

# Mineral Industry Surveys

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## SILICON IN SEPTEMBER 2015

Domestic production of total silicon materials was 38,400 metric tons (t) in September 2015, a 4% increase from August 2015 production and a 7% decrease from September 2014 production (fig. 1, table 1). Net shipments were 24,600 t, a slight decrease from shipments in August 2015 and 11% less than shipments in September 2014. Total production and net shipments during the first 9 months of 2015 were slightly greater and 9% less, respectively, than those during the same period in 2014 (table 1).

Ending stocks were 37,800 t in September 2015, slightly less than those in August 2015 and 16% more than those in September 2014 (table 1). Stocks included adjustments in inventory and in-plant consumption of ferrosilicon to produce magnesium ferrosilicon and other miscellaneous alloys.

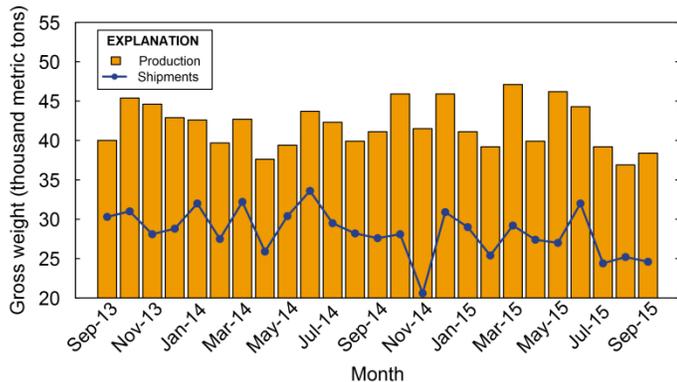


Figure 1. Monthly domestic production of total silicon materials and net shipments from September 2013 through September 2015. Source: U.S. Geological Survey.

U.S. imports of ferrosilicon were 22,700 t in September 2015, 25% less than those in August 2015 and 16% more than those in September 2014. U.S. imports of silicon metal were 9,610 t in September 2015, 20% less than August 2015 imports and 31% less than September 2014 imports (fig. 2, table 4).

The average U.S. spot price for silicon metal was 119.6 cents per pound in September 2015. This was a 4% decrease from the average price in August 2015, and a 17% decrease from the September 2014 price. The average U.S. spot prices for

ferrosilicon, 50% and 75% grades, were the same and slightly less than those in August 2015 and were 9% and 13% less, respectively, than their average prices in September 2014 (fig. 3).

Individual production-related statistics were withheld to avoid disclosing company proprietary data. All comparative statistics were calculated based on unrounded, gross weight figures.

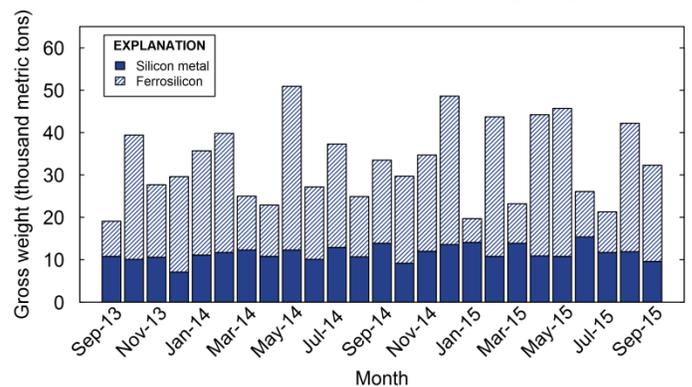


Figure 2. Monthly U.S. imports of ferrosilicon and silicon metal from September 2013 through September 2015. Source: U.S. Census Bureau.

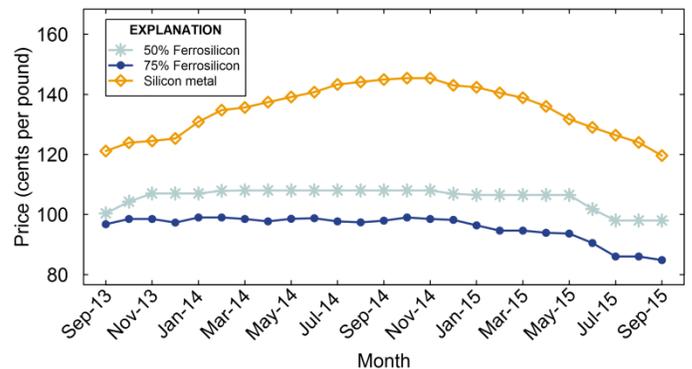


Figure 3. Average monthly prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon from September 2013 through September 2015. Source: CRU Ryan's Notes and Platts Metals Week.

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

(Metric tons, gross weight)

	Gross production <sup>3</sup>	Net shipments	Producers' stocks, end of period
<b>2014:<sup>p</sup></b>			
January–December	502,000	347,000	37,800
January–September	369,000	267,000	32,700
September	41,100	27,600	32,700
October	45,900	28,100	33,000
November	41,500	20,600	38,500
December	45,900	30,900	37,800
<b>2015:</b>			
January	41,100	29,000	38,700
February	39,200	25,400	40,300
March	47,100	29,200	40,800
April	39,900	27,400	39,300
May	46,200	27,000	43,900
June	44,300	32,000	40,800
July	39,200	24,400	41,000
August	36,900	25,200	38,500
September	38,400	24,600	37,800
January–September	372,000	244,000	37,800

<sup>p</sup>Preliminary.

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

TABLE 2  
 PRICES FOR FERROSILICON AND SILICON METAL IN SEPTEMBER 2015

	Low	Average	High	Average low, mid, and high
<b>Ferrosilicon:</b>				
50% ferrosilicon <sup>1</sup> cents per pound of contained silicon	97.00	XX	99.00	97.00–98.00–99.00
75% ferrosilicon <sup>2</sup> do.	84.00	84.80	87.00	XX
Silicon metal, 553 grade <sup>3</sup> cents per pound	117.00	119.60	124.00	XX

do. Ditto. XX Not applicable.

<sup>1</sup>CRU Ryan's Notes, North American transaction price, duty paid, f.o.b. Pittsburgh, producing plant or Chicago/Pittsburgh warehouse. Average price reported for price range.

<sup>2</sup>Platts Metals Week, in U.S. warehouse, U.S. origin and imported material. Average prices reported for all transactions during the month.

<sup>3</sup>Platts Metals Week, 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 2015<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country	Gross weight	Contained weight	Value	January–September <sup>3</sup>		Value
				Gross weight	Contained weight	
<b>Ferrosilicon:</b>						
<b>More than 55% silicon:</b>						
Austria	--	--	--	6	3	\$8,690
Brazil	5	3	\$13,200	75	46	151,000
Canada	72	43	112,000	1,240	747	1,940,000
Colombia	18	13	46,800	55	41	147,000
Costa Rica	--	--	--	2	1	2,910
India	--	--	--	50	30	35,500
Japan	--	--	--	723	542	1,400,000
Malaysia	--	--	--	6	4	10,000
Mexico	239	143	550,000	2,510	1,510	5,930,000
Switzerland	--	--	--	3	2	4,250
<b>Total</b>	<b>334</b>	<b>203</b>	<b>722,000</b>	<b>4,670</b>	<b>2,930</b>	<b>9,630,000</b>
<b>Other ferrosilicon:</b>						
Brazil	--	--	--	186	93	434,000
Canada	133	66	132,000	1,250	625	1,520,000
Japan	--	--	--	219	100	391,000
Korea, Republic of	60	26	70,500	560	248	666,000
Mexico	326	163	824,000	2,850	1,390	7,020,000
Netherlands	60	26	30,800	360	158	185,000
Poland	--	--	--	291	91	547,000
Switzerland	--	--	--	140	63	255,000
Turkey	--	--	--	1,140	518	2,000,000
United Kingdom	161	78	257,000	1,750	861	2,640,000
Other (6 countries)	40	18	92,300	287	134	631,000
<b>Total</b>	<b>780</b>	<b>378</b>	<b>1,410,000</b>	<b>9,030</b>	<b>4,280</b>	<b>16,300,000</b>
<b>Total ferrosilicon</b>	<b>1,110</b>	<b>580</b>	<b>2,130,000</b>	<b>13,700</b>	<b>7,210</b>	<b>25,900,000</b>
<b>Metal:</b>						
<b>More than 99.99% silicon:</b>						
China	512	512	9,130,000	8,400	8,400	192,000,000
Germany	103	103	3,110,000	496	496	15,000,000
Hong Kong	54	54	576,000	366	366	20,900,000
Italy	33	33	1,030,000	243	243	10,400,000
Japan	1,190	1,190	64,300,000	7,560	7,560	404,000,000
Korea, Republic of	335	335	15,000,000	2,840	2,840	118,000,000
Malaysia	28	28	2,760,000	242	242	30,300,000
Norway	64	64	1,470,000	653	653	20,400,000
Singapore	96	96	855,000	609	609	18,600,000
Taiwan	415	415	7,400,000	3,600	3,600	126,000,000
Other (39 countries)	31	31	2,280,000	291	291	19,500,000
<b>Total</b>	<b>2,860</b>	<b>2,860</b>	<b>108,000,000</b>	<b>25,300</b>	<b>25,300</b>	<b>976,000,000</b>
<b>99.00%–99.99% silicon:</b>						
Austria	--	--	--	41	41	57,700
Costa Rica	--	--	--	9	9	13,000
India	--	--	--	30	29	43,800
Korea, Republic of	--	--	--	2	2	2,980
Mexico	3	3	8,280	18	18	49,700
Saudi Arabia	--	--	--	43	43	289,000
St. Christopher and Nevis	--	--	--	1	1	3,600
Taiwan	--	--	--	9	9	19,000
Thailand	--	--	--	13	13	18,200
United Kingdom	--	--	--	7	7	10,200
Other (2 countries)	--	--	--	2	2	9,050
<b>Total</b>	<b>3</b>	<b>3</b>	<b>8,280</b>	<b>175</b>	<b>173</b>	<b>516,000</b>

See footnotes at end of table.

TABLE 3—Continued  
 U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN SEPTEMBER 2015<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country	Gross weight	Contained weight	Value	January–September <sup>3</sup>		Value
				Gross weight	Contained weight	
Metal—Continued:						
Other silicon:						
Belgium	--	--	--	339	330	\$538,000
Canada	39	37	\$92,200	308	299	936,000
China	21	20	27,400	85	82	112,000
Hong Kong	--	--	--	26	25	98,700
Korea, Republic of	--	--	--	41	40	286,000
Mexico	43	42	63,700	72	70	116,000
South Africa	8	8	19,300	61	59	151,000
Taiwan	(4)	(4)	3,000	80	77	863,000
Thailand	40	39	79,200	40	39	79,200
United Kingdom	1	1	11,200	110	108	264,000
Other (8 countries)	(4)	(4)	2,890	30	29	128,000
Total	153	148	299,000	1,190	1,160	3,570,000
Total silicon metal	3,020	3,020	108,000,000	26,700	26,600	980,000,000

-- Zero.

<sup>1</sup>Presentation of monthly data is based on the "January–September" 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 SEPTEMBER 2015<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country	Gross weight	Contained weight	Value	January–September <sup>3</sup>		
				Gross weight	Contained weight	Value
<b>Ferrosilicon:</b>						
<b>55%–80% silicon, more than 3% Ca:</b>						
Argentina	19	12	\$34,100	19	12	\$34,100
Canada	--	--	--	56	41	139,000
China	209	158	228,000	3,700	2,770	4,240,000
France	117	69	355,000	436	268	1,230,000
Germany	--	--	--	12	9	35,900
Russia	--	--	--	10	5	14,300
Saudi Arabia	--	--	--	18	11	40,200
South Africa	18	13	36,300	256	168	595,000
Spain	--	--	--	1	(4)	3,070
Taiwan	--	--	--	115	85	198,000
<b>Total</b>	<b>363</b>	<b>251</b>	<b>653,000</b>	<b>4,620</b>	<b>3,370</b>	<b>6,540,000</b>
<b>55%–80% silicon, other:</b>						
Canada	1,170	867	2,440,000	9,430	6,940	21,600,000
China	8,170	6,160	9,480,000	39,600	29,800	48,300,000
France	350	241	1,020,000	1,450	992	4,120,000
Iceland	831	629	1,030,000	5,860	4,430	7,570,000
Malaysia	271	202	294,000	1,390	1,030	1,590,000
Russia	528	369	540,000	65,100	49,700	89,600,000
South Africa	3,180	2,410	4,240,000	9,150	6,890	14,200,000
Spain	192	145	288,000	1,500	1,140	2,400,000
Venezuela	4,790	3,600	5,240,000	14,800	11,400	17,600,000
Vietnam	--	--	--	1,570	1,180	1,510,000
Other (7 countries)	144	107	317,000	2,520	1,890	5,910,000
<b>Total</b>	<b>19,600</b>	<b>14,700</b>	<b>24,900,000</b>	<b>152,000</b>	<b>115,000</b>	<b>214,000,000</b>
<b>80%–90% ferrosilicon</b>						
Germany	39	32	46,900	117	96	125,000
Sweden	--	--	--	4	3	3,360
<b>Total</b>	<b>39</b>	<b>32</b>	<b>46,900</b>	<b>120</b>	<b>99</b>	<b>128,000</b>
<b>Magnesium ferrosilicon:</b>						
Argentina	120	55	245,000	1,000	454	1,220,000
Brazil	--	--	--	63	28	110,000
Canada	1,240	562	2,410,000	9,260	4,180	18,500,000
China	--	--	--	274	126	472,000
France	26	10	57,900	141	64	246,000
Germany	28	13	25,700	155	71	211,000
India	83	36	140,000	1,330	602	2,220,000
Norway	--	--	--	1,030	485	1,980,000
<b>Total</b>	<b>1,490</b>	<b>676</b>	<b>2,870,000</b>	<b>13,200</b>	<b>6,010</b>	<b>25,000,000</b>
<b>Other ferrosilicon:</b>						
Brazil	95	42	76,500	95	42	76,500
Canada	912	360	1,030,000	8,980	3,290	10,300,000
China	119	53	247,000	9,300	1,800	5,140,000
France	18	8	67,100	72	41	203,000
Germany	--	--	--	9	4	39,700
India	42	17	65,300	155	58	182,000
Russia	4	2	6,120	85	42	127,000
Slovakia	--	--	--	122	50	133,000
South Africa	--	--	--	9	4	21,100
United Kingdom	--	--	--	18	3	23,900
<b>Total</b>	<b>1,190</b>	<b>482</b>	<b>1,490,000</b>	<b>18,800</b>	<b>5,340</b>	<b>16,300,000</b>
<b>Total ferrosilicon</b>	<b>22,700</b>	<b>16,200</b>	<b>30,000,000</b>	<b>189,000</b>	<b>130,000</b>	<b>262,000,000</b>

See footnotes at end of table.

TABLE 4—Continued  
 U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN SEPTEMBER 2015<sup>1,2</sup>

(Metric tons, unless otherwise specified)

Country	Gross weight	Contained weight	Value	January–September <sup>3</sup>		
				Gross weight	Contained weight	Value
<b>Metal:</b>						
<b>More than 99.99% silicon:</b>						
Brazil	896	896	\$3,000,000	6,830	6,830	\$22,500,000
Canada	--	--	--	10	10	26,400
China	22	22	332,000	75	75	1,430,000
Germany	179	179	5,360,000	1,320	1,320	43,900,000
Japan	1	1	179,000	73	73	5,210,000
Korea, Republic of	31	31	472,000	35	35	629,000
Mexico	--	--	--	15	15	240,000
Norway	(4)	(4)	5,700	290	290	1,170,000
Poland	33	33	345,000	33	33	357,000
Taiwan	13	13	286,000	73	73	1,670,000
Other (17 countries)	6	6	410,000	21	21	2,190,000
<b>Total</b>	<b>1,180</b>	<b>1,180</b>	<b>10,400,000</b>	<b>8,780</b>	<b>8,780</b>	<b>79,400,000</b>
<b>99.00%–99.99% silicon:</b>						
Australia	759	754	1,870,000	12,900	12,800	37,500,000
Brazil	1,460	1,450	4,110,000	15,300	15,200	42,500,000
Canada	835	829	2,370,000	1,610	1,590	4,540,000
France	--	--	--	1,090	1,080	3,270,000
Kazakhstan	--	--	--	715	709	1,900,000
Laos	--	--	--	1,640	1,620	4,540,000
Norway	552	548	1,670,000	6,620	6,580	19,500,000
South Africa	1,270	1,250	3,400,000	28,100	27,900	82,000,000
Spain	100	99	300,000	1,640	1,630	4,920,000
Thailand	458	455	1,150,000	4,780	4,750	11,900,000
Other (5 countries)	202	200	491,000	377	273	874,000
<b>Total</b>	<b>5,630</b>	<b>5,580</b>	<b>15,400,000</b>	<b>74,800</b>	<b>74,100</b>	<b>213,000,000</b>
<b>Other silicon:</b>						
Australia	288	285	768,000	2,270	2,220	6,200,000
Brazil	270	267	770,000	1,700	1,680	4,590,000
Canada	1,730	1,710	4,870,000	15,000	14,800	41,900,000
China	20	20	32,600	190	184	266,000
France	20	20	36,600	136	134	305,000
Germany	(4)	(4)	6,860	122	112	176,000
Kazakhstan	--	--	--	700	688	1,690,000
Norway	435	422	1,010,000	4,790	4,660	11,400,000
South Africa	--	--	--	120	119	265,000
United Kingdom	37	36	103,000	266	260	676,000
Other (7 countries)	1	1	9,480	230	223	642,000
<b>Total</b>	<b>2,800</b>	<b>2,760</b>	<b>7,610,000</b>	<b>25,600</b>	<b>25,100</b>	<b>68,100,000</b>
<b>Total silicon metal</b>	<b>9,610</b>	<b>9,520</b>	<b>33,400,000</b>	<b>109,000</b>	<b>108,000</b>	<b>361,000,000</b>

-- Zero.

<sup>1</sup>Presentation of monthly data is based on the "January–September" 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.