Mineral Industry Surveys

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SILICON IN JANUARY 2024

Domestic production in January 2024 was withheld to avoid disclosing proprietary data. Net shipments of silicon materials in January 2024 were 24,200 metric tons (t), 20% more than those in December 2023 (table 1). Ending stocks in January 2024 were 17,500 t, 14% less than those in December 2023 and 19% less than those in January 2023.

On a contained weight basis, total ferrosilicon imports were 10,100 t in January 2024, 18% more than those in December 2023 and 23% more than those in January 2023 (fig. 1, table 4). Total silicon metal imports, on a contained weight basis, were 7,080 t in January 2024, 20% more than those in December 2023 and 8% more than those in January 2023.

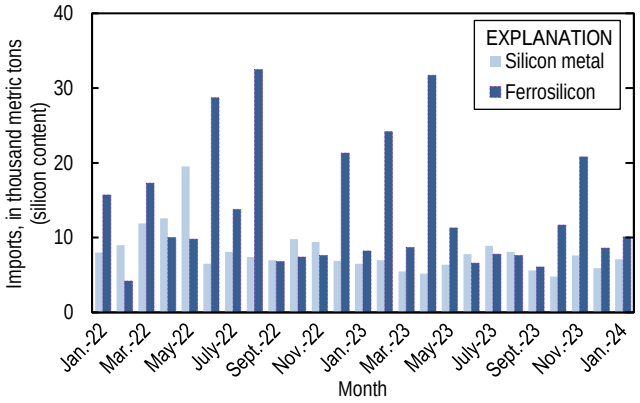

Figure 1. Ferrosilicon and silicon metal imports from January 2022 through January 2024. Source: U.S. Census Bureau.

In January 2024, on a contained-weight basis in descending order of quantity, the leading export destinations for silicon metal, more than 99.99% silicon trade category, were Vietnam, Malaysia, and China (table 3). In January 2024, on a contained-weight basis in descending order of quantity, leading import sources for ferrosilicon, 55%–80% grade, were Brazil, Malaysia, and Canada and the leading import sources for silicon metal, 99.00%–99.99% silicon trade category, were Canada, Brazil, and Thailand (table 4).

Prices

The average U.S. spot price for silicon metal was 146.30 cents per pound in January 2024, 5% more than the average price in December 2023 and 38% less than the average price in January 2023. The average U.S. spot price for ferrosilicon, 75% grade, was 124.00 cents per pound, 14% more than the average price in December 2023 and 32% less than the average price in January 2023 (fig. 2, table 2). The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022 and no other published sources were available.

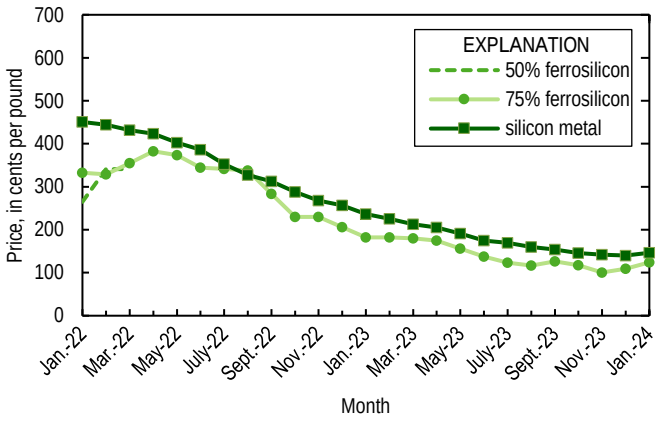

Figure 2. Average monthly spot prices for silicon metal and ferrosilicon, 50% and 75% grades, contained silicon, from January 2022 through January 2024. The average spot prices for ferrosilicon, 50% grade, were discontinued by CRU Group in April 2022. Source: CRU Group and S&P Global Platts Metals Week.

Industry News

The U.S. Department of Commerce and Microchip Technology Inc. reached a non-binding preliminary memorandum of terms (PMT) that would provide Microchip approximately $162 million in federal incentives under the 2022 Creating Helpful Incentives to Produce Semiconductors (CHIPS) Act. The $162 million would be used to modernize and expand Microchip's fabrication facilities in Colorado Springs, CO, and Gresham, OR, tripling the production of semiconductors at these facilities. Microchip's

semiconductors are used in U.S. aerospace, automotive, commercial, defense, and industrial industries. Federal incentives under the CHIPS Act may be awarded following a PMT and a successful due diligence process conducted by the U.S. Department of Commerce (U.S. Department of Commerce, 2024).

Owing to the continued conflict in Ukraine, the Bureau of Industry and Security, U.S. Department of Commerce, strengthened existing sanctions under the Export Administration Regulations (EAR) against Russia and Belarus by expanding the list of items requiring a license for export, reexport to, or transfer within Russia or Belarus. Included in the list of 94 new Harmonized Tariff Schedule (HTS) codes was semiconductor grade silicon metal, silicon metal containing by weight not less than 99.99% of silicon, HTS code 2804.61.0000. The expanded EAR included industrial materials, items needed for manufacturing, and certain aircraft related items. Restrictions on these items were intended to hinder Russia's military activities against Ukraine by further limiting access to items that facilitate its military capabilities and to sources of revenue that could support those activities (Bureau of Industry and Security, 2024).

References Cited

Bureau of Industry and Security, 2024, Implementation of additional sanctions against Russia and Belarus under the Export Administration Regulations (EAR) and refinements to existing controls: Federal Register, v. 89, no. 17, January 25, p. 4804–4815. (Accessed March 18, 2024, at https://www.govinfo.gov/content/pkg/FR-2024-01-25/pdf/2024-01408.pdf.)

U.S. Department of Commerce, 2024, Biden-Harris Administration announces CHIPS preliminary terms with Microchip Technology to strengthen supply chain resilience for America's automotive, defense, and aerospace industries: Washington, DC, U.S. Department of Commerce press release, January 4. (Accessed March 18, 2024, at https://www.commerce.gov/news/press-releases/2024/01/biden-harris-administration-announces-chips-preliminary-terms-microchip.)

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TABLE 1. Production, shipments, and stocks of silicon alloys and metal in the United States.

[Data are rounded to no more than three significant digits; may not add to totals shown. Includes ferrosilicon, miscellaneous silicon alloys, and silicon metal, excluding semiconductor and solar grades, except where noted. Includes USGS estimates. Data are in metric tons, gross weight. W Withheld to avoid disclosing company proprietary data.]

Year to date	Gross production[1]	Net shipments	Producers' stocks, end of period
2023			
January	26,600	W	21,700
February	W	19,500	19,400
March	W	22,900	22,200
April	W	W	20,900
May	W	W	20,800
June	W	19,500	24,800
July	W	W	23,200
August	W	21,900	23,000
September	W	W	22,600
October	28,700	W	22,900
November	26,300	20,500	22,000
December	W	20,100	20,400
January–December	W	245,000	20,400
2024			
January	W	24,200	17,500

[1]Ferrosilicon production includes material consumed in the production of miscellaneous silicon alloys.

TABLE 2. Prices for ferrosilicon and silicon metal in January 2024.

Product	Currency	Low	Average	High
Ferrosilicon (75%)[1]	cents per pound	120.00	124.00	130.00
Silicon metal, 553 grade[2]	cents per pound	140.00	146.30	152.00

[1]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.

[2]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 January 2024.

[Data rounded to no more than three significant digits; may not add totals shown. Data are in metric tons, unless otherwise specified. Source: U.S. Census Bureau.]

Product, country or locality, and Schedule B code	Gross weight	Silicon content	Value (dollars)
Ferrosilicon			
More than 55% silicon (7202.21.0000)			
Brazil	15	9	23,000
Canada	133	80	252,000
Mexico	199	122	305,000
South Africa	38	26	42,000
Total	384	236	622,000
Other ferrosilicon (7202.29.0000)			
Belgium	36	16	34,000
Canada	20	10	64,200
Mexico	115	57	307,000
Turkey	40	18	105,000
Total	210	102	510,000
Total ferrosilicon	595	338	1,130,000
Metal			
More than 99.99% silicon (2804.61.0000)[1]			
China	246	246	8,680,000
Denmark	40	40	6,020,000
Germany	115	115	5,200,000
Japan	216	216	12,300,000
Korea, Republic of	196	196	8,550,000
Malaysia	523	523	5,060,000
Singapore	61	61	1,570,000
Taiwan	112	112	2,230,000
Turkey	45	45	1,250,000
Vietnam	2,760	2,760	56,100,000
Other [10 countries and (or) localities]	10	10	524,000
Total	4,330	4,330	107,000,000
99.00%–99.99% silicon (2804.69.1000)			
China	2	2	3,140
India	4	4	5,550
Japan	4	4	5,750
Korea, Republic of	6	6	8,480
Malaysia	33	33	46,800
Total	49	49	69,700
Other silicon (2804.69.5000)			
Australia	(2)	(2)	4,580
Canada	15	15	20,100
China	28	27	36,500
Germany	6	5	7,260
Mexico	10	10	21,300
Netherlands	76	74	62,500
Sweden	1	1	8,060
Trinidad and Tobago	(2)	(2)	2,600
Vietnam	73	69	860,000
Total	208	201	1,020,000
Total silicon metal	4,590	4,580	109,000,000

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

[2]Less than ½ unit.

TABLE 4. U.S. imports of ferrosilicon and silicon metal in January 2024.

[Data are rounded to no more than three significant digits; may not add to totals shown. Data are in metric tons, unless otherwise specified. Source: U.S. Census Bureau.]

Product, country or locality, and HTS[1] Code	Gross weight	Silicon content	Value (dollars)
Ferrosilicon			
55%–80% silicon, more than 3% Ca (7202.21.1000)			
Canada	38	20	43,300
India	18	14	28,800
Kazakhstan	100	100	135,000
South Africa	10	10	21,200
Total	166	143	228,000
55%–80% silicon, other (7202.21.5000)[2]			
Brazil	5,210	3,960	7,000,000
Canada	2,180	1,600	5,500,000
France	122	90	475,000
Germany	35	25	174,000
Iceland	499	380	784,000
India	179	132	381,000
Malaysia	3,150	2,360	4,190,000
South Africa	54	41	263,000
United Kingdom	29	22	92,500
Vietnam	563	424	688,000
Other [1 country or locality]	21	14	109,000
Total	12,000	9,050	19,700,000
80%–90% ferrosilicon (7202.21.7500)			
Canada	22	19	34,300
More than 90% ferrosilicon (7202.21.9000)			
Canada	13	12	22,700
Magnesium ferrosilicon (7202.29.0010)			
Brazil	169	76	349,000
Canada	1,030	475	3,360,000
India	131	59	222,000
Thailand	146	59	256,000
Total	1,470	669	4,180,000
Other ferrosilicon (7202.29.0050)			
Canada	633	213	1,170,000
Slovakia	20	3	34,900
Spain	31	14	56,800
Total	683	229	1,260,000
Total ferrosilicon	14,400	10,100	25,400,000

TABLE 4—Continued. U.S. imports of ferrosilicon and silicon metal in January 2024.

[Data are rounded to no more than three significant digits; may not add to totals shown. Data are in metric tons, unless otherwise specified. Source: U.S. Census Bureau.]

Product, country or locality, and HTS[1] Code	Gross weight	Silicon content	Value (dollars)
Metal			
More than 99.99% silicon (2804.61.0000)			
Brazil	225	225	$1,260,000
China	([3])	([3])	33,700
Germany	80	80	5,490,000
Japan	36	36	724,000
Malaysia	1	1	15,900
Taiwan	22	22	2,620,000
Ukraine	([3])	([3])	5,520
Vietnam	35	35	81,500
Total	399	399	10,200,000
99.00%–99.99% silicon (2804.69.1000)			
Australia	467	464	1,390,000
Brazil	1,630	1,620	4,780,000
Canada	1,870	1,860	6,560,000
Germany	80	80	191,000
Laos	220	218	496,000
Norway	312	310	1,060,000
Thailand	580	576	1,380,000
Total	5,160	5,120	15,900,000
Other silicon (2804.69.5000)			
Bahrain	8	4	25,400
Brazil	877	860	2,170,000
Canada	([3])	([3])	8,020
China	([3])	([3])	7,550
France	20	19	70,000
Germany	([3])	([3])	6,750
Japan	6	6	26,600
Malaysia	200	197	486,000
Netherlands	([3])	([3])	5,920
Norway	486	475	1,010,000
Total	1,600	1,560	3,810,000
Total silicon metal	7,150	7,080	29,900,000

[1]Harmonized Tariff Schedule of the United States.

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

[3]Less than ½ unit.