

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

Joshua Braunstein (Data)
Telephone: (703) 648-7958
Fax: (703) 648-7975
Email: jbrownstein@usgs.gov

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

SILICON IN JULY 2021

Domestic production of silicon materials was 35,300 metric tons (t) in July 2021, 4% more than June 2021 production and 30% more than July 2020 production (fig. 1, table 1). Net shipments were 23,300 t, 14% less than shipments in June 2021 and 6% more than shipments in July 2020. Total production and net shipments during the first 7 months of 2021 were 5% more and essentially unchanged, respectively, than those during the same period in 2020 (table 1).

Ending stocks were 11,700 t in July 2021. Owing to domestic physical inventory adjustments, these were about half of those in June 2021 and July 2020 (table 1). In July 2021, the leading recipient for silicon metal, more than 99.99% silicon trade category, was Japan (table 3), and the leading import sources for silicon metal, 99.00%–99.99% silicon trade category, were 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.

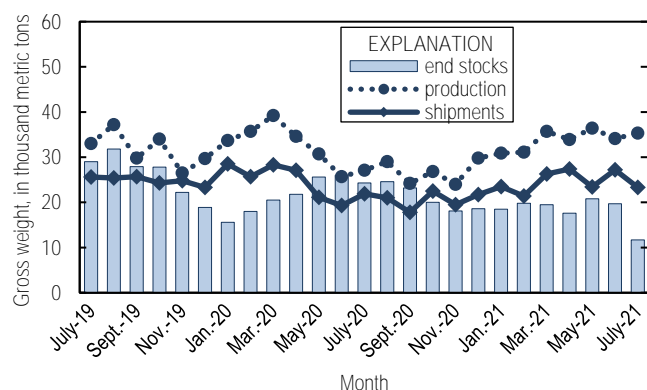


Figure 1. Monthly domestic production of total silicon materials, net shipments, and end stocks from July 2019 through July 2021 (may include revisions to previously published data).

Prices

The average U.S. spot price for silicon metal was 157.25 cents per pound in July 2021, essentially unchanged from the average price in June 2021 and 68% more than the average price in July 2020. The average U.S. spot price for ferrosilicon, 50% grade, was 126.00 cents per pound, unchanged from the average price in June 2021 and 21% more than the average price in July 2020. The average U.S. spot price for ferrosilicon, 75% grade, was 168.75 cents per pound, 11% more than the average price in June 2021 and double that in July 2020 (fig. 2).

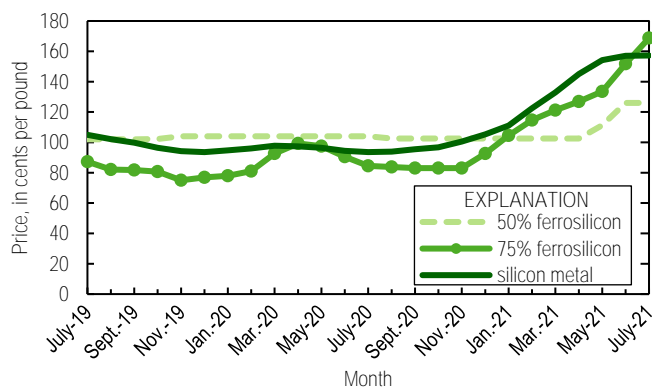


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from July 2019 through July 2021. Source: CRU Group and S&P Global Platts Metals Week.

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TABLE 1
PRODUCTION, SHIPMENTS, AND STOCKS OF SILICON ALLOYS
AND METAL IN THE UNITED STATES^{1,2,3}

(Metric tons, gross weight)

| | Gross production ⁴ | Net shipments | Producers' stocks, end of period |
|------------------|----------------------------------|----------------------|--|
| 2020: | | | |
| January–December | 360,000 | 275,000 | 18,600 |
| January–July | 227,000 ^r | 172,000 ^r | 24,300 ^r |
| July | 27,100 | 21,900 | 24,300 |
| August | 29,000 | 21,000 | 24,600 |
| September | 24,200 | 17,800 | 23,200 |
| October | 26,800 | 22,500 | 20,000 |
| 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 | 35,300 | 23,300 | 11,700 ⁵ |
| January–July | 237,000 | 173,000 | 11,700 ⁵ |

^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.

³Includes U.S. Geological Survey estimates.

⁴Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

⁵Decreased end of period stocks attributable to domestic physical inventory adjustment.

TABLE 2
PRICES FOR FERROSILICON AND SILICON METAL IN JULY 2021

| | | Low | Average | High | Average low, mid, and high |
|---------------------------------------|--------------------------------------|--------|---------|--------|----------------------------|
| Ferrosilicon: | | | | | |
| 50% ferrosilicon ¹ | cents per pound of contained silicon | 125.00 | XX | 127.00 | 125.00–126.00–127.00 |
| 75% ferrosilicon ² | do. | 158.00 | 168.75 | 180.00 | XX |
| Silicon metal, 553 grade ³ | cents per pound | 154.00 | 157.25 | 161.00 | 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 Metals Week, in U.S. warehouse, U.S. origin and imported material. Average price reported for all transactions during the month.

³S&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 JULY 2021^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–July ³ | | |
|--|--------------|------------------|-------------|---------------------------|------------------|-------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| More than 55% silicon: | | | | | | |
| Brazil | 12 | 7 | \$18,500 | 31 | 19 | \$48,100 |
| Canada | 321 | 193 | 611,000 | 2,310 | 1,380 | 4,060,000 |
| Colombia | -- | -- | -- | 2 | 1 | 9,360 |
| Dominican Republic | 93 | 56 | 145,000 | 93 | 56 | 145,000 |
| India | -- | -- | -- | 3 | 2 | 4,180 |
| Japan | 32 | 19 | 108,000 | 32 | 19 | 108,000 |
| Mexico | 101 | 70 | 258,000 | 842 | 538 | 1,840,000 |
| Poland | -- | -- | -- | 3 | 2 | 5,310 |
| Singapore | 1 | 1 | 4,920 | 1 | 1 | 4,920 |
| Total | 560 | 345 | 1,150,000 | 3,310 | 2,020 | 6,230,000 |
| Other ferrosilicon: | | | | | | |
| Belgium | 94 | 43 | 102,000 | 497 | 226 | 467,000 |
| Brazil | 39 | 20 | 76,000 | 403 | 201 | 798,000 |
| Canada | 10 | 5 | 37,300 | 107 | 54 | 360,000 |
| Luxembourg | -- | -- | -- | 40 | 9 | 30,700 |
| Mexico | 274 | 134 | 537,000 | 2,090 | 1,030 | 4,080,000 |
| Spain | 40 | 20 | 62,700 | 197 | 99 | 311,000 |
| Sweden | -- | -- | -- | 100 | 45 | 186,000 |
| Switzerland | 60 | 26 | 113,000 | 300 | 132 | 531,000 |
| Turkey | -- | -- | -- | 280 | 127 | 506,000 |
| United Kingdom | 20 | 9 | 40,000 | 238 | 107 | 435,000 |
| Other [4 countries and (or) localities] | -- | -- | -- | 50 | 24 | 74,600 |
| Total | 536 | 258 | 967,000 | 4,300 | 2,050 | 7,770,000 |
| Total ferrosilicon | 1,100 | 603 | 2,110,000 | 7,610 | 4,070 | 14,000,000 |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| China | 450 | 450 | 9,700,000 | 2,320 | 2,320 | 47,500,000 |
| Germany | 404 | 404 | 9,830,000 | 3,470 | 3,470 | 78,000,000 |
| Japan | 1,650 | 1,650 | 50,100,000 | 13,500 | 13,500 | 281,000,000 |
| Korea, Republic of | 280 | 280 | 8,850,000 | 3,030 | 3,030 | 70,200,000 |
| Malaysia | 289 | 289 | 10,300,000 | 1,580 | 1,580 | 38,600,000 |
| Netherlands | -- | -- | -- | 315 | 315 | 409,000 |
| Norway | 45 | 45 | 895,000 | 714 | 714 | 15,800,000 |
| Singapore | 131 | 131 | 2,710,000 | 955 | 955 | 19,800,000 |
| Taiwan | 269 | 269 | 4,600,000 | 4,360 | 4,360 | 37,900,000 |
| Vietnam | 270 | 270 | 3,730,000 | 2,930 | 2,930 | 35,700,000 |
| Other [35 countries and (or) localities] | 49 | 49 | 2,850,000 | 357 | 357 | 12,700,000 |
| Total | 3,840 | 3,840 | 104,000,000 | 33,600 | 33,600 | 637,000,000 |
| 99.00%–99.99% silicon: | | | | | | |
| China | -- | -- | -- | 12 | 12 | 16,900 |
| France | -- | -- | -- | 34 | 34 | 48,200 |
| Germany | -- | -- | -- | 128 | 127 | 235,000 |
| Japan | 2 | 2 | 2,710 | 8 | 7 | 10,600 |
| Korea, Republic of | 2 | 2 | 2,690 | 42 | 41 | 44,800 |
| Mauritania | -- | -- | -- | 3 | 3 | 4,220 |
| Mexico | -- | -- | -- | 19 | 19 | 36,000 |
| Netherlands | 19 | 19 | 52,700 | 92 | 91 | 131,000 |
| Peru | 2 | 2 | 2,860 | 2 | 2 | 2,860 |
| Singapore | -- | -- | -- | 2 | 2 | 3,330 |
| Other [2 countries and (or) localities] | 2 | 2 | 2,780 | 4 | 4 | 5,550 |
| Total | 27 | 27 | 63,700 | 345 | 342 | 539,000 |

See footnotes at end of table.

TABLE 3—Continued
U.S. EXPORTS OF FERROSILICON AND SILICON METAL IN JULY 2021^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–July ³ | | |
|--|--------------|------------------|-------------|---------------------------|------------------|-------------|
| | | | | Gross weight | Contained weight | Value |
| Metal—Continued: | | | | | | |
| Other silicon: | | | | | | |
| Belgium | 39 | 38 | 46,500 | 200 | 195 | 259,000 |
| Canada | 4 | 3 | 4,680 | 44 | 42 | 137,000 |
| China | 34 | 33 | 44,700 | 159 | 155 | 210,000 |
| Germany | 44 | 43 | 58,400 | 73 | 71 | 104,000 |
| Japan | -- | -- | -- | 37 | 36 | 279,000 |
| Mexico | 2 | 2 | 7,030 | 15 | 15 | 72,000 |
| Netherlands | -- | -- | -- | 128 | 124 | 157,000 |
| South Africa | (4) | (4) | \$8,260 | 49 | 47 | \$84,900 |
| Taiwan | -- | -- | -- | 57 | 54 | 230,000 |
| United Kingdom | -- | -- | -- | 48 | 47 | 67,100 |
| Other [11 countries and (or) localities] | -- | -- | -- | 22 | 21 | 85,300 |
| Total | 123 | 120 | 170,000 | 831 | 806 | 1,690,000 |
| Total silicon metal | 3,990 | 3,990 | 104,000,000 | 34,800 | 34,700 | 640,000,000 |

-- Zero.

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

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 JULY 2021^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–July ³ | | |
|---|--------------|------------------|------------|---------------------------|------------------|-------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| 55%–80% silicon, more than 3% Ca: | | | | | | |
| China | 60 | 33 | \$143,000 | 160 | 99 | \$364,000 |
| France | 54 | 34 | 139,000 | 306 | 185 | 851,000 |
| Germany | 1 | 1 | 2,120 | 1 | 1 | 2,120 |
| Russia | -- | -- | -- | 8 | 4 | 19,600 |
| South Africa | 18 | 11 | 54,800 | 36 | 22 | 79,900 |
| Total | 133 | 78 | 339,000 | 511 | 310 | 1,320,000 |
| 55%–80% silicon, other: | | | | | | |
| Brazil | 690 | 523 | 875,000 | 9,780 | 7,390 | 11,100,000 |
| Canada | 851 | 617 | 1,860,000 | 7,040 | 5,120 | 14,900,000 |
| France | 108 | 69 | 313,000 | 954 | 656 | 2,500,000 |
| Iceland | 419 | 321 | 906,000 | 4,410 | 3,400 | 6,990,000 |
| Kazakhstan | -- | -- | -- | 9,930 | 7,640 | 17,100,000 |
| Malaysia | 905 | 684 | 1,270,000 | 8,150 | 6,130 | 10,200,000 |
| Norway | 396 | 302 | 608,000 | 2,810 | 2,170 | 3,750,000 |
| Paraguay | -- | -- | -- | 1,680 | 1,260 | 1,980,000 |
| Russia | -- | -- | -- | 40,700 | 30,900 | 70,400,000 |
| South Africa | 161 | 112 | 228,000 | 1,440 | 1,040 | 2,370,000 |
| Other [8 countries and (or) localities] | 182 | 132 | 455,000 | 999 | 734 | 2,780,000 |
| Total | 3,710 | 2,760 | 6,510,000 | 87,900 | 66,500 | 144,000,000 |
| 80%–90% ferrosilicon, Germany | -- | -- | -- | 27 | 22 | 25,500 |
| More than 90% ferrosilicon, China | -- | -- | -- | 15 | 14 | 59,100 |
| Magnesium ferrosilicon: | | | | | | |
| Argentina | 38 | 17 | 37,500 | 247 | 98 | 222,000 |
| Brazil | 163 | 62 | 191,000 | 742 | 314 | 901,000 |
| Canada | 867 | 402 | 1,490,000 | 6,800 | 3,140 | 11,700,000 |
| China | -- | -- | -- | 34 | 17 | 70,100 |
| Germany | 54 | 24 | 89,700 | 95 | 40 | 183,000 |
| India | 83 | 38 | 158,000 | 315 | 143 | 560,000 |
| Panama | -- | -- | -- | 49 | 22 | 36,700 |
| South Africa | -- | -- | -- | 130 | 61 | 85,200 |
| Total | 1,200 | 543 | 1,960,000 | 8,410 | 3,830 | 13,800,000 |
| Other ferrosilicon: | | | | | | |
| Canada | 446 | 148 | 551,000 | 4,360 | 1,410 | 5,650,000 |
| China | -- | -- | -- | 58 | 26 | 83,900 |
| France | 18 | 8 | 40,100 | 38 | 18 | 101,000 |
| Germany | -- | -- | -- | 4 | 2 | 20,900 |
| Mexico | -- | -- | -- | 2 | 1 | 4,200 |
| Russia | -- | -- | -- | 103 | 49 | 210,000 |
| Slovakia | -- | -- | -- | 200 | 58 | 346,000 |
| South Africa | -- | -- | -- | 85 | 11 | 125,000 |
| Spain | -- | -- | -- | 25 | 11 | 42,500 |
| Total | 464 | 157 | 591,000 | 4,870 | 1,590 | 6,580,000 |
| Total ferrosilicon | 5,510 | 3,540 | 9,410,000 | 102,000 | 72,200 | 166,000,000 |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| Brazil | 226 | 226 | 529,000 | 878 | 878 | 2,120,000 |
| China | 5 | 5 | 319,000 | 30 | 30 | 2,250,000 |
| Denmark | 1 | 1 | 66,100 | 2 | 2 | 521,000 |
| Germany | 35 | 35 | 4,050,000 | 303 | 303 | 27,800,000 |
| Japan | 3 | 3 | 405,000 | 97 | 97 | 6,660,000 |
| Malaysia | -- | -- | -- | 86 | 86 | 994,000 |
| Norway | -- | -- | -- | 6 | 6 | 90,000 |
| Taiwan | 60 | 60 | 5,890,000 | 321 | 321 | 30,200,000 |
| United Kingdom | 1 | 1 | 4,300 | 3 | 3 | 16,900 |
| Vietnam | 24 | 24 | 61,200 | 74 | 74 | 183,000 |
| Other [8 countries and (or) localities] | (4) | (4) | 3,290 | 3 | 3 | 328,000 |
| Total | 355 | 355 | 11,300,000 | 1,800 | 1,800 | 71,200,000 |
| 99.00%–99.99% silicon: | | | | | | |
| Australia | 720 | 716 | 1,960,000 | 2,900 | 2,880 | 6,980,000 |

See footnotes at end of table.

TABLE 4—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN JULY 2021^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–July ³ | | |
|---|--------------|------------------|-------------|---------------------------|------------------|--------------|
| | | | | Gross weight | Contained weight | Value |
| Metal—Continued: | | | | | | |
| 99.00%–99.99% silicon: | | | | | | |
| Brazil | 2,870 | 2,840 | \$6,790,000 | 13,900 | 13,800 | \$29,800,000 |
| Canada | 2,340 | 2,330 | 5,680,000 | 17,600 | 17,500 | 41,800,000 |
| China | -- | -- | -- | 5 | 5 | 11,100 |
| Germany | -- | -- | -- | 11 | 11 | 32,900 |
| Malaysia | -- | -- | -- | 96 | 95 | 151,000 |
| Norway | 600 | 596 | 1,440,000 | 5,030 | 5,000 | 12,800,000 |
| Switzerland | -- | -- | -- | 20 | 20 | 53,400 |
| Thailand | 448 | 445 | 1,150,000 | 2,560 | 2,550 | 6,230,000 |
| Vietnam | 23 | 23 | 57,700 | 67 | 67 | 165,000 |
| Other [2 countries and (or) localities] | (4) | (4) | 11,300 | (4) | (4) | 13,700 |
| Total | 7,000 | 6,950 | 17,100,000 | 42,200 | 41,900 | 98,000,000 |
| Other silicon: | | | | | | |
| Australia | 192 | 189 | 677,000 | 1,950 | 1,900 | 4,570,000 |
| Belgium | 60 | 58 | 162,000 | 83 | 81 | 220,000 |
| Brazil | 1,450 | 1,420 | 3,710,000 | 4,400 | 4,320 | 10,300,000 |
| China | 16 | 15 | 17,300 | 57 | 54 | 103,000 |
| France | -- | -- | -- | 68 | 65 | 118,000 |
| Germany | -- | -- | -- | 224 | 217 | 670,000 |
| Japan | 30 | 28 | 32,300 | 117 | 112 | 142,000 |
| Netherlands | -- | -- | -- | 83 | 79 | 236,000 |
| Norway | 578 | 563 | 1,100,000 | 3,550 | 3,440 | 5,920,000 |
| Thailand | -- | -- | -- | 336 | 331 | 602,000 |
| Other [5 countries and (or) localities] | 3 | 3 | 3,910 | 123 | 120 | 261,000 |
| Total | 2,330 | 2,270 | 5,700,000 | 11,000 | 10,700 | 23,100,000 |
| Total silicon metal | 9,680 | 9,580 | 34,100,000 | 55,000 | 54,400 | 192,000,000 |

-- Zero.

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

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.