

# Mineral Industry Surveys

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## SILICON IN NOVEMBER 2021

Domestic production of silicon materials was 29,200 metric tons (t) in November 2021, 22% less than October 2021 production and 22% more than November 2020 production (fig. 1, table 1). Net shipments were 19,600 t, 21% less than shipments in October 2021 and essentially unchanged from shipments in November 2020. Total production and net shipments during the first 11 months of 2021 were 13% more and 5% more, respectively, than those during the same period in 2020 (fig. 1; table 1).

Ending stocks were 10,700 t in November 2021, 21% less than ending stocks in October 2021. Owing to domestic physical inventory adjustments, these were 41% less than those in November 2020 (fig. 1; table 1).

In November 2021, the leading recipients for silicon metal, more than 99.99% silicon trade category, were Japan, Vietnam, and Taiwan, in descending order (table 3). The leading import sources for silicon metal, 99.00%–99.99% silicon trade category, were Canada, Brazil, and Norway, 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 480.00 cents per pound in November 2021, 28% more than the average price in October 2021 and more than four times the average price in November 2020. The average U.S. spot price for ferrosilicon, 50% grade, was 189.00 cents per pound, unchanged from the average price in October 2021 and 84% more than the average price in November 2020. The average U.S. spot price for ferrosilicon, 75% grade, was 335.63 cents per pound, 8% more than the average price in October 2021 and more than three times that in November 2020 (fig. 2).

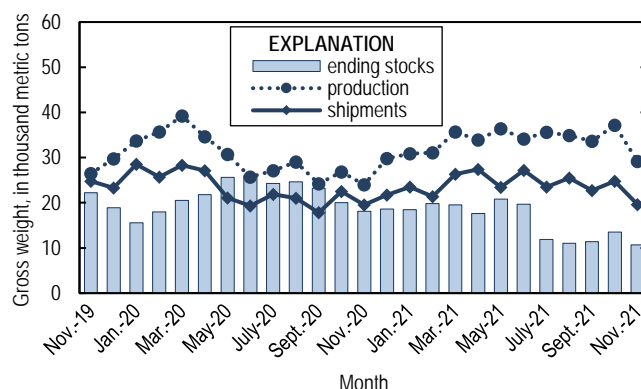


Figure 1. Monthly domestic production of total silicon materials, net shipments, and ending stocks from November 2019 through November 2021 (may include revisions to previously published data).

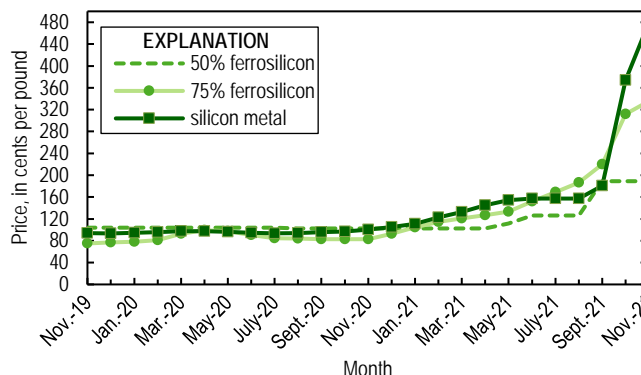


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from November 2019 through November 2021. Source: CRU Group and S&P Global Platts Metals Week.

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

(Metric tons, gross weight)

	Gross production <sup>4</sup>	Net shipments	Producers' stocks, end of period
2020:			
January–December	360,000	275,000	18,600
January–November	331,000 <sup>r</sup>	253,000 <sup>r</sup>	18,100 <sup>r</sup>
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 <sup>5</sup>
August	34,900	25,500	11,000 <sup>5</sup>
September	33,600	22,700	11,400 <sup>5</sup>
October	37,200 <sup>r</sup>	24,800 <sup>r</sup>	13,500 <sup>r, 5</sup>
November	29,200	19,600	10,700 <sup>5</sup>
January–November	373,000	265,000	10,700 <sup>5</sup>

<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 U.S. Geological Survey estimates.

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

<sup>5</sup>Decreased end of period stocks attributable to domestic physical inventory adjustment.

TABLE 2  
PRICES FOR FERROSILICON AND SILICON METAL IN NOVEMBER 2021

		Low	Average	High	Average low, mid, and high
Ferrosilicon:					
50% ferrosilicon <sup>1</sup>	cents per pound of contained silicon	188.00	XX	190.00	188.00–189.00–190.00
75% ferrosilicon <sup>2</sup>	do.	330.00	335.63	345.00	XX
Silicon metal, 553 grade <sup>3</sup>	cents per pound	440.00	480.00	520.00	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 Metals Week, 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 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 NOVEMBER 2021<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
Ferrosilicon:						
More than 55% silicon:						
Brazil	--	--	--	31	19	\$48,100
Canada	559	335	\$1,070,000	4,060	2,440	7,190,000
China	9	6	14,500	18	11	28,000
Colombia	--	--	--	2	1	9,360
Dominican Republic	--	--	--	172	103	289,000
India	--	--	--	3	2	4,180
Japan	--	--	--	32	19	108,000
Mexico	115	73	291,000	1,290	818	2,860,000
Poland	--	--	--	3	2	5,310
Singapore	--	--	--	15	9	25,600
Total	683	414	1,370,000	5,620	3,420	10,600,000
Other ferrosilicon:						
Belgium	54	23	54,000	719	326	703,000
Brazil	59	29	114,000	501	250	988,000
Canada	10	5	54,000	222	101	597,000
India	--	--	--	57	28	84,700
Mexico	332	157	715,000	3,440	1,690	6,880,000
Spain	40	20	107,000	237	119	418,000
Sweden	--	--	--	100	45	186,000
Switzerland	--	--	--	320	141	569,000
Turkey	--	--	--	500	227	918,000
United Kingdom	--	--	--	358	163	679,000
Other [5 countries and (or) localities]	--	--	--	115	45	151,000
Total	494	234	1,040,000	6,570	3,140	12,200,000
Total ferrosilicon	1,180	648	2,420,000	12,200	6,560	22,700,000
Metal:						
More than 99.99% silicon:						
China	374	374	12,600,000	3,320	3,320	81,300,000
Germany	335	335	8,660,000	5,230	5,230	119,000,000
Japan	1,000	1,000	28,700,000	17,700	17,700	410,000,000
Korea, Republic of	366	366	14,800,000	4,080	4,080	109,000,000
Malaysia	279	279	7,800,000	2,330	2,330	63,900,000
Netherlands	--	--	--	315	315	409,000
Norway	84	84	1,380,000	979	979	23,400,000
Singapore	79	79	1,650,000	1,440	1,440	29,900,000
Taiwan	376	376	11,900,000	6,350	6,350	64,700,000
Vietnam	488	488	14,700,000	5,180	5,180	101,000,000
Other [41 countries and (or) localities]	29	29	1,390,000	500	500	19,700,000
Total	3,410	3,410	104,000,000	47,400	47,400	1,020,000,000
99.00%–99.99% silicon:						
China	--	--	--	12	12	16,900
Dominican Republic	--	--	--	15	15	45,000
El Salvador	--	--	--	3	3	4,320
France	--	--	--	51	51	72,400
Germany	82	81	96,100	209	208	331,000
Japan	--	--	--	8	7	10,600
Korea, Republic of	--	--	--	42	41	44,800
Mexico	--	--	--	27	19	100,000
Netherlands	--	--	--	365	364	281,000
United Arab Emirates	48	48	576,000	48	48	576,000
Other [6 countries and (or) localities]	--	--	--	14	13	19,200
Total	130	129	672,000	795	782	1,500,000

See footnotes at end of table.

TABLE 3—Continued  
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 2021<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:						
Belgium	19	19	\$23,100	317	309	\$418,000
Canada	7	7	38,200	66	64	218,000
China	30	29	39,100	317	308	419,000
Germany	--	--	--	73	71	104,000
India	--	--	--	106	104	560,000
Japan	191	186	1,770,000	228	222	2,050,000
Mexico	40	39	358,000	78	75	612,000
Netherlands	--	--	--	128	124	157,000
South Africa	25	24	32,500	86	84	135,000
Taiwan	--	--	--	57	54	230,000
Other [12 countries and (or) localities]	2	2	3,000	83	81	205,000
Total	315	306	2,260,000	1,540	1,490	5,110,000
Total silicon metal	3,860	3,850	106,000,000	49,800	49,700	1,030,000,000

-- Zero.

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

<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 2021<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
Ferrosilicon:						
55%–80% silicon, more than 3% Ca:						
China	--	--	--	160	99	\$364,000
France	36	22	\$105,000	375	226	1,060,000
Germany	--	--	--	1	1	2,120
Russia	--	--	--	8	4	19,600
South Africa	--	--	--	53	34	117,000
Total	36	21	105,000	597	364	1,560,000
55%–80% silicon, other:						
Brazil	3,310	2,480	5,840,000	19,300	14,500	26,800,000
Canada	1,210	881	2,660,000	11,300	8,230	24,300,000
Egypt	176	122	389,000	1,600	1,150	2,810,000
Iceland	582	439	2,260,000	5,900	4,540	11,600,000
Kazakhstan	--	--	--	13,100	10,000	26,200,000
Malaysia	4,470	3,260	20,900,000	16,800	12,400	38,000,000
Norway	598	456	1,360,000	6,130	4,720	10,200,000
Paraguay	103	74	180,000	1,940	1,450	2,390,000
Russia	--	--	--	58,900	44,800	155,000,000
South Africa	119	88	181,000	2,360	1,680	3,890,000
Other [13 countries and (or) localities]	657	462	1,170,000	4,170	3,000	9,750,000
Total	11,200	8,270	34,900,000	141,000	106,000	311,000,000
80%–90% ferrosilicon, Germany	--	--	--	27	22	25,500
More than 90% ferrosilicon:						
Canada	--	--	--	1	1	18,000
China	--	--	--	15	14	59,100
Total	--	--	--	16	15	77,100
Magnesium ferrosilicon:						
Argentina	--	--	--	323	114	284,000
Brazil	82	30	90,600	905	368	1,070,000
Canada	1,200	549	2,190,000	10,700	4,950	18,700,000
China	7	3	24,000	41	20	94,100
Germany	16	8	56,500	129	54	292,000
India	3	1	5,060	526	240	979,000
Norway	24	12	60,300	24	12	60,300
Panama	--	--	--	49	22	36,700
Russia	20	9	62,000	100	48	277,000
South Africa	--	--	--	130	61	85,200
Total	1,350	613	2,490,000	13,000	5,890	21,900,000
Other ferrosilicon:						
Canada	748	250	1,020,000	7,210	2,320	9,430,000
China	--	--	--	58	26	83,900
France	--	--	--	38	18	101,000
Germany	2	1	10,800	41	18	96,200
Mexico	--	--	--	11	5	31,200
Russia	--	--	--	142	68	304,000
Slovakia	25	11	44,000	363	125	638,000
South Africa	--	--	--	85	11	125,000
Spain	--	--	--	25	11	42,500
Total	775	261	1,070,000	7,980	2,600	10,900,000
Total ferrosilicon	13,400	9,170	38,600,000	163,000	115,000	345,000,000

See footnotes at end of table.

TABLE 4—Continued  
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 2021<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country or locality	Gross weight	Contained weight	Value	January–November <sup>3</sup>		Value
				Gross weight	Contained weight	
Metal—Continued:						
More than 99.99% silicon:						
Brazil	102	102	\$240,000	1,330	1,330	\$3,200,000
China	12	12	1,070,000	51	51	4,390,000
Germany	57	57	5,740,000	495	495	51,000,000
Japan	1	1	330,000	155	155	10,700,000
Korea, Republic of	2	2	320,000	25	25	535,000
Malaysia	--	--	--	86	86	994,000
Norway	--	--	--	7	7	108,000
Taiwan	22	22	2,900,000	456	456	45,900,000
Thailand	212	212	568,000	404	404	1,100,000
Vietnam	--	--	--	96	96	272,000
Other [11 countries and (or) localities]	(4)	(4)	60,500	10	10	1,780,000
Total	409	409	11,200,000	3,120	3,120	120,000,000
99.00%–99.99% silicon:						
Australia	177	176	527,000	3,250	3,230	8,030,000
Brazil	1,240	1,230	3,110,000	23,900	23,700	53,900,000
Canada	1,580	1,570	3,770,000	24,500	24,300	58,700,000
China	--	--	--	6	6	24,500
Germany	--	--	--	11	11	32,900
Malaysia	--	--	--	116	115	214,000
Norway	519	615	1,710,000	7,990	7,940	20,500,000
Switzerland	--	--	--	116	115	307,000
Thailand	340	337	834,000	4,390	4,360	11,000,000
Vietnam	--	--	--	67	67	165,000
Other [2 countries and (or) localities]	--	--	--	(4)	(4)	13,700
Total	3,860	3,930	9,950,000	64,400	63,900	153,000,000
Other silicon:						
Australia	--	--	--	2,720	2,660	6,970,000
Brazil	819	803	2,010,000	7,580	7,450	18,000,000
Canada	--	--	--	172	166	416,000
China	16	15	17,300	297	285	369,000
France	--	--	--	371	359	691,000
Germany	--	--	--	233	226	678,000
Japan	28	26	30,100	173	166	218,000
Norway	935	915	1,580,000	5,880	5,720	10,100,000
Thailand	--	--	--	336	331	602,000
United Kingdom	442	424	482,000	442	424	489,000
Other [8 countries and (or) localities]	22	21	24,000	505	489	1,240,000
Total	2,260	2,210	4,140,000	18,700	18,300	39,800,000
Total silicon metal	6,530	6,550	25,300,000	86,200	85,300	313,000,000

-- Zero.

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

<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.