

Mineral Industry Surveys

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SILICON IN APRIL 2022

Domestic production of silicon materials was 32,900 metric tons (t) in April 2022, 15% less than March 2022 production and 9% less than April 2021 production (fig. 1, table 1). Net shipments were 25,500 t, 3% less than shipments in March 2022 and 7% less than those in April 2021. Total production and net shipments during the first 4 months of 2022 were 11% more and 4% more, respectively, than those during the same period in 2021 (fig. 1; table 1). Ending stocks were 18,700 t, 8% less than those in March 2022 and 4% more than those in April 2021.

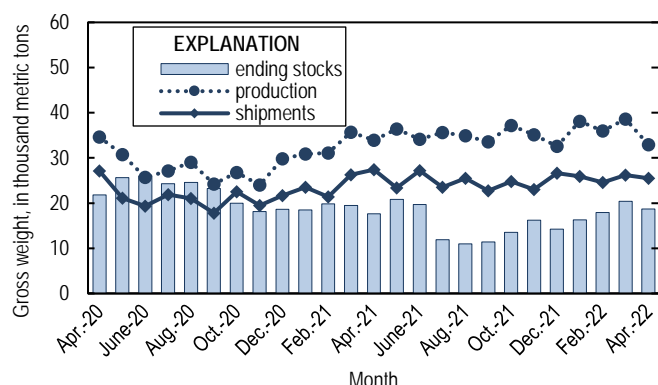


Figure 1. Monthly domestic production of total silicon materials, net shipments, and ending stocks from April 2020 through April 2022 (may include revisions to previously published data).

In April 2022, the leading destinations for silicon metal, more than 99.99% silicon trade category, were Vietnam, Japan, and Malaysia, in descending order of quantity (table 3). The leading import sources for silicon metal, 99.00%–99.99% silicon trade category, were Canada, Brazil, and Norway, in descending order of quantity (table 4). The leading import sources for ferrosilicon, 55%–80% grade, were Malaysia, Kazakhstan, and Brazil, in descending order of quantity on a contained weight basis.

Prices

The average U.S. spot price for silicon metal was 423.13 cents per pound in April 2022, slightly less than the average price in March 2022 and almost three times the average price in April 2021. The average U.S. spot price for ferrosilicon, 75% grade, was 382.50 cents per pound, 8% more than the average price in March 2022 and more than three times that in April 2021 (fig. 2). The average spot price for ferrosilicon, 50% grade, was not available for April 2022.

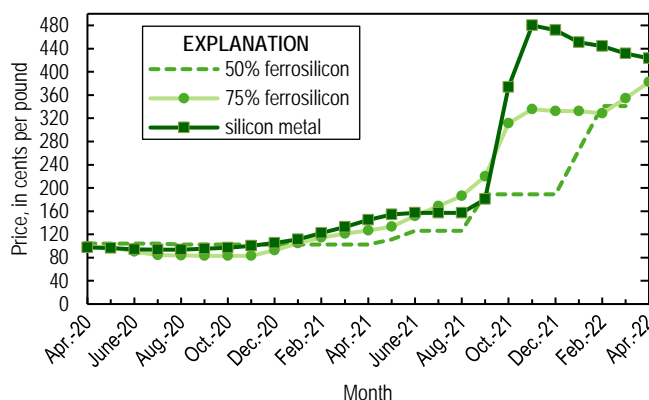


Figure 2. Average monthly spot prices for silicon metal and ferrosilicon 50% and 75% grades, contained silicon, from April 2020 through April 2022. The average spot price for 50% ferrosilicon was not available for April 2022. Source: CRU Group and S&P Global Platts Metals Week.

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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 |
|------------------|----------------------------------|---------------------|--|
| 2021: | | | |
| January–December | 411,000 | 295,000 | 14,200 |
| January–April | 132,000 ^r | 98,600 ^r | 17,600 ^r |
| 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 ⁵ |
| August | 34,900 | 25,500 | 11,000 |
| September | 33,600 | 22,700 | 11,400 |
| October | 37,200 | 24,800 | 13,500 |
| November | 35,100 | 23,000 | 16,200 |
| December | 32,600 | 26,600 | 14,200 |
| 2022: | | | |
| January | 38,100 | 25,900 | 16,300 |
| February | 36,000 | 24,600 | 17,900 |
| March | 38,600 | 26,200 | 20,400 |
| April | 32,900 | 25,500 | 18,700 |
| January–April | 145,000 | 102,000 | 18,700 |

^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 USGS 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 APRIL 2022

| | | Low | Average | High | Average low, mid, and high |
|---------------------------------------|--------------------------------------|--------|---------|--------|----------------------------|
| Ferrosilicon: | | | | | |
| 50% ferrosilicon ¹ | cents per pound of contained silicon | NA | XX | NA | NA |
| 75% ferrosilicon ² | do. | 365.00 | 382.50 | 400.00 | XX |
| Silicon metal, 553 grade ³ | cents per pound | 410.00 | 423.13 | 440.00 | XX |

do. Ditto. NA Not available. 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 APRIL 2022^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–April ³ | | |
|--|--------------|------------------|-------------|----------------------------|------------------|-------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| More than 55% silicon: | | | | | | |
| Canada | 511 | 306 | \$929,000 | 3,480 | 2,090 | \$5,890,000 |
| France | -- | -- | -- | 17 | 10 | 27,000 |
| Germany | -- | -- | -- | 104 | 62 | 162,000 |
| Mexico | 285 | 171 | 450,000 | 642 | 385 | 1,050,000 |
| Singapore | -- | -- | -- | 7 | 4 | 10,500 |
| Total | 796 | 477 | 1,380,000 | 4,250 | 2,550 | 7,140,000 |
| Other ferrosilicon: | | | | | | |
| Belgium | -- | -- | -- | 72 | 29 | 72,000 |
| Canada | 78 | 14 | 97,700 | 956 | 180 | 1,240,000 |
| Costa Rica | -- | -- | -- | 6 | 3 | 8,010 |
| Dominican Republic | 63 | 9 | 78,800 | 63 | 9 | 78,800 |
| France | 20 | 10 | 37,500 | 74 | 32 | 91,500 |
| Ghana | 11 | 6 | 43,100 | 12 | 6 | 48,400 |
| Malaysia | -- | -- | -- | 15 | 7 | 10,000 |
| Mexico | 263 | 101 | 777,000 | 1,100 | 420 | 2,690,000 |
| Turkey | -- | -- | -- | 40 | 18 | 101,000 |
| United Kingdom | -- | -- | -- | 97 | 48 | 406,000 |
| Total | 434 | 139 | 1,030,000 | 2,440 | 753 | 4,750,000 |
| Total ferrosilicon | 1,230 | 617 | 2,410,000 | 6,690 | 3,310 | 11,900,000 |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| China | 230 | 230 | 9,150,000 | 1,190 | 1,190 | 41,300,000 |
| Denmark | 21 | 21 | 1,260,000 | 111 | 111 | 6,340,000 |
| Germany | 245 | 245 | 7,720,000 | 2,470 | 2,470 | 72,200,000 |
| Japan | 1,060 | 1,060 | 39,200,000 | 3,350 | 3,350 | 147,000,000 |
| Korea, Republic of | 57 | 57 | 2,640,000 | 342 | 342 | 15,100,000 |
| Malaysia | 579 | 579 | 22,400,000 | 986 | 986 | 43,000,000 |
| Singapore | 211 | 211 | 5,190,000 | 613 | 613 | 14,500,000 |
| Taiwan | 502 | 502 | 11,600,000 | 1,700 | 1,700 | 32,900,000 |
| Turkey | 65 | 65 | 1,880,000 | 65 | 65 | 1,880,000 |
| Vietnam | 1,060 | 1,060 | 37,600,000 | 3,530 | 3,530 | 123,000,000 |
| Other [24 countries and (or) localities] | 25 | 25 | 898,000 | 116 | 116 | 4,070,000 |
| Total | 4,050 | 4,050 | 140,000,000 | 14,500 | 14,500 | 501,000,000 |
| 99.00%–99.99% silicon: | | | | | | |
| Belgium | -- | -- | -- | 82 | 81 | 220,000 |
| Czechia | -- | -- | -- | 57 | 57 | 169,000 |
| Germany | -- | -- | -- | 184 | 179 | 222,000 |
| Singapore | -- | -- | -- | 2 | 2 | 3,320 |
| United Kingdom | -- | -- | -- | 74 | 73 | 162,000 |
| Total | -- | -- | -- | 399 | 392 | 777,000 |
| Other silicon: | | | | | | |
| Belgium | 39 | 38 | 123,000 | 61 | 59 | 164,000 |
| Canada | 6 | 5 | 50,500 | 66 | 64 | 153,000 |
| China | 6 | 6 | 8,150 | 42 | 41 | 55,400 |
| Germany | 13 | 12 | 124,000 | 61 | 59 | 188,000 |
| Mexico | 4 | 4 | 21,300 | 49 | 48 | 236,000 |
| Netherlands | 58 | 56 | 58,500 | 200 | 195 | 215,000 |
| South Africa | -- | -- | -- | 23 | 22 | 34,300 |
| Sri Lanka | -- | -- | -- | 2 | 2 | 2,860 |
| Trinidad and Tobago | 5 | 5 | 6,250 | 29 | 28 | 50,500 |
| United Kingdom | 3 | 2 | 3,380 | 3 | 3 | 5,970 |
| Other [2 countries and (or) localities] | (4) | (4) | 6,890 | (4) | (4) | 6,890 |
| Total | 133 | 129 | 402,000 | 537 | 522 | 1,110,000 |
| Total silicon metal | 4,180 | 4,180 | 140,000,000 | 15,400 | 15,400 | 503,000,000 |

-- 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 APRIL 2022^{1,2}

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | January–April ³ | | |
|---|--------------|------------------|------------|----------------------------|------------------|-------------|
| | | | | Gross weight | Contained weight | Value |
| Ferrosilicon: | | | | | | |
| 55%–80% silicon, more than 3% Ca: | | | | | | |
| China | -- | -- | -- | 288 | 72 | \$418,000 |
| France | 18 | 11 | \$59,500 | 161 | 95 | 516,000 |
| Norway | 252 | 193 | 1,280,000 | 276 | 210 | 1,350,000 |
| South Africa | 18 | 11 | 41,000 | 171 | 122 | 466,000 |
| Total | 288 | 214 | 1,380,000 | 896 | 499 | 2,750,000 |
| 55%–80% silicon, other: | | | | | | |
| Brazil | 1,580 | 1,170 | 4,050,000 | 7,490 | 5,610 | 18,100,000 |
| Canada | 1,060 | 756 | 3,980,000 | 4,400 | 3,160 | 15,900,000 |
| China | 286 | 214 | 604,000 | 2,510 | 1,910 | 5,440,000 |
| Iceland | 332 | 254 | 1,210,000 | 2,830 | 2,160 | 10,600,000 |
| India | 317 | 230 | 835,000 | 458 | 336 | 1,210,000 |
| Kazakhstan | 1,620 | 1,240 | 8,830,000 | 2,940 | 2,250 | 16,000,000 |
| Malaysia | 4,800 | 3,620 | 21,600,000 | 7,580 | 5,680 | 27,400,000 |
| Norway | 371 | 281 | 1,700,000 | 1,580 | 1,160 | 5,500,000 |
| Russia | -- | -- | -- | 23,400 | 17,800 | 120,000,000 |
| South Africa | 407 | 284 | 1,110,000 | 1,310 | 927 | 3,270,000 |
| Other [9 countries and (or) localities] | 426 | 311 | 1,150,000 | 1,400 | 1,010 | 3,310,000 |
| Total | 11,200 | 8,360 | 45,100,000 | 55,900 | 42,000 | 226,000,000 |
| Magnesium ferrosilicon: | | | | | | |
| Brazil | 552 | 249 | 952,000 | 1,500 | 702 | 3,880,000 |
| Canada | 1,520 | 698 | 5,160,000 | 5,130 | 2,360 | 16,400,000 |
| China | -- | -- | -- | 4 | 1 | 12,600 |
| Germany | 40 | 18 | 80,200 | 68 | 31 | 133,000 |
| India | 206 | 94 | 651,000 | 807 | 368 | 2,520,000 |
| Russia | -- | -- | -- | 93 | 44 | 225,000 |
| Slovakia | -- | -- | -- | 87 | 39 | 113,000 |
| Total | 2,320 | 1,060 | 6,840,000 | 7,690 | 3,540 | 23,300,000 |
| Other ferrosilicon: | | | | | | |
| Brazil | -- | -- | -- | 208 | 91 | 318,000 |
| Canada | 808 | 236 | 1,370,000 | 2,830 | 928 | 5,120,000 |
| China | 75 | 12 | 47,600 | 75 | 12 | 47,600 |
| Germany | 3 | 1 | 6,820 | 9 | 4 | 39,100 |
| Norway | -- | -- | -- | 18 | 8 | 18,000 |
| Paraguay | 10 | 5 | 42,900 | 10 | 5 | 42,900 |
| Slovakia | 44 | 20 | 58,400 | 145 | 64 | 244,000 |
| Turkey | 1 | (4) | 3,390 | 1 | (4) | 3,390 |
| Total | 940 | 274 | 1,530,000 | 3,300 | 1,110 | 5,830,000 |
| Total ferrosilicon | 14,700 | 9,910 | 54,800,000 | 67,800 | 47,200 | 258,000,000 |
| Metal: | | | | | | |
| More than 99.99% silicon: | | | | | | |
| Brazil | 88 | 88 | 317,000 | 852 | 852 | 2,420,000 |
| China | 6 | 6 | 1,420,000 | 28 | 28 | 3,950,000 |
| Denmark | (4) | (4) | 19,700 | 1 | 1 | 112,000 |
| Germany | 63 | 63 | 3,430,000 | 198 | 198 | 18,200,000 |
| Israel | -- | -- | -- | 20 | 20 | 70,900 |
| Japan | 4 | 4 | 1,000,000 | 43 | 43 | 4,220,000 |
| Korea, Republic of | (4) | (4) | 30,600 | (4) | (4) | 144,000 |
| Taiwan | 68 | 68 | 8,360,000 | 175 | 175 | 22,000,000 |
| Thailand | -- | -- | -- | 72 | 72 | 466,000 |
| United Kingdom | -- | -- | -- | 1 | 1 | 12,700 |
| Other [4 countries and (or) localities] | (4) | (4) | 5,520 | (4) | (4) | 29,900 |
| Total | 229 | 229 | 14,600,000 | 1,390 | 1,390 | 51,600,000 |
| 99.00%–99.99% silicon: | | | | | | |
| Australia | -- | -- | -- | 228 | 226 | 1,890,000 |

See footnotes at end of table.

TABLE 4—Continued
U.S. IMPORTS OF FERROSILICON AND SILICON METAL IN APRIL 2021, 2

(Metric tons, unless otherwise specified)

| Country or locality | Gross weight | Contained weight | Value | Gross weight | January–April ³ Contained weight | Value |
|---|--------------|------------------|------------|--------------|--|--------------|
| Metal—Continued: | | | | | | |
| 99.00%–99.99% silicon: | | | | | | |
| Brazil | 347 | 344 | \$834,000 | 6,250 | 6,200 | \$20,900,000 |
| Canada | 822 | 817 | 2,470,000 | 5,910 | 5,870 | 14,700,000 |
| Germany | -- | -- | -- | 175 | 174 | 341,000 |
| Malaysia | -- | -- | -- | 200 | 199 | 659,000 |
| Norway | 264 | 262 | 2,390,000 | 1,320 | 1,310 | 5,250,000 |
| Slovakia | 36 | 36 | 165,000 | 36 | 36 | 165,000 |
| Thailand | 77 | 76 | 608,000 | 950 | 942 | 4,570,000 |
| Turkey | 53 | 52 | 260,000 | 53 | 52 | 260,000 |
| United Kingdom | -- | -- | -- | 20 | 20 | 60,000 |
| Other [2 countries and (or) localities] | -- | -- | -- | 21 | 21 | 58,200 |
| Total | 1,600 | 1,590 | 6,730,000 | 15,200 | 15,100 | 48,800,000 |
| Other silicon: | | | | | | |
| Australia | 298 | 289 | 1,250,000 | 2,570 | 2,470 | 7,480,000 |
| Brazil | 78 | 75 | 85,000 | 78 | 75 | 85,000 |
| Canada | 3,190 | 2,990 | 4,030,000 | 8,110 | 7,500 | 13,200,000 |
| China | 4,310 | 4,220 | 11,900,000 | 9,580 | 8,850 | 33,500,000 |
| Netherlands | 264 | 260 | 174,000 | 264 | 260 | 174,000 |
| Norway | 143 | 137 | 156,000 | 506 | 480 | 578,000 |
| Slovakia | 695 | 677 | 2,710,000 | 2,070 | 1,930 | 6,850,000 |
| Spain | 264 | 262 | 1,160,000 | 754 | 737 | 2,240,000 |
| Thailand | 1,970 | 1,900 | 2,650,000 | 2,570 | 2,470 | 4,420,000 |
| United Kingdom | -- | -- | -- | 170 | 163 | 223,000 |
| Other [5 countries and (or) localities] | -- | -- | -- | 85 | 82 | 147,000 |
| Total | 11,200 | 10,800 | 24,100,000 | 26,800 | 25,000 | 69,000,000 |
| Total silicon metal | 13,100 | 12,600 | 45,500,000 | 43,300 | 41,500 | 169,000,000 |

-- 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.