
Belgium	36	15	25,200	518	236	516,000
Brazil	59	29	114,000	371	186	722,000
Canada	33	17	34,300	346	173	523,000
France	20	9	32,300	200	91	312,000
Korea, Republic of	--	--	--	580	253	661,000
Luxembourg	20	10	31,000	218	101	341,000
Mexico	75	35	169,000	1,600	636	2,990,000
Spain	--	--	--	199	100	352,000
Turkey	--	--	--	299	140	522,000
United Kingdom	20	9	36,000	775	351	1,280,000
Other [6 countries and (or) localities]	20	9	36,300	333	154	444,000
Total	283	134	478,000	5,440	2,420	8,670,000
Total ferrosilicon	603	328	952,000	15,000	8,180	20,800,000
<b>Metal:</b>						
More than 99.99% silicon:						
China	566	566	6,310,000	5,550	5,550	49,600,000
Germany	367	367	5,170,000	5,430	5,430	91,200,000
Hong Kong	45	45	274,000	795	795	4,270,000
Japan	454	454	16,500,000	7,910	7,910	313,000,000
Korea, Republic of	117	117	1,910,000	6,300	6,300	125,000,000
Malaysia	165	165	2,390,000	668	668	27,800,000
Norway	163	163	82,600	919	919	5,620,000
Taiwan	172	172	3,670,000	3,090	3,090	40,100,000
United Kingdom	37	37	303,000	266	266	5,280,000
Vietnam	233	233	2,450,000	3,080	3,080	45,000,000
Other [41 countries and (or) localities]	44	44	621,000	481	481	10,500,000
Total	2,360	2,360	39,700,000	34,500	34,500	718,000,000
99.00%–99.99% silicon:						
China	--	--	--	5	5	7,640
Dominican Republic	--	--	--	5	5	6,800
France	--	--	--	10	10	14,300
India	--	--	--	4	4	5,360
Japan	--	--	--	2	2	2,660
Mexico	4	3	6,270	24	24	59,500
Taiwan	--	--	--	2	2	2,780
United Kingdom	76	75	78,700	244	206	343,000
Total	79	79	85,000	296	258	442,000
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 NOVEMBER 2019<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November <sup>3</sup>		
				Gross weight	Contained weight	Value
Metal—Continued:						
Other silicon:						
Canada	21	21	\$45,200	218	212	\$470,000
China	7	6	8,730	139	135	186,000
France	--	--	--	19	18	16,600
Japan	--	--	--	12	11	15,600
Korea, Republic of	1	1	13,400	37	36	60,700
Mexico	1	1	4,150	39	38	119,000
Netherlands	--	--	--	369	359	412,000
South Africa	39	38	51,800	101	98	163,000
United Kingdom	8	8	19,700	13	13	68,600
Other [9 countries and (or) localities]	--	--	--	19	19	192,000
Total	78	75	143,000	1,360	1,320	2,190,000
Total silicon metal	2,520	2,510	39,900,000	36,200	36,100	721,000,000

-- 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.

Source: U.S. Census Bureau.

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November <sup>3</sup>		
				Gross weight	Contained weight	Value
<b>Ferrosilicon:</b>						
<b>55%–80% silicon, more than 3% Ca:</b>						
Azerbaijan	--	--	--	48	37	\$50,600
Brazil	--	--	--	691	517	773,000
China	--	--	--	229	147	545,000
France	18	11	\$56,500	594	370	1,700,000
Germany	4	3	11,600	4	3	11,600
India	--	--	--	19	12	51,000
South Africa	--	--	--	112	70	262,000
Total	22	14	68,200	1,700	1,160	3,390,000
<b>55%–80% silicon, other:</b>						
Brazil	1,620	1,220	1,650,000	16,000	12,000	18,900,000
Canada	1,040	752	2,240,000	11,600	8,370	26,100,000
France	54	37	151,000	1,520	1,070	7,130,000
Iceland	1,330	1,050	1,300,000	11,900	9,280	14,300,000
Kazakhstan	--	--	--	9,850	7,550	14,100,000
Kuwait	--	--	--	804	614	849,000
Malaysia	234	174	221,000	19,700	15,100	24,200,000
Paraguay	551	436	583,000	7,430	5,820	9,290,000
Russia	42	32	42,800	61,900	47,000	78,100,000
South Africa	234	161	480,000	1,840	1,270	3,960,000
Other [7 countries and (or) localities]	108	80	428,000	2,040	1,490	6,080,000
Total	5,220	3,940	7,090,000	144,000	110,000	203,000,000
80%–90% ferrosilicon, Brazil	--	--	--	348	304	396,000
More than 90% ferrosilicon, Brazil	40	38	84,000	185	176	389,000
<b>Magnesium ferrosilicon:</b>						
Argentina	76	35	72,000	394	180	451,000
Brazil	--	--	--	2	1	2,800
Canada	873	398	1,590,000	10,500	4,800	19,100,000
China	--	--	--	31	16	66,500
France	--	--	--	36	18	4,740
Germany	2	1	10,400	63	21	183,000
India	18	8	29,800	1,020	426	1,330,000
Norway	24	12	47,800	151	71	297,000
Thailand	--	--	--	75	34	130,000
Total	993	454	1,750,000	12,200	5,560	21,600,000
<b>Other ferrosilicon:</b>						
Canada	786	292	877,000	9,090	3,160	10,900,000
China	--	--	--	112	43	244,000
France	--	--	--	62	28	142,000
Germany	2	1	10,400	10	4	53,800
India	--	--	--	310	131	462,000
Mexico	--	--	--	14	6	23,200
Russia	--	--	--	197	96	384,000
Slovakia	39	6	65,800	293	62	494,000
Turkey	--	--	--	22	10	15,500
United Kingdom	--	--	--	10	5	89,000
Other [2 countries and (or) localities]	--	--	--	9	4	16,200
Total	827	299	953,000	10,100	3,540	12,900,000
Total ferrosilicon	7,100	4,750	9,940,000	169,000	120,000	242,000,000
<b>Metal:</b>						
<b>More than 99.99% silicon:</b>						
Brazil	88	88	240,000	3,520	3,520	10,500,000
China	13	13	1,450,000	61	61	7,220,000
Denmark	--	--	--	4	4	16,900,000
Germany	35	35	2,180,000	464	464	27,500,000

See footnotes at end of table.

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

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November <sup>3</sup>		
				Gross weight	Contained weight	Value
<b>Metal—Continued:</b>						
<b>More than 99.99% silicon:</b>						
Iceland	--	--	--	7	7	\$451,000
Japan	28	28	\$1,230,000	723	723	33,900,000
Korea, Republic of	5	5	45,100	11	11	318,000
Norway	--	--	--	52	52	490,000
Taiwan	18	18	2,010,000	225	225	18,800,000
Ukraine	1	1	40,200	2	2	119,000
Other [13 countries and (or) localities]	(4)	(4)	2,900	5	5	822,000
<b>Total</b>	<b>187</b>	<b>187</b>	<b>7,200,000</b>	<b>5,080</b>	<b>5,080</b>	<b>117,000,000</b>
<b>99.00%–99.99% silicon:</b>						
Australia	145	144	331,000	3,280	3,260	8,100,000
Bosnia and Herzegovina	308	306	536,000	8,280	8,220	17,100,000
Brazil	1,530	1,520	3,540,000	19,900	19,800	51,000,000
Canada	383	381	972,000	25,700	25,500	70,100,000
Iceland	960	955	1,550,000	5,050	5,020	9,440,000
Kazakhstan	40	40	72,600	7,450	7,380	14,400,000
Laos	--	--	--	2,920	2,890	6,990,000
Malaysia	621	618	954,000	2,880	2,860	5,140,000
Norway	624	620	1,840,000	7,260	7,210	21,000,000
Thailand	--	--	--	5,550	5,520	13,600,000
Other [7 countries and (or) localities]	92	91	186,000	563	559	1,300,000
<b>Total</b>	<b>4,700</b>	<b>4,670</b>	<b>9,980,000</b>	<b>88,800</b>	<b>88,200</b>	<b>218,000,000</b>
<b>Other silicon:</b>						
Australia	384	378	922,000	2,500	2,390	6,280,000
Bosnia and Herzegovina	--	--	--	341	324	771,000
Brazil	1,580	1,540	3,490,000	10,300	10,100	24,900,000
Canada	191	186	478,000	847	820	2,120,000
France	--	--	--	285	273	459,000
Iceland	140	138	168,000	800	789	1,220,000
Japan	44	42	61,700	342	329	447,000
Kazakhstan	--	--	--	326	315	494,000
Netherlands	26	25	85,800	293	284	807,000
Norway	70	69	113,000	5,750	5,630	9,410,000
Other [10 countries and (or) localities]	24	23	26,100	853	827	2,340,000
<b>Total</b>	<b>2,460</b>	<b>2,400</b>	<b>5,340,000</b>	<b>22,600</b>	<b>22,000</b>	<b>49,200,000</b>
<b>Total silicon metal</b>	<b>7,350</b>	<b>7,260</b>	<b>22,500,000</b>	<b>117,000</b>	<b>115,000</b>	<b>384,000,000</b>

-- 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.