

Mineral Industry Surveys

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SILICON IN NOVEMBER 2017

Domestic production of silicon materials was 47,300 metric tons (t) in November 2017, a 3% increase from October 2017 production and 33% more than November 2016 production (fig. 1, table 1). Net shipments were 27,000 t, a 3% decrease from shipments in October 2017 and a 15% increase from shipments in November 2016. Total production and net shipments during the first 11 months of 2017 were 8% and 9% more, respectively, than those during the same period in 2016 (table 1).

Ending stocks were 28,800 t in November 2017, 14% more than those in October 2017 and 31% less than those in November 2016 (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.

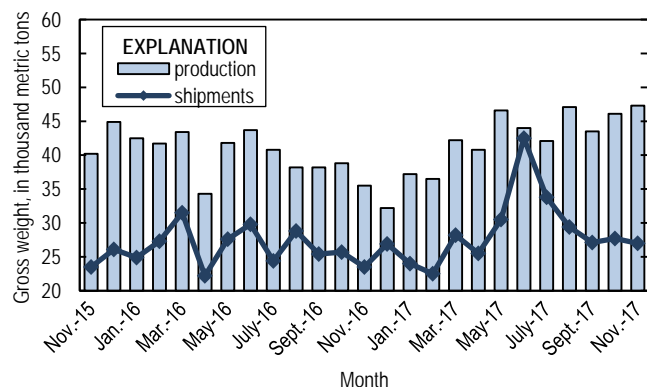


Figure 1. Monthly domestic production of total silicon materials and net shipments from November 2015 through November 2017 (may include revisions to previously published data). Source: U.S. Geological Survey.

The average U.S. spot price for silicon metal was 136.2 cents per pound in November 2017, a 6% increase from the average price in October 2017, and a 47% increase from the November 2016 price. The average U.S. spot prices for ferrosilicon, 50% and 75% grades, were the same and 6% less, respectively, than the average prices in October 2017 and were 23% and 25% greater, respectively, than their average prices in November 2016 (fig. 2).

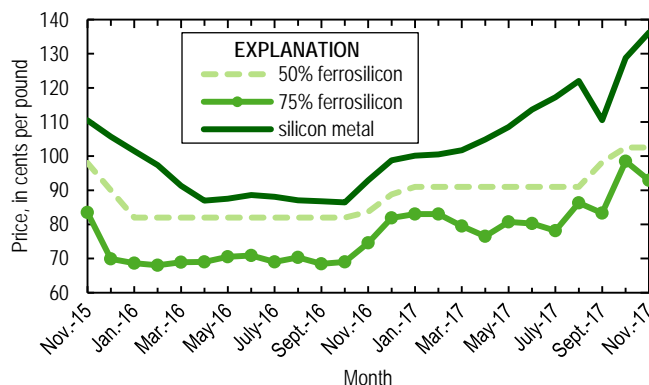


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from November 2015 through November 2017. Source: CRU Group and S&P Global Platts.

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TABLE 1
PRODUCTION, SHIPMENTS, AND STOCKS OF SILICON ALLOYS
AND METAL IN THE UNITED STATES^{1,2}

(Metric tons, gross weight)

| | Gross production ³ | Net shipments | Producers' stocks, end of period |
|------------------|----------------------------------|----------------------|--|
| 2016: | | | |
| January–December | 471,000 | 318,000 | 37,100 |
| January–November | 439,000 ^r | 291,000 ^r | 41,900 ^r |
| November | 35,500 | 23,500 | 41,900 |
| December | 32,200 | 26,900 | 37,100 |
| 2017: | | | |
| January | 37,200 | 24,000 | 38,400 |
| February | 36,500 | 22,500 | 40,800 |
| March | 42,200 | 28,200 | 41,800 |
| April | 40,800 | 25,500 | 45,200 |
| May | 46,600 | 30,500 | 45,400 |
| June | 44,000 | 42,500 | 28,900 |
| July | 42,100 | 33,800 | 21,400 |
| August | 47,100 | 29,400 | 21,400 |
| September | 43,500 | 27,100 | 22,900 |
| October | 46,100 | 27,700 | 25,300 |
| November | 47,300 | 27,000 | 28,800 |
| January–November | 473,000 | 318,000 | 28,800 |

^rRevised.

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.

³Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

TABLE 2
PRICES FOR FERROSILICON AND SILICON METAL IN NOVEMBER 2017

| | | Low | Average | High | Average low, mid, and high |
|---------------------------------------|--------------------------------------|--------|---------|--------|----------------------------|
| Ferrosilicon: | | | | | |
| 50% ferrosilicon ¹ | cents per pound of contained silicon | 100.00 | XX | 105.00 | 100.00–102.50–105.00 |
| 75% ferrosilicon ² | do. | 92.00 | 92.90 | 96.00 | XX |
| Silicon metal, 553 grade ³ | cents per pound | 132.00 | 136.20 | 139.00 | 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 NOVEMBER 2017^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–November ³ | | |
|---------------------------|--------------|------------------|-------------|-------------------------------|------------------|---------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| More than 55% silicon: | | | | | | |
| Belgium | -- | -- | -- | 293 | 162 | \$133,000 |
| Brazil | 15 | 9 | \$38,600 | 72 | 43 | 148,000 |
| Canada | 329 | 198 | 497,000 | 4,340 | 2,600 | 6,190,000 |
| India | -- | -- | -- | 172 | 103 | 214,000 |
| Japan | -- | -- | -- | 20 | 12 | 33,200 |
| Mexico | 253 | 152 | 521,000 | 2,800 | 1,680 | 5,790,000 |
| Netherlands | 1,550 | 932 | 1,110,000 | 2,740 | 1,710 | 2,220,000 |
| South Africa | -- | -- | -- | 237 | 142 | 104,000 |
| Turkey | -- | -- | -- | 12 | 7 | 18,500 |
| United Kingdom | -- | -- | -- | 80 | 56 | 49,100 |
| Other (3 countries) | 3 | 2 | 5,050 | 23 | 14 | 50,400 |
| Total | 2,150 | 1,290 | 2,170,000 | 10,800 | 6,540 | 14,900,000 |
| Other ferrosilicon: | | | | | | |
| Belgium | 114 | 51 | 73,700 | 811 | 366 | 815,000 |
| Brazil | 39 | 20 | 76,000 | 432 | 211 | 760,000 |
| Canada | 107 | 54 | 44,600 | 1,190 | 595 | 591,000 |
| France | 60 | 27 | 98,600 | 280 | 127 | 456,000 |
| Indonesia | 41 | 20 | 62,400 | 122 | 52 | 185,000 |
| Japan | -- | -- | -- | 98 | 49 | 163,000 |
| Korea, Republic of | 40 | 18 | 43,200 | 526 | 233 | 577,000 |
| Mexico | 153 | 76 | 328,000 | 3,800 | 1,740 | 7,330,000 |
| Turkey | -- | -- | -- | 123 | 61 | 183,000 |
| United Kingdom | 80 | 35 | 126,000 | 724 | 331 | 1,140,000 |
| Other (7 countries) | -- | -- | -- | 292 | 138 | 648,000 |
| Total | 634 | 300 | 853,000 | 8,400 | 3,910 | 12,800,000 |
| Total ferrosilicon | 2,790 | 1,590 | 3,020,000 | 19,200 | 10,400 | 27,800,000 |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| China | 290 | 290 | 1,980,000 | 4,480 | 4,480 | 58,400,000 |
| Germany | (4) | (4) | 3,010 | 2,730 | 2,730 | 72,500,000 |
| Hong Kong | 697 | 697 | 5,840,000 | 2,610 | 2,610 | 23,200,000 |
| Japan | 5,550 | 5,550 | 186,000,000 | 20,500 | 20,500 | 667,000,000 |
| Korea, Republic of | 5 | 5 | 850,000 | 5,210 | 5,210 | 180,000,000 |
| Malaysia | 36 | 36 | 1,700,000 | 524 | 524 | 34,800,000 |
| Norway | 146 | 146 | 638,000 | 415 | 415 | 3,600,000 |
| Philippines | 133 | 133 | 5,420,000 | 1,680 | 1,680 | 60,400,000 |
| Singapore | (4) | (4) | 19,100 | 1,120 | 1,120 | 27,200,000 |
| Taiwan | 1,570 | 1,570 | 16,700,000 | 17,700 | 17,700 | 226,000,000 |
| Other (41 countries) | 174 | 174 | 1,630,000 | 827 | 827 | 17,400,000 |
| Total | 8,600 | 8,600 | 221,000,000 | 57,700 | 57,700 | 1,370,000,000 |
| 99.00%–99.99% silicon: | | | | | | |
| Belgium | -- | -- | -- | 79 | 79 | 85,500 |
| China | -- | -- | -- | 203 | 203 | 206,000 |
| Germany | -- | -- | -- | 15 | 15 | 21,600 |
| Israel | -- | -- | -- | 26 | 26 | 37,200 |
| Japan | -- | -- | -- | 12 | 12 | 17,000 |
| Mexico | -- | -- | -- | 21 | 20 | 49,600 |
| Netherlands | 81 | 81 | 102,000 | 542 | 537 | 450,000 |
| Peru | 61 | 61 | 74,200 | 71 | 71 | 88,600 |
| Thailand | -- | -- | -- | 15 | 15 | 21,700 |
| United Kingdom | 22 | 22 | 25,600 | 582 | 577 | 651,000 |

See footnotes at end of table.

TABLE 3—Continued
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 2017^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–November ³ | | |
|------------------------|--------------|------------------|-------------|-------------------------------|------------------|---------------|
| | | | | Gross weight | Contained weight | Value |
| Metal—Continued: | | | | | | |
| 99.00%–99.99% silicon: | | | | | | |
| Other (7 countries) | 1 | 1 | \$9,750 | 30 | 29 | \$55,600 |
| Total | 165 | 164 | 212,000 | 1,600 | 1,590 | 1,680,000 |
| Other silicon: | | | | | | |
| Belgium | -- | -- | -- | 678 | 662 | 773,000 |
| Canada | 6 | 6 | 30,100 | 464 | 451 | 1,130,000 |
| China | 73 | 71 | 96,800 | 256 | 248 | 342,000 |
| Germany | -- | -- | -- | 33 | 32 | 58,000 |
| Japan | -- | -- | -- | 24 | 23 | 234,000 |
| Korea, Republic of | 4 | 4 | 22,000 | 28 | 27 | 58,600 |
| Mexico | 21 | 21 | 73,700 | 368 | 357 | 1,080,000 |
| Netherlands | -- | -- | -- | 157 | 154 | 119,000 |
| South Africa | -- | -- | -- | 88 | 86 | 171,000 |
| United Kingdom | 42 | 41 | 85,400 | 209 | 204 | 463,000 |
| Other (11 countries) | 7 | 6 | 13,400 | 70 | 68 | 327,000 |
| Total | 153 | 149 | 321,000 | 2,380 | 2,310 | 4,760,000 |
| Total silicon metal | 8,920 | 8,910 | 221,000,000 | 61,700 | 61,600 | 1,380,000,000 |

-- Zero.

¹Presentation of monthly data is based on the "January–November" 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 NOVEMBER 2017^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–November ³ | | |
|-----------------------------------|--------------|------------------|-------------|-------------------------------|------------------|-------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| 55%–80% silicon, more than 3% Ca: | | | | | | |
| Brazil | 1,510 | 1,110 | \$2,200,000 | 3,930 | 2,840 | \$5,460,000 |
| China | -- | -- | -- | 725 | 544 | 789,000 |
| France | 54 | 33 | 150,000 | 554 | 334 | 1,500,000 |
| Germany | -- | -- | -- | 2 | 1 | 6,070 |
| South Africa | 18 | 13 | 32,700 | 249 | 173 | 468,000 |
| Total | 1,580 | 1,160 | 2,380,000 | 5,460 | 3,890 | 8,230,000 |
| 55%–80% silicon, other: | | | | | | |
| Brazil | 837 | 635 | 1,130,000 | 5,620 | 4,220 | 6,510,000 |
| Canada | 919 | 665 | 2,150,000 | 11,500 | 8,370 | 25,000,000 |
| China | 122 | 93 | 163,000 | 14,800 | 11,200 | 16,700,000 |
| France | 324 | 231 | 857,000 | 1,670 | 1,150 | 4,610,000 |
| Iceland | 1,570 | 1,240 | 1,960,000 | 17,300 | 13,500 | 19,300,000 |
| Kazakhstan | 1,830 | 1,410 | 2,520,000 | 16,300 | 12,400 | 18,900,000 |
| Malaysia | 86 | 64 | 123,000 | 5,080 | 3,760 | 5,380,000 |
| Norway | -- | -- | -- | 1,010 | 763 | 1,120,000 |
| Russia | 352 | 268 | 483,000 | 61,600 | 47,200 | 75,100,000 |
| South Africa | 18 | 13 | 50,500 | 1,570 | 1,070 | 3,830,000 |
| Other (12 countries) | 1,010 | 751 | 1,680,000 | 3,580 | 2,630 | 7,730,000 |
| Total | 7,060 | 5,370 | 11,100,000 | 140,000 | 106,000 | 184,000,000 |
| 80%–90% ferrosilicon: | | | | | | |
| Bosnia and Herzegovina | 352 | 301 | 578,000 | 352 | 301 | 578,000 |
| Germany | -- | -- | -- | 27 | 22 | 68,500 |
| Total | 352 | 301 | 578,000 | 379 | 323 | 646,000 |
| More than 90% ferrosilicon: | | | | | | |
| Brazil | 1,910 | 1,780 | 1,090,000 | 3,350 | 3,100 | 1,540,000 |
| China | -- | -- | -- | 52 | 47 | 15,800 |
| France | -- | -- | -- | 140 | 129 | 42,700 |
| Total | 1,910 | 1,780 | 1,090,000 | 3,550 | 3,280 | 1,600,000 |
| Magnesium ferrosilicon: | | | | | | |
| Argentina | 95 | 24 | 94,700 | 655 | 230 | 736,000 |
| Canada | 975 | 447 | 1,790,000 | 11,700 | 5,330 | 20,600,000 |
| China | 50 | 23 | 69,100 | 286 | 133 | 389,000 |
| France | -- | -- | -- | 10 | 5 | 42,500 |
| Germany | 17 | 6 | 48,300 | 100 | 40 | 266,000 |
| India | 147 | 36 | 183,000 | 2,060 | 648 | 2,570,000 |
| Norway | -- | -- | -- | 109 | 52 | 191,000 |
| Total | 1,280 | 537 | 2,190,000 | 14,900 | 6,440 | 24,800,000 |
| Other ferrosilicon: | | | | | | |
| Canada | 1,020 | 347 | 1,280,000 | 14,500 | 5,040 | 12,700,000 |
| China | 64 | 26 | 108,000 | 12,000 | 2,120 | 3,980,000 |
| France | -- | -- | -- | 12 | 6 | 43,400 |
| Germany | 4 | 2 | 20,900 | 54 | 21 | 193,000 |
| India | -- | -- | -- | 74 | 33 | 79,900 |
| Japan | -- | -- | -- | 9 | 4 | 15,000 |
| Russia | 19 | 9 | 26,700 | 139 | 67 | 214,000 |
| Slovakia | -- | -- | -- | 199 | 47 | 254,000 |
| South Africa | -- | -- | -- | 11 | 5 | 15,500 |
| Trinidad and Tobago | -- | -- | -- | 89 | 14 | 34,800 |
| Other (2 countries) | -- | -- | -- | 5 | 2 | 9,020 |
| Total | 1,110 | 383 | 1,440,000 | 27,100 | 7,360 | 17,600,000 |
| Total ferrosilicon | 13,300 | 9,520 | 18,800,000 | 191,000 | 127,000 | 237,000,000 |

See footnotes at end of table.

TABLE 4—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN NOVEMBER 2017^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–November ³ | | |
|---------------------------|--------------|------------------|------------|-------------------------------|------------------|--------------|
| | | | | Gross weight | Contained weight | Value |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| Brazil | 125 | 125 | \$300,000 | 9,160 | 9,160 | \$22,000,000 |
| China | 9 | 9 | 1,090,000 | 76 | 76 | 9,360,000 |
| Denmark | (4) | (4) | 143,000 | 4 | 4 | 1,840,000 |
| Germany | 137 | 137 | 5,380,000 | 752 | 752 | 41,400,000 |
| Japan | 41 | 41 | 1,420,000 | 217 | 217 | 9,960,000 |
| Norway | -- | -- | -- | 96 | 96 | 602,000 |
| Singapore | -- | -- | -- | 7 | 7 | 51,100 |
| Spain | (4) | (4) | 3,860 | 3 | 3 | 25,600 |
| Taiwan | 55 | 55 | 1,950,000 | 492 | 492 | 14,800,000 |
| Ukraine | (4) | (4) | 10,600 | 3 | 3 | 248,000 |
| Other (9 countries) | 2 | 2 | 166,000 | 5 | 5 | 615,000 |
| Total | 370 | 370 | 10,500,000 | 10,800 | 10,800 | 101,000,000 |
| 99.00%–99.99% silicon: | | | | | | |
| Australia | -- | -- | -- | 17,500 | 17,300 | 37,400,000 |
| Bosnia and Herzegovina | 1,750 | 1,740 | 4,030,000 | 4,400 | 4,370 | 9,430,000 |
| Brazil | 6,570 | 6,510 | 17,100,000 | 28,800 | 28,500 | 72,500,000 |
| Canada | 1,250 | 1,250 | 3,350,000 | 20,500 | 20,300 | 53,400,000 |
| France | -- | -- | -- | 626 | 620 | 985,000 |
| Iceland | 96 | 95 | 180,000 | 384 | 380 | 739,000 |
| Kazakhstan | -- | -- | -- | 7,960 | 7,900 | 14,400,000 |
| Norway | 1,080 | 1,070 | 2,390,000 | 5,930 | 5,890 | 13,300,000 |
| South Africa | -- | -- | -- | 975 | 966 | 2,070,000 |
| Thailand | 826 | 821 | 2,040,000 | 5,630 | 5,580 | 12,000,000 |
| Other (6 countries) | 11 | 11 | 19,100 | 361 | 359 | 669,000 |
| Total | 11,600 | 11,500 | 29,100,000 | 92,900 | 92,200 | 217,000,000 |
| Other silicon: | | | | | | |
| Australia | -- | -- | -- | 1,560 | 1,520 | 3,030,000 |
| Brazil | 616 | 609 | 1,600,000 | 8,760 | 8,600 | 20,400,000 |
| Canada | 20 | 20 | 14,000 | 1,020 | 995 | 2,360,000 |
| China | 225 | 217 | 399,000 | 385 | 373 | 679,000 |
| Iceland | -- | -- | -- | 914 | 898 | 1,530,000 |
| Japan | (4) | (4) | 9,080 | 369 | 354 | 526,000 |
| Kazakhstan | -- | -- | -- | 1,240 | 1,210 | 2,100,000 |
| Norway | 491 | 482 | 967,000 | 6,190 | 6,040 | 10,400,000 |
| South Africa | -- | -- | -- | 522 | 508 | 847,000 |
| Thailand | 120 | 117 | 288,000 | 394 | 382 | 864,000 |
| Other (7 countries) | 70 | 67 | 71,700 | 511 | 493 | 841,000 |
| Total | 1,540 | 1,510 | 3,350,000 | 21,900 | 21,400 | 43,600,000 |
| Total silicon metal | 13,500 | 13,400 | 42,900,000 | 126,000 | 124,000 | 361,000,000 |

-- Zero.

¹Presentation of monthly data is based on the "January–November" 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.