Silicon Metal from China

Investigation No. 731-TA-472 (Fifth Review)

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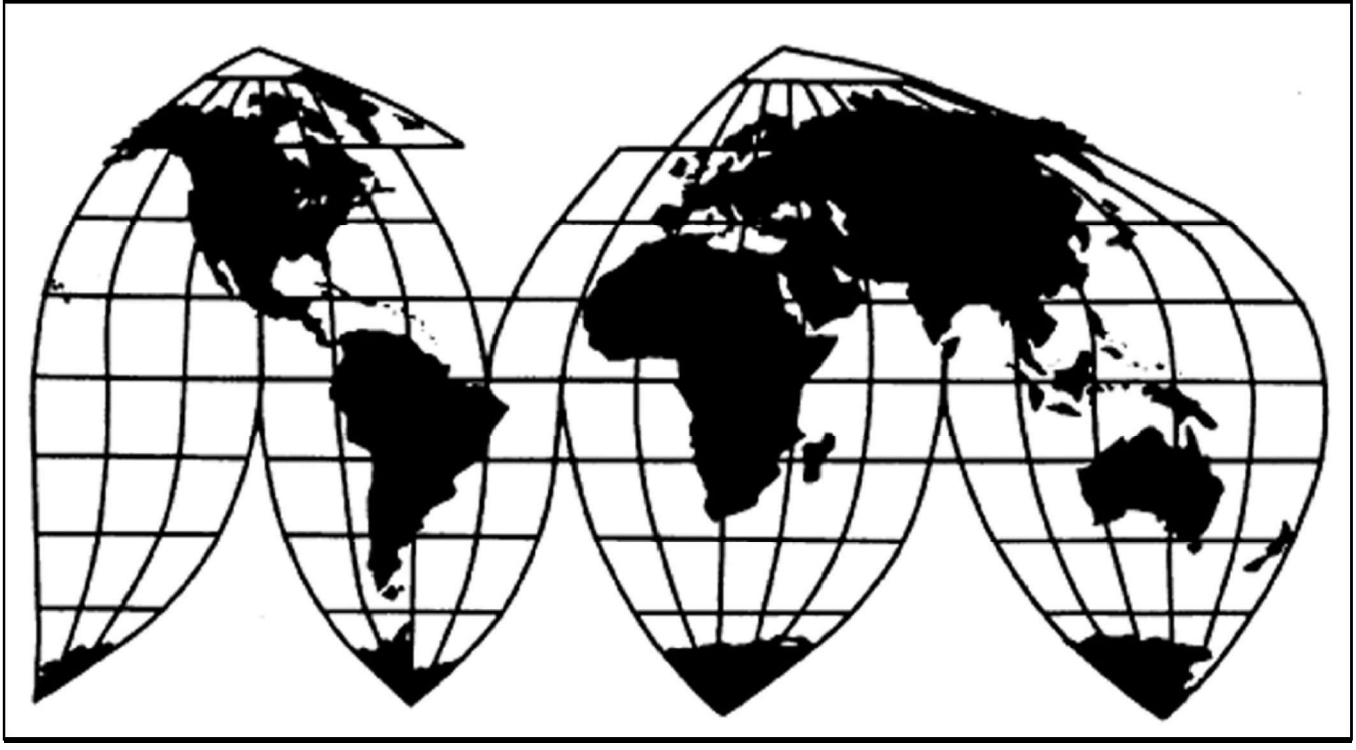
U.S. International Trade Commission



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U.S. International Trade Commission

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation No. 731-TA-472 (Fifth Review)

Silicon Metal from China

DETERMINATION

On the basis of the record[1] developed in the subject five-year review, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that revocation of the antidumping duty order on silicon metal from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

BACKGROUND

The Commission instituted this review on May 1, 2023 (88 FR 26595) and determined on August 4, 2023 that it would conduct an expedited review (88 FR 61613, September 7, 2023).

[1] The record is defined in § 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR 207.2(f)).

Views of the Commission

Based on the record in this five-year review, we determine under section 751(c) of the Tariff Act of 1930, as amended (the "Tariff Act"), that revocation of the antidumping duty order on silicon metal from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

I. Background

Original Investigations. On August 24, 1990, American Alloys, Inc., Elkem Metals Co. ("Elkem"), Silicon Metaltech, Inc., SiMETCO, Inc., and SKW Alloys, Inc. filed antidumping duty petitions on imports of silicon metal from Argentina, Brazil, and China and a countervailing duty petition on imports of silicon metal from Brazil.[1] On June 3, 1991, the Commission determined that an industry in the United States was materially injured by reason of imports of silicon metal from China sold at less than fair value ("LTFV").[2] On June 10, 1991, Commerce issued an antidumping duty order on subject imports of silicon metal from China.[3] The Commission also made affirmative final injury determinations with respect to LTFV imports from Argentina on September 19, 1991, and LTFV imports from Brazil on July 24, 1991.[4]

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[1] On October 3, 1990, the petition was amended to add the following unions as petitioners: Oil, Chemical and Atomic Workers, Local 3-89; International Union of Electrical, Machine and Furniture Workers, AFL-CIO Local 693; Textile Processors, Service Trades, Health Care Professional and Technical Employees International Union, Local 60; and the United Steelworkers of America, Locals 5171, 8538, and 12646. Confidential Report, INV-VV-059 at I-3, n.6 ("CR"); Public Report, *Silicon Metal from China*, Inv. No. 731-TA-472 (Fifth Review), USITC Pub. 5473 (Nov. 2023) at I-3, n.6 ("PR").

[2] *Silicon Metal from the People's Republic of China*, Inv. No. 731-TA-472 (Final), USITC Pub. 2385 (June 1991).

[3] *Antidumping Duty Order: Silicon Metal from the People's Republic of China*, 56 Fed. Reg. 26649 (June 10, 1991).

[4] *Silicon Metal from Brazil*, Inv. No. 731-TA-471 (Final), USITC Pub. 2404 (July 1991); *Silicon Metal from Argentina*, Inv. No. 731-TA-470 (Final), USITC Pub. 2429 (Sept. 1991) ("*Original Investigations*"). Commerce determined that no benefits which constituted countervailable subsidies were being provided to manufacturers, producers, or exporters in Brazil, leading to no countervailing duty order. CR/PR at I-3.

The Brazilian respondents appealed the Commission's affirmative determination with respect to the subject imports from Brazil to the U.S. Court of International Trade ("CIT"), which the CIT affirmed. *Camargo Correa Metais, S.A. v. United States*, 17 CIT 35 (1993).

First Reviews. On November 2, 1999, the Commission instituted the first five-year reviews of the antidumping duty orders on silicon metal from Argentina, Brazil, and China.[5] In January 2001, after conducting full reviews, the Commission determined that revocation of the antidumping duty orders on subject imports of silicon metal from Brazil and China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.[6] It also determined that revocation of the order on silicon metal from Argentina would not be likely to lead continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.[7] As a result, Commerce continued the antidumping duty orders on silicon metal from Brazil and China and revoked the order on silicon metal from Argentina on February 16, 2001.[8]

Second Reviews. On January 3, 2006, the Commission instituted second five-year reviews with respect to the antidumping duty orders on silicon metal from Brazil and China.[9] In December 2006, after conducting full reviews, the Commission determined that revocation of the antidumping duty order on subject imports of silicon metal from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.[10] The Commission also determined that revocation of the order on silicon metal from Brazil would not be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.[11] Commerce

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[5] *Silicon Metal from Argentina, Brazil, and China and Silicomanganese from Brazil, China, and Ukraine*, 64 Fed. Reg. 59209 (Nov. 2, 1999).

[6] *Silicon Metal from Argentina, Brazil, and China*, Inv. No. 731-TA-470-472 (Review), USITC Pub. 3385 at 16–20 (Jan. 2001) ("*First Reviews*").

[7] *First Reviews*, USITC Pub. 3385 at 15.

[8] *Continuation of Antidumping Duty Orders on Silicon Metal from Brazil and China and on Silicomanganese from Brazil and China, and Continuation of Suspended Antidumping Duty Investigation on Silicomanganese from Ukraine*, 66 Fed. Reg. 10669 (Feb. 16, 2001).

[9] *Silicon Metal from Brazil and China*, 71 Fed. Reg. 138 (Jan. 3, 2006).

[10] *Silicon Metal from Brazil and China*, Inv. No. 731-TA-471-472 (Second Review), USITC Pub. 3892 at 22–25 (Dec. 2006) ("*Second Reviews*").

[11] *Second Reviews*, USITC Pub. 3892 at 15–22. On March 19, 2008, the CIT affirmed the Commission's negative determination with respect to Brazil in an appeal brought by domestic producer Globe Metallurgical, Inc. ("Globe Metallurgical"). *Globe Metallurgical Inc. v. United States*, 547 F. Supp. 2d 1371, 1376–80 (Ct. Int'l Trade 2008). *** *Confidential Views of the Commission (Fourth Review)*, EDIS Doc. 645460 at 12–13 (May 18, 2018). The Commission's affirmative determination regarding silicon metal from China was not appealed.

issued a notice of continuation of the order with respect to China and revoked the order on silicon metal from Brazil on December 21, 2006.[12]

Third Review. On November 1, 2011, the Commission instituted a third five-year review with respect to the antidumping duty order on silicon metal from China.[13] In March 2012, after an expedited review, the Commission determined that revocation of the antidumping duty order on subject imports of silicon metal from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.[14] Commerce issued a notice of continuation of this order on April 20, 2012.[15]

Fourth Review. On March 1, 2017, the Commission instituted a fourth five-year review with respect to the antidumping duty order on silicon metal from China.[16] On May 15, 2018, after conducting a full review, the Commission determined that revocation of the antidumping duty order on subject imports of silicon metal from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.[17] Commerce issued a notice of continuation of this order effective June 4, 2018.[18]

The Current Review. On May 1, 2023, the Commission instituted this fifth five-year review of the antidumping duty order on silicon metal from China.[19] The Commission received a joint response to the notice of institution from Globe Specialty Metals, Inc. ("Globe") and Mississippi Silicon LLC ("Mississippi Silicon") (collectively, "Domestic Producers"), which are the only domestic producers of silicon metal.[20] The Commission did not receive a response from

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[12] *Silicon Metal from the People's Republic of China: Continuation of Antidumping Duty Order*, 71 Fed. Reg. 76636 (Dec. 21, 2006); *Silicon Metal from Brazil: Revocation of Antidumping Duty Order*, 71 Fed. Reg. 76635 (Dec. 21. 2006).

[13] *Silicon Metal from China; Institution of a Five-Year Review Concerning the Antidumping Duty Order on Silicon Metal from China*, 76 Fed. Reg. 67476 (Nov. 1, 2011).

[14] *Silicon Metal from China*, Inv. No. 731-TA-472 (Third Review), USITC Pub. 4312 (Mar. 2012) ("*Third Review*").

[15] *Silicon Metal from the People's Republic of China: Continuation of Antidumping Duty Order*, 77 Fed. Reg. 23660 (Apr. 20, 2012).

[16] *Silicon Metal from China; Institution of a Five-Year Review*, 82 Fed. Reg. 12234 (Mar. 1, 2017).

[17] *Silicon Metal from China*, 83 Fed. Reg. 23484 (May 21, 2018); *Silicon Metal from China*, Inv. No. 731-TA-472 (Fourth Review), USITC Pub. 4783 (May 2018) ("*Fourth Review*").

[18] *Silicon Metal from the People's Republic of China: Continuation of Antidumping Duty Order*, 83 Fed. Reg. 25644 (June 4, 2018).

[19] *Silicon Metal from China; Institution of a Five-Year Review*, 88 Fed. Reg. 26595 (May 1, 2023).

[20] *Globe Specialty Metals, Inc. & Mississippi Silicon LLC's Response to the Notice of Institution*, EDIS Doc. 797515 at 9 (May 31, 2023) ("*Domestic Response*").

any respondent interested party.[21] On August 4, 2023, the Commission found the domestic interested party group response to be adequate and the respondent interested party group response to be inadequate.[22] Finding no other circumstances that would warrant conducting a full review, the Commission determined that it would conduct an expedited review of the order.[23] Domestic Producers jointly submitted final comments pursuant to 19 C.F.R. § 207.62(d)(1) regarding the determinations that the Commission should reach.[24]

U.S. industry data in this review are based on information provided by Domestic Producers, which are estimated to have collectively accounted for *** percent of U.S. production of silicon metal in 2022,[25] in their response to the notice of institution and publicly available information compiled by the Commission.[26] U.S. import data are based on official Commerce statistics.[27] Foreign industry data and related information are based on information from the original investigations and subsequent five-year reviews, information submitted by Domestic Producers in their response to the notice of institution, and publicly available information compiled by the Commission.[28] Additionally, three firms, ***, identified by Domestic Producers as U.S. purchasers of silicon metal, responded to the Commission's adequacy phase questionnaires.[29]

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[21] *Explanation of Commission Determination on Adequacy*, EDIS Doc. 802615 (Aug. 4, 2023).

[22] *Explanation of Commission Determination on Adequacy*, EDIS Doc. 802615 (Aug. 4, 2023).

[23] *Explanation of Commission Determination on Adequacy*, EDIS Doc. 802615 (Aug. 4, 2023); *accord Silicon Metal from China; Scheduling of an Expedited Five-Year Review*, 88 Fed. Reg. 61613 (Sept. 7, 2023).

[24] *Silicon Metal from China: Final Comments*, EDIS Doc. 805765 (Oct. 12, 2023) ("*Domestic Final Comments*").

[25] CR/PR at Table I-2.

[26] CR/PR at I-16 to I-18.

[27] CR/PR at I-20 to I-23 & Tables I-6, I-7. Import data are compiled from official Commerce statistics under HTS statistical reporting numbers 2804.69.1000 and 2804.69.5000. *Id.* Official import statistics are based on General Imports, which measure the total physical arrivals of merchandise from foreign countries, whether such merchandise enters the U.S. customs territory immediately or is entered into bonded warehouses or Foreign Trade Zones ("FTZs") under Customs custody. This is consistent with the Commission's approach in the prior five-year review, in which the Commission explained that "U.S. import statistics . . . are based on General Imports (as opposed to imports for consumption) due to issues with country of origin reporting and product classification reporting that result from certain U.S. importers' use of FTZs for their importation of silicon metal." *See Fourth Review*, USITC Pub. 4783 at IV-1, n.4.

[28] CR/PR at I-24 to I-28 & Tables I-8 to I-10. Note that Tables I-9 and I-10 may contain products outside of the scope of this review.

[29] CR/PR at D-3.

II. Domestic Like Product and Industry

A. Domestic Like Product

In making its determination under section 751(c) of the Tariff Act, the Commission defines the "domestic like product" and the "industry."[30] The Tariff Act defines "domestic like product" as "a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation under this subtitle."[31] The Commission's practice in five-year reviews is to examine the domestic like product definition from the original investigation and consider whether the record indicates any reason to revisit the prior findings.[32]

Commerce has defined the imported merchandise within the scope of the order under review as follows:

> The merchandise covered by the Order is silicon metal containing at least 96.00 percent, but less than 99.99 percent of silicon by weight. Also covered by the order is silicon metal containing between 89.00 and 96.00 percent silicon by weight but which contains a higher aluminum content than the silicon metal containing at least 96.00 percent but less than 99.99 percent silicon by weight (58 FR 27542, May 10, 1993). Silicon metal is currently provided for under subheadings 2804.69.10 and 2804.69.50 of the Harmonized Tariff Schedule (HTSUS) as a chemical product, but is commonly referred to as a metal. Semiconductor-grade silicon (silicon metal containing by weight not less than 99.99 percent of silicon and provided for in subheading 2804.61.00 of the HTSUS) is not subject to this Order.

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[30] 19 U.S.C. § 1677(4)(A).

[31] 19 U.S.C. § 1677(10); *see*, *e.g.*, *Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Department of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int'l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int'l Trade 1996); *Torrington Co. v. United States*, 747 F. Supp. 744, 748–49 (Ct. Int'l Trade 1990), *aff'd*, 938 F.2d 1278 (Fed. Cir. 1991); *see also* S. Rep. No. 249, 96th Cong., 1st Sess. 90–91 (1979).

[32] *See*, *e.g.*, *Internal Combustion Industrial Forklift Trucks from Japan*, Inv. No. 731-TA-377 (Second Review), USITC Pub. 3831 at 8–9 (Dec. 2005); *Crawfish Tail Meat from China*, Inv. No. 731-TA-752 (Review), USITC Pub. 3614 at 4 (July 2003); *Steel Concrete Reinforcing Bar from Turkey*, Inv. No. 731-TA-745 (Review), USITC Pub. 3577 at 4 (Feb. 2003).

> Although the HTSUS numbers are provided for convenience and customs purposes, the written description remains dispositive.[33]

The scope of the order under review is the same as it has been in the four prior five-year reviews, although it is broader than in the original investigations as a result of a Commerce scope ruling.[34]

Silicon metal is normally composed almost entirely of elemental silicon, along with small amounts of other elements, such as iron, aluminum, and calcium, and is manufactured and sold in various degrees of purity. Silicon metal is principally used as an alloying agent in aluminum production, and as an input in the production of silicones and polysilicon.[35]

In the original investigations, the Commission defined the domestic like product as "all silicon metal, regardless of grade, having a silicon content of at least 96.00 percent but less than 99.99 percent of silicon by weight, and excluding semiconductor grade silicon," coextensive with the scope of the investigations.[36]

In the full first five-year reviews, no party argued for defining a different domestic like product. The Commission defined the domestic like product as "all silicon metal, regardless of grade, corresponding to the current scope of the orders" (which, as the Commission noted, was broader than the scope of the original investigations).[37]

In the subsequent reviews, the Commission determined that there was no new information in the record of those reviews that warranted reconsideration of the domestic like

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[33] *Silicon Metal from the People's Republic of China: Final Results of the Expedited Fifth Sunset Review of the Antidumping Duty Order*, 88 Fed. Reg. 63933 (Sept. 18, 2023).

[34] The second sentence of the scope definition quoted above was not included in the scope of the original investigations but was included in the scope definition of the first five-year reviews and all subsequent five-year reviews. This added sentence reflects a determination by Commerce in 1993 in response to a request for clarification of the scope of the order concerning silicon metal from China. *See First Reviews*, USITC Pub. 3385 at 5 n.17.

[35] CR/PR at I-10 to I-13.

[36] *Original Investigations*, USITC Pub. 2385 at 10. The Commission rejected an argument in the original investigations by purchaser and captive producer Dow Corning Corporation ("Dow Corning") that the Commission find two separate like products of chemical grade silicon and metallurgical grade silicon, noting that "the Commission has generally declined to separate products of different grades into more than one like product" and adding that there were "no facts on the record which warrant a departure from this practice." *Id.* at 10 n.29.

[37] *First Reviews*, USITC Pub. 3385 at 5 & n.17.

product definition and accordingly continued to define the domestic like product as all silicon metal, regardless of grade, corresponding to the scope of the orders.[38]

In the current review, the record does not contain any new information suggesting that the product characteristics and uses of silicon metal have changed since the original investigations and prior reviews so as to warrant revisiting the Commission's domestic like product definition. Domestic Producers agree with the Commission's definition of the domestic like product from the original investigations and prior reviews.[39] Consequently, we again define a single domestic like product consisting of all silicon metal, regardless of grade, coextensive with Commerce's scope.

B. Domestic Industry

Section 771(4)(A) of the Tariff Act defines the relevant industry as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[40] In defining the domestic industry, the Commission's general practice has been to include in the industry producers of all domestic production of the like product, whether toll-produced, captively consumed, or sold in the domestic merchant market.

In the original investigations, the Commission did not exclude any related parties under 19 U.S.C. § 1677(4)(B) because it found the exclusion of those domestic producers that had imported or purchased subject merchandise would present a distorted picture of the domestic industry, and a review of the operating income data of those producers indicated that the producers were not shielded from subject import competition. The Commission further noted that no party argued that any producer should be excluded from the domestic industry as a related party.[41] Thus, the Commission found one domestic industry consisting of all domestic producers of silicon metal.[42] In each of the subsequent reviews, the Commission again found a single domestic industry consisting of all domestic producers of silicon metal.[43]

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[38] *Second Reviews*, USITC Pub. 3892 at 5; *Third Review*, USITC Pub. 4312 at 6; *Fourth Review*, USITC Pub. 4783 at 8.

[39] *Domestic Response* at 3.

[40] 19 U.S.C. § 1677(4)(A). The definitions in 19 U.S.C. § 1677 are applicable to the entire subtitle containing the antidumping and countervailing duty laws, including 19 U.S.C. §§ 1675 and 1675a. *See* 19 U.S.C. § 1677.

[41] *Original Investigations*, USITC Pub. 2385 at 11–14.

[42] *Original Investigations*, USITC Pub. 2385 at 10–14.

[43] *First Reviews*, USITC Pub. 3385 at 5–6; *Second Reviews*, USITC Pub. 3892 at 5; *Third Review*, USITC Pub. 4312 at 6; *Fourth Review*, USITC Pub. 4783 at 9.

Domestic Producers agree with the Commission's definition of the domestic industry from the original investigations and prior reviews.[44] Neither of the Domestic Producers were importers of subject merchandise during the period of review,[45] and there are no related party issues in this review.[46] Consequently, consistent with our definition of the domestic like product, we again define the domestic industry as all domestic producers of silicon metal.

III. Revocation of the Antidumping Order Would Likely Lead to Continuation or Recurrence of Material Injury Within a Reasonably Foreseeable Time

A. Legal Standards

In a five-year review conducted under section 751(c) of the Tariff Act, Commerce will revoke an antidumping or countervailing duty order unless: (1) it makes a determination that dumping or subsidization is likely to continue or recur and (2) the Commission makes a determination that revocation of the antidumping or countervailing duty order "would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time."[47] The Uruguay Round Agreements Act ("URAA") Statement of Administrative Action ("SAA") states that "under the likelihood standard, the Commission will engage in a counterfactual analysis; it must decide the likely impact in the reasonably foreseeable future of an important change in the status quo – the revocation or termination of a proceeding and the elimination of its restraining effects on volumes and prices of imports."[48] Thus, the likelihood standard is prospective in nature.[49] The U.S. Court of International Trade has found that "likely," as used in

[44] *Domestic Response* at 3.

[45] *Domestic Response*, Exhibit 1 at 4, 5.

[46] *Domestic Response*, Exhibit 1 at 10.

[47] 19 U.S.C. § 1675a(a).

[48] SAA, H.R. Rep. No. 103-316, vol. I at 883–84 (1994). The SAA states that "{t}he likelihood of injury standard applies regardless of the nature of the Commission's original determination (material injury, threat of material injury, or material retardation of an industry). Likewise, the standard applies to suspended investigations that were never completed." *Id*. at 883.

[49] While the SAA states that "a separate determination regarding current material injury is not necessary," it indicates that "the Commission may consider relevant factors such as current and likely continued depressed shipment levels and current and likely continued {sic} prices for the domestic like product in the U.S. market in making its determination of the likelihood of continuation or recurrence of material injury if the order is revoked." SAA at 884.

the five-year review provisions of the Act, means "probable," and the Commission applies that standard in five-year reviews.[50]

The statute states that "the Commission shall consider that the effects of revocation or termination may not be imminent, but may manifest themselves only over a longer period of time."[51] According to the SAA, a "'reasonably foreseeable time' will vary from case-to-case, but normally will exceed the 'imminent' timeframe applicable in a threat of injury analysis in original investigations."[52]

Although the standard in a five-year review is not the same as the standard applied in an original investigation, it contains some of the same fundamental elements. The statute provides that the Commission is to "consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the orders are revoked or the suspended investigation is terminated."[53] It directs the Commission to take into account its prior injury determination, whether any improvement in the state of the industry is related to the order or the suspension agreement under review, whether the industry is vulnerable to material injury if an order is revoked or a suspension agreement is terminated, and any findings by Commerce regarding duty absorption pursuant to 19 U.S.C. § 1675(a)(4).[54] The statute further provides

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[50] *See NMB Singapore Ltd. v. United States*, 288 F. Supp. 2d 1306, 1352 (Ct. Int'l Trade 2003) ("'likely' means probable within the context of 19 U.S.C. § 1675(c) and 19 U.S.C. § 1675a(a)"), *aff'd mem.*, 140 Fed. Appx. 268 (Fed. Cir. 2005); *Nippon Steel Corp. v. United States*, 26 CIT 1416, 1419 (2002) (same); *Usinor Industeel, S.A. v. United States*, 26 CIT 1402, 1404 nn.3, 6 (2002) ("more likely than not" standard is "consistent with the court's opinion;" "the court has not interpreted 'likely' to imply any particular degree of 'certainty'"); *Indorama Chemicals (Thailand) Ltd. v. United States*, 26 CIT 1059, 1070 (2002) ("standard is based on a likelihood of continuation or recurrence of injury, not a certainty"); *Usinor v. United States*, 26 CIT 767, 794 (2002) ("'likely' is tantamount to 'probable,' not merely 'possible'").

[51] 19 U.S.C. § 1675a(a)(5).

[52] SAA at 887. Among the factors that the Commission should consider in this regard are "the fungibility or differentiation within the product in question, the level of substitutability between the imported and domestic products, the channels of distribution used, the methods of contracting (such as spot sales or long-term contracts), and lead times for delivery of goods, as well as other factors that may only manifest themselves in the longer term, such as planned investment and the shifting of production facilities." *Id*.

[53] 19 U.S.C. § 1675a(a)(1).

[54] 19 U.S.C. § 1675a(a)(1). Commerce has not made any duty absorption findings since the imposition of the antidumping order. *See Issues and Decision Memorandum for the Final Results of the Expedited Fifth Sunset Review: Silicon Metal from the People's Republic of China* at 3 (Aug. 24, 2023).

that the presence or absence of any factor that the Commission is required to consider shall not necessarily give decisive guidance with respect to the Commission's determination.[55]

In evaluating the likely volume of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether the likely volume of imports would be significant either in absolute terms or relative to production or consumption in the United States.[56] In doing so, the Commission must consider "all relevant economic factors," including four enumerated factors: (1) any likely increase in production capacity or existing unused production capacity in the exporting country; (2) existing inventories of the subject merchandise, or likely increases in inventories; (3) the existence of barriers to the importation of the subject merchandise into countries other than the United States; and (4) the potential for product shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products.[57]

In evaluating the likely price effects of subject imports if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether there is likely to be significant underselling by the subject imports as compared to the domestic like product and whether the subject imports are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of the domestic like product.[58]

In evaluating the likely impact of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider all relevant economic factors that are likely to have a bearing on the state of the industry in the United States, including but not limited to the following: (1) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity; (2) likely negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment; and (3) likely negative effects on the existing development and production efforts of the industry, including efforts to develop a derivative or

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[55] 19 U.S.C. § 1675a(a)(5). Although the Commission must consider all factors, no one factor is necessarily dispositive. SAA at 886.

[56] 19 U.S.C. § 1675a(a)(2).

[57] 19 U.S.C. § 1675a(a)(2)(A-D).

[58] *See* 19 U.S.C. § 1675a(a)(3). The SAA states that "{c}onsistent with its practice in investigations, in considering the likely price effects of imports in the event of revocation and termination, the Commission may rely on circumstantial, as well as direct, evidence of the adverse effects of unfairly traded imports on domestic prices." SAA at 886.

more advanced version of the domestic like product.[59] All relevant economic factors are to be considered within the context of the business cycle and the conditions of competition that are distinctive to the industry. As instructed by the statute, we have considered the extent to which any improvement in the state of the domestic industry is related to the orders under review and whether the industry is vulnerable to material injury upon revocation.[60]

No respondent interested party participated in this expedited review. The record, therefore, contains limited new information with respect to the silicon metal industry in China. There also is limited information on the silicon metal market in the United States during the period of review. Accordingly, for our determination, we rely as appropriate on the facts available from the original investigations and subsequent reviews, and the limited new information on the record in this fifth five-year review.

B. Conditions of Competition and the Business Cycle

In evaluating the likely impact of the subject imports on the domestic industry if an order is revoked, the statute directs the Commission to consider all relevant economic factors "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[61] The following conditions of competition inform our determinations.

1. The Original Investigations and Prior Five-Year Reviews

Original Investigations. The Commission noted that demand for metallurgical grade silicon metal was inclined to be cyclical because it tended to follow consumption trends in markets of products using large amounts of aluminum, such as the automobile industry. However, the Commission stated that it was more difficult to relate trends in the overall demand for chemical grade silicon metal to trends in the demand for any one product or group of products because of the many uses for silicon metal in the chemical market.[62]

First Reviews. The Commission found that demand for silicon metal, which was derived from the demand for other products, such as chemical products and aluminum, had expanded

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[59] 19 U.S.C. § 1675a(a)(4).

[60] The SAA states that in assessing whether the domestic industry is vulnerable to injury if the order is revoked, the Commission "considers, in addition to imports, other factors that may be contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they may also demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports." SAA at 885.

[61] 19 U.S.C. § 1675a(a)(4).

[62] *Original Investigations*, USITC Pub. 2385 at 14–15 n. 51.

significantly. It stated that the world demand for these end-use products was projected to grow at a strong rate in the foreseeable future.[63] Since the orders were imposed, the domestic industry's capacity, capacity utilization, and shipments had improved. However, a number of U.S. producers had filed for bankruptcy protection since the orders were imposed. During the original investigations, there were eight domestic producers; there were only three at the time of the first reviews. Nonsubject imports supplied a portion of U.S. demand at levels greater than those in the original investigations.[64]

The Commission stated that there were three grades of silicon metal within the scope of the orders: chemical, primary aluminum, and secondary aluminum. Price was an important factor affecting purchases of all grades. Within each grade there was moderate substitutability, assuming certification standards had been met. Chemical and primary aluminum grade silicon metal typically required certification; once a producer was certified, price became an even more important factor in purchasing decisions.[65]

Second Reviews. The Commission stated that there were four broadly defined categories, or grades, of silicon metal, which in descending order of purity were: (1) semiconductor grade; (2) chemical grade; (3) a metallurgical grade used to produce primary aluminum (aluminum produced from ore); and (4) a metallurgical grade used to produce secondary aluminum (aluminum produced from scrap). The Commission observed that higher-grade silicon metal was frequently shipped to a purchaser with a lower specification requirement. The silicon metal content for all four grades was typically at least 98.5 percent. Semiconductor grade silicon, used in the electronics industry, was not covered by the scope of the antidumping duty orders.[66]

The Commission stated that demand for silicon metal was derived from the demand for other products. Silicon metal was used in the chemical industry to produce silanes that were, in turn, used to produce a family of organic chemicals known as silicones. Silicones were used in a wide variety of applications including resins, lubricants, plastomers, anti-foaming agents, and water-repellent compounds, which were employed in the chemical, pharmaceutical, automotive, and aerospace industries.[67] The Commission explained that silicon metal employed in the production of primary and secondary aluminum was used as an alloying agent (it was a required component in aluminum casting alloys) because the silicon increased fluidity

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[63] *First Reviews*, USITC Pub. 3385 at 14.
[64] *First Reviews*, USITC Pub. 3385 at 14.
[65] *First Reviews*, USITC Pub. 3385 at 14–15.
[66] *Second Reviews*, USITC Pub. 3892 at 12 & n.70.
[67] *Second Reviews*, USITC Pub. 3892 at 12.

and reduced shrinkage while it enhanced strength, castability, and weldability. Primary aluminum applications included the manufacture of components requiring higher purity aluminum, such as automobile wheels, while secondary aluminum applications were primarily automotive castings.[68]

The Commission observed that most U.S. producers reported that demand for silicon metal generally increased over the 2000–2005 period of review. Questionnaire data indicated that apparent consumption fluctuated over the period.[69]

The Commission noted some consolidation in the domestic industry, as producer Elkem was sold to Globe Metallurgical in 2005, leaving two U.S. producers, Globe Metallurgical and Simcala, Inc. Additionally, Dow Corning had purchased Simcala, which shipped *** of its production to Dow Corning. The domestic industry's market share decreased over the period of review, while the market share of the nonsubject imports increased.[70]

The record for the second reviews indicated that there was moderate substitutability among subject imports and the domestic like product and that price was an important factor in purchasing decisions. The Commission observed that the record contained no evidence that substitutability between silicon metal from different sources had decreased. There was, however, evidence of improvement in the quality of Chinese product.[71]

Third Review. The Commission stated that the conditions of competition that it relied upon in making its determinations in the second five-year reviews generally continued to apply. Although there were fluctuations in apparent U.S. consumption during the period of review, the Commission stated that apparent consumption was forecast to continue to grow steadily. It found that the volume of nonsubject imports fluctuated but increased overall during the period of review. The volume of subject imports from China fluctuated, but remained below 1,000 short tons during four of the six years in the 2005–2010 period, and many of those imports were Temporary Importations under Bond ("TIBs") that were not subject to antidumping duties.[72] The Commission referenced Globe Metallurgical's assertions that silicon metal was a commodity product, domestic and imported silicon metal of the same grade were completely

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[68] *Second Reviews*, USITC Pub. 3892 at 12–13.

[69] *Second Reviews*, USITC Pub. 3892 at 13.

[70] *Second Reviews*, USITC Pub. 3892 at 13–14.

[71] *Second Reviews*, USITC Pub. 3892 at 14–15 & n.95.

[72] *Third Review*, USITC Pub. 4312 at 10. Under the TIB program, imports are duty-free as articles to be processed under bond for exportation, including processes that result in articles manufactured or produced in the United States. If the imports are subsequently exported (including products made in the United States using the imports as raw materials), the bond is refunded, and no antidumping duties are levied. *Id.* at 11 n.79.

interchangeable, and the U.S. silicon metal market was highly competitive with sales based primarily on price. Based on the record evidence, the Commission found that conditions of competition in the silicon metal market were not likely to change significantly in the reasonably foreseeable future.[73]

Fourth Review. The Commission found that overall U.S. silicon metal demand increased over the period of review, while apparent U.S. consumption had declined overall. Apparent U.S. consumption was *** short tons in 2016.[74] The Commission found that nonsubject imports had the largest share of apparent U.S. consumption, as measured by quantity, in 2014 and 2015, while the domestic industry had the largest share in 2016, interim 2016, and interim 2017. The domestic industry's market share and production capacity increased during the period of review, although capacity was below apparent U.S. consumption throughout the same period.[75]

The Commission found that subject imports were essentially absent from the U.S. market during the period of review, with many of the silicon metal imports from China consisting of TIBs, which were not subject to antidumping duties under the order.[76] It noted, however, that subject producers in China were capable of supplying all segments of the U.S. market.[77] The Commission also recognized that nonsubject imports' share of apparent U.S. consumption declined over the period of review.[78]

The Commission noted Globe Metallurgical's assertions that silicon metal production is capital intensive and domestic producers must maintain high levels of capacity utilization to remain viable.[79] The Commission also observed that there was a high degree of substitutability between domestically produced silicon metal and subject imports and that price was an important factor in purchasing decisions, as well as other factors such as quality, availability, reliability of supply, product consistency, and delivery.[80]

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[73] *Third Review*, USITC Pub. 4312 at 10–11.
[74] *Confidential Views of the Commission (Fourth Review)*, EDIS Doc. 645460 at 23 (May 18, 2018).
[75] *Fourth Review*, USITC Pub. 4783 at 15–16.
[76] *Fourth Review*, USITC Pub. 4783 at 16.
[77] *Fourth Review*, USITC Pub. 4783 at 17.
[78] *Fourth Review*, USITC Pub. 4783 at 16.
[79] *Fourth Review*, USITC Pub. 4783 at 16.
[80] *Fourth Review*, USITC Pub. 4783 at 17.

2. The Current Review

a) Demand Conditions

There is no new information indicating that the factors influencing demand have changed since the original investigations and prior five-year reviews. The record indicates that demand for silicon metal continues to derive from demand for the downstream products that use silicon metal as an input for production, with the primary users of silicon metal consisting of chemical and polysilicon producers and primary and secondary aluminum producers.[81] Domestic Producers state that demand for silicon metal in the United States decreased from 2017 to 2022, primarily due to reduced production of downstream products made with silicon metal and the increasing availability of alternatives to silicon metal within the secondary aluminum industry.[82]

In 2022, apparent U.S. consumption of silicon metal was *** short tons, which was *** than in 1999, 2005, 2010, and 2016 (the terminal years of the preceding four five-year reviews), but *** than in 1990 (the terminal year of the period of investigation).[83]

b) Supply Conditions

Nonsubject imports were the largest source of silicon metal in the U.S. market in 2022, accounting for *** percent of apparent U.S. consumption by quantity that year.[84] Nonsubject imports increased from 166,348 short tons in 2016 to 171,010 short tons in 2022.[85] Brazil, Canada, and Norway were the three largest sources of nonsubject imports during the period of review, while Malaysia was also a major supplier.[86] Antidumping duty orders have covered nonsubject imports from Russia since 2002 and nonsubject imports from Bosnia and Herzegovina, Iceland, and Malaysia since 2020, while a countervailing duty order has covered

[81] CR/PR at I-10 to I-13. Responding purchaser *** reported that ***. *Id.* at D-3.
[82] *Domestic Response* at 9.
[83] CR/PR at Table I-7.
[84] CR/PR at Table I-7.
[85] CR/PR at Table I-7.
[86] CR/PR at Table I-6. In April 2018, the Commission determined that an industry in the United States was not materially injured or threatened with material injury by reason of imports of silicon metal from Australia, Brazil, Kazakhstan, and Norway. *Silicon Metal from Australia, Brazil, Kazakhstan, and Norway*, Inv. Nos. 701-TA-567–569 and 731-TA-1343–1345 (Final), USITC Pub. 4773 (Apr. 2018).

nonsubject imports from Kazakhstan since 2020.[87] Responding purchaser *** reported that ***.[88]

The domestic industry was the second largest source of silicon metal in the U.S. market in 2022, accounting for *** percent of apparent U.S. consumption that year.[89] The domestic industry consists of two producers, Globe and Mississippi Silicon.[90] Domestic production of silicon metal *** from *** short tons in 2016 to *** short tons in 2022.[91] Domestic capacity *** from *** short tons in 2016 to *** short tons in 2022.[92] Domestic Producers attributed the domestic industry's declining production and capacity to the closure of U.S. producer DC Alabama, Inc., the shuttering of Globe's Niagara Falls, New York silicon metal plant, and the temporary idling of Globe's Selma, Alabama plant from 2017 to 2021.[93]

Subject imports were nearly absent from the U.S. market during the period of review, with subject imports from China decreasing from 339 short tons in 2016 to 126 short tons in 2022, when they accounted for *** percent of apparent consumption.[94]

Purchaser *** reported that ***.[95] It also stated that ***.[96] Purchaser *** reported that ***.[97]

c) Substitutability and Other Conditions

The record in this review contains no new information to indicate that the degree of substitutability between the domestic like product and subject imports, or the importance of price in purchasing decisions, have changed since the last review. Domestic Producers argue that subject imports and the domestic like product remain highly substitutable and that price remains an important factor in purchasing decisions, with silicon metal prices transparent and readily available.[98] Accordingly, we find, as in the prior five-year review, that there is a high

[87] CR/PR at Table I-3.
[88] CR/PR at D-3.
[89] CR/PR at Table I-7.
[90] *Domestic Response* at 9.
[91] CR/PR at Table I-5; *accord Domestic Response* at 9.
[92] CR/PR at Table I-5.
[93] *Domestic Response* at 9; *see also* CR/PR at Table I-4.
[94] CR/PR at Table I-7.
[95] CR/PR at D-3.
[96] CR/PR at D-3.
[97] CR/PR at D-3.
[98] *Domestic Response* at 8–9.

degree of substitutability between subject imports and the domestic like product and that price remains an important factor in purchasing decisions.[99]

C. Likely Volume of Subject Imports

1. The Original Investigations and Prior Five-Year Reviews

Original Investigations. The Commission found that cumulated subject imports from Argentina, Brazil, and China increased by 8.0 percent from 1988 to 1989, and 74.6 percent from 1989 to 1990. While the domestic industry's share of U.S. consumption by quantity increased from 71.7 percent in 1988 to 75.2 percent in 1989, it declined to 66.7 percent in 1990. The market share of cumulated subject imports increased, by quantity, substantially throughout the period: from 15.1 percent in 1988 to 17.8 percent in 1989 to 28.0 percent in 1990.[100]

First Reviews. The Commission found that the likely volume of cumulated subject imports from Brazil and China would be significant within a reasonably foreseeable time, given the demonstrated ability of producers in the subject countries in the original investigations to increase imports rapidly into the U.S. market and the likelihood that they would shift more of their production to the U.S. market in the event of revocation.[101] The Commission found that the volume of subject imports from China was 3,324 short tons in 1999, as compared with 26,360 short tons in 1990 in the original investigations.[102] The Commission received questionnaire response from only five subject Chinese producers out of 42 producers that had been identified and found that the record indicated that subject producers in China had significant unused capacity, although it did not contain precise capacity data.[103] The Commission stated that the industry in China was export oriented and that almost all subject imports at that time from China were TIBs. The Commission noted that the EU had an antidumping duty order on imports of silicon metal from China, with a 49 percent duty rate.[104]

Second Reviews. The Commission found that subject imports from China had declined over the period of review yet remained present in the U.S. market. Although no Chinese

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[99] Subject silicon metal originating in China is not subject to additional duties under section 301 of the Trade Act of 1974. CR/PR at I-10.

[100] *Original Investigations*, USITC Pub. 2385 at 26–27. The market share of subject imports from China increased from 4.5 percent in 1988 to 5.4 percent in 1989 and to 12.1 percent in 1990. *Id*. at A-59.

[101] *First Reviews*, USITC Pub. 3385 at 17–18.

[102] *First Reviews*, USITC Pub. 3385 at 17 n.109.

[103] *First Reviews*, USITC Pub. 3385 at 16 & n.94.

[104] *First Reviews*, USITC Pub. 3385 at 16–17.

producers responded to the Commission's questionnaire, the available data indicated that the subject Chinese industry's capacity was at least *** metric tons per year, which represented approximately *** times the level of apparent U.S. consumption in 2005. The Chinese industry's production *** over the period of review, as did total Chinese export shipments, which were approximately *** percent of total Chinese shipments of silicon metal in 2005. The Commission stated that nothing in the record indicated that the Chinese producers would behave differently upon revocation of the order than they did during the original investigations. In view of the Chinese industry's large capacity, significant excess capacity, high and increasing level of production, and export shipments, the Commission found that subject imports from China would likely be significant either in absolute terms or relative to production or consumption in the United States in the reasonably foreseeable future if the order were revoked.[105]

Third Review. In the expedited five-year review, the Commission observed that the majority of imports of silicon metal from China were imported under the TIB program and were not subject to antidumping duties, while subject (non-TIB) imports were less than 500 tons each year, except in 2008, when they totaled 7,534 short tons. The Commission stated that the low volume of subject imports indicated that the antidumping duty order was having a significant restraining order on the volume of subject imports.[106]

The Commission noted that available information concerning the Chinese silicon metal industry indicated that the industry was massive relative to apparent U.S. consumption, with capacity estimated at *** short tons in 2010 and significant unused capacity estimated at *** short tons in 2010, which was several times greater than apparent U.S. consumption in that year. In addition, the Commission found that existing plans called for the construction of *** short tons of additional capacity. Moreover, China was the world's largest producer of ferrosilicon, and the record indicated that Chinese producers could shift from production of ferrosilicon to production of silicon metal.[107]

The Commission found that, although there was a market for silicon metal in China, the Chinese industry remained export oriented and the available data indicated that exports of silicon metal from China constituted approximately *** percent of the industry's total output in

[105] *Second Reviews*, USITC Pub. 3892 at 22–23.

[106] *Third Review*, USITC Pub. 4312 at 12–13.

[107] *Third Review*, USITC Pub. 4312 at 13; *Confidential Views of the Commission (Third Review)*, EDIS Doc. 477478 at 20 (Apr. 4, 2012).

2010.[108] The Commission found that the United States was an attractive export market for subject Chinese producers given its size, the antidumping duty order in the European Union on imports of silicon metal from China, and Globe Metallurgical's assertion that prices in the U.S. market were higher than those in other markets.[109] Accordingly, given the Chinese silicon metal industry's large and increasing size, significant excess capacity, and export orientation, along with the attractiveness of the U.S. market and import restrictions in the European Union, the Commission found that the likely volume of subject imports, both in absolute terms and as a share of the U.S. market, would be significant if the order were revoked.[110]

Fourth Review. The Commission found that the volume of subject imports was minimal during the period of review, with a substantial percentage of the reported imports of silicon metal from China consisting of TIB entries not subject to the order. Despite the low volume of subject imports, the Commission observed that the subject industry had very large capacity, including unused capacity, that far exceeded apparent U.S. consumption, with 200 producers of silicon metal in China providing an estimated production capacity of 4.4 million short tons per year in 2015, including 2.25 million short tons of excess capacity, according to the U.S. Geological Survey ("USGS").[111] The Chinese Non-Ferrous Metals Industry Association ("CNIA") estimated the subject industry's capacity to be 5.3 million short tons in 2017, including 2.9 million short tons of excess capacity.[112] The Commission also noted that production of silicon metal in China had increased substantially during the period of review, with USGS reporting a 44.5 percent increase between 2011 and 2015 and *** reporting a *** percent increase between 2011 and 2016.[113]

The Commission also found that the silicon metal industry in China was export oriented, with official statistics indicating that China was by far the largest exporter of silicon metal in the world in 2014, 2015, and 2016, with several times the volume of exports of the next largest exporting country in each year. While the Commission acknowledged that exports of silicon metal from China declined by 26.3 percent between 2014 and 2016 and domestic demand for

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[108] *Third Review*, USITC Pub. 4312 at 13; *Confidential Views of the Commission (Third Review)*, EDIS Doc. 477478 at 20–21 (Apr. 4, 2012).

[109] *Third Review*, USITC Pub. 4312 at 13.

[110] *Third Review*, USITC Pub. 4312 at 14.

[111] *Fourth Review*, USITC Pub. 4783 at 20–21. Due to the low coverage afforded by responding Chinese producers, the Commission considered other sources of information on the record concerning the subject industry. *Id.*

[112] *Fourth Review*, USITC Pub. 4783 at 20–21.

[113] *Fourth Review*, USITC Pub. 4783 at 21; *Confidential Views of the Commission (Fourth Review)*, EDIS Doc. 645460 at 34–35 (May 18, 2018).

silicon metal in China had increased, the record indicated that the subject industry's export orientation was high and was expected to remain so. The Commission also referenced antidumping duty orders in Australia, Canada, and the European Union restricting silicon metal imports from China, noting that these orders would increase the attractiveness of the U.S. market to subject producers in the event of revocation.[114] Further, the Commission found that existing relationships between Chinese producers and exporters of silicon metal and large purchasers and end users in the United States would likely facilitate the shipment of large volumes of subject imports into the U.S. market in the event of revocation.[115]

Based on these findings, the Commission concluded that subject producers in China would likely direct significant volumes of silicon metal to the U.S. market should the antidumping duty order be revoked.[116]

2. The Current Review

The volume of subject imports was minimal during the period of review, under the disciplining effect of the order. Subject imports were 267 short tons in 2017, 230 short tons in 2018, 216 short tons in 2019, 280 short tons in 2020, 336 short tons in 2021, and 126 short tons in 2022, accounting for *** percent of apparent U.S. consumption that year.[117]

The record in this review contains limited information on the silicon metal industry in China. The available information indicates that subject producers have the means to export subject merchandise to the U.S. market at significant volumes if the order were revoked. The information available indicates that the subject industry possessed substantial and increasing capacity during the period of review. Domestic Producers provided a list of 17 possible producers or exporters of silicon metal in China.[118]

According to information submitted by Domestic Producers, China remained the world's largest producer of silicon metal during the period of review, and the subject industry's capacity

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[114] *Fourth Review*, USITC Pub. 4783 at 22–23. The Commission rejected respondents' argument that subject producers would have no incentive to divert exports to the U.S. market given increasing demand in China's largest Asian export markets, noting that China's exports to its three largest Asian export markets had declined from 2014 to 2016 and that the subject industry also had very large unused capacity with which to increase exports to the United States. *Id.*

[115] *Fourth Review*, USITC Pub. 4783 at 23.

[116] *Fourth Review*, USITC Pub. 4783 at 23.

[117] CR/PR at Tables I-6 & I-7. The record in this review does not contain any information regarding imports of silicon metal from China consisting of TIB entries not subject to the order during the period of review.

[118] *Domestic Response*, Exhibit 1 at 6–8.

and production increased during the period.[119] According to a *** report, subject producers increased production by approximately *** percent between 2017 and 2022.[120] A report from Shanghai Metals Market ("SMM") stated that the subject industry produced 3.5 million metric tons (or approximately 3.9 million short tons) in 2022, a year-on-year increase of 20 percent that created a surplus of 300,000 metric tons (or approximately 330,000 short tons).[121] A report by *** stated that China's silicon metal production capacity in 2022 was *** tons.[122] The report noted that new capacity was expected to increase by approximately *** tons in 2023, with approximately ***.[123] The report also predicted that effective capacity used in 2023 would increase by approximately *** tons.[124]

Additional information provided by Domestic Producers indicates that several subject producers expanded their capacity during the period of review:

- Chinese producer Xinjiang East Hesheng Silicon Industry Co. anticipated commissioning at least twenty new manufacturing facilities by the end of 2022, adding 300,000 metric tons (or approximately 330,000 short tons) in new silicon metal production capacity.[125]
- Inner Mongolia Xinyuan Silicon Material Technology Co. had started operating two new production facilities, with an estimated eight additional facilities to commence operating by the end of 2022, for a total of 150,000 metric tons (or approximately 165,000 short tons) in new silicon metal production capacity.[126]
- Xinjiang GCL Silicon Technology Co. intended to commission a new facility by October 2022 that would add 100,000 metric tons (or approximately 110,000 short tons) in new silicon metal production capacity.[127]

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[119] *Domestic Response* at 13–16.

[120] *Domestic Response* at 15. According to the same report, China accounted for approximately *** precent of the world's silicon metal production in 2022, which was *** than domestic production. *Id.*

[121] *Domestic Response* at 15, Exhibit 7 at 1.

[122] *Domestic Response*, Exhibit 8 at 33. The report does not specify whether the units are metric tons, short tons, or long tons.

[123] *Domestic Response* at 15, Exhibit 8 at 35.

[124] *Domestic Response* at 15, Exhibit 8 at 35.

[125] *Domestic Response* at 15, Exhibit 6 at 3.

[126] *Domestic Response* at 15, Exhibit 6 at 3.

[127] *Domestic Response* at 15, Exhibit 6 at 3.

- Xinjiang Jingheyuan New Materials Co. was operating two new production facilities and expected to bring two more online by the end of 2022, for a total of 60,000 metric tons (or approximately 66,000 short tons) in new silicon metal production capacity.[128]
- Xinjiang Xintao Silicon Industry Co. had completed construction on a new facility that would add 30,000 metric tons (or approximately 33,000 short tons) in new silicon metal production capacity.
- Xinjian Yugui Technology Co. was operating a new production facility adding 15,000 (or approximately 17,000 short tons) in new silicon metal production capacity.[129]

These projects reportedly added a combined 655,000 metric tons (or approximately 722,000 short tons) to China's silicon metal production capacity during the period of review.[130]

Available information from *** also indicates that subject producers possessed inventories of *** short tons in 2022, equivalent to approximately *** percent of apparent U.S. consumption that year, which could be used to increase their exports to the United States substantially after revocation.[131]

The information available also indicates that the Chinese industry is a large exporter. According to GTA data, China was the leading global exporter of silicon metal under harmonized system ("HS") subheading 2804.69, including subject silicon metal and out-of-scope products, throughout the period of review, accounting for approximately 40.3 percent of global exports in 2022.[132] These data also indicate that exports of such merchandise from China totaled 717,624 short tons in 2022.[133]

The U.S. market remains attractive to subject producers. While under the disciplining effect of the order, subject imports maintained a small presence in the U.S. market,[134] indicating that subject producers have maintained customers in the U.S. market.

Trade measures on silicon metal from China in third-country markets would also make the U.S. market relatively more attractive in the event of revocation.[135]

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[128] *Domestic Response* at 15, Exhibit 6 at 3.
[129] *Domestic Response* at 15, Exhibit 6 at 3.
[130] *Domestic Response* at 15, Exhibit 6 at 3; CR/PR at I-25.
[131] *Domestic Response* at 16, Exhibit 8 at 34; CR/PR at Table I-7.
[132] CR/PR at Table I-10.
[133] CR/PR at Tables I-9 & I-10.
[134] CR/PR at Table I-7.
[135] CR/PR at I-27. Silicon metal from China is currently subject to antidumping duty orders in Australia, Canada, and the European Union.

Given the foregoing, including the significant and increasing volume of subject imports during the original investigations, the continued presence of subject imports in the U.S. market during the period of review under the disciplining effect of the order, the Chinese industry's substantial and expanding production capacity, and China's status as the leading global exporter of silicon metal under HS subheading 2804.69, we find that the volume of subject imports from China would likely be significant, both in absolute terms and relative to consumption in the United States, if the order were revoked.[136]

D. Likely Price Effects

1. The Original Investigations and Prior Five-Year Reviews

Original Investigations. The Commission found that the average unit value ("AUV") of imports from the three subject countries decreased throughout the period of investigation. Spot prices for sales to secondary aluminum producers by suppliers of domestic product and subject imports fluctuated in 1988 and 1989, but when domestic prices recovered in 1990, import prices generally continued to decline. Spot market prices for domestic sales to primary aluminum producers declined by 4.7 percent during the period of investigation.[137] The Commission found that there was significant underselling by the subject imports throughout the period. In sales of secondary aluminum grade silicon metal, cumulated subject imports undersold the domestic product in 25 out of 35 quarterly price comparisons, and the Commission found the underselling to be particularly significant in light of the generally declining prices for the domestic product.[138] The Commission found that domestic producers' prices had been suppressed relative to costs, as indicated in the steady increase in the domestic industry's ratio of the cost of goods sold to net sales over the period.[139]

First Reviews. The Commission found that the likely significant volumes of cumulated subject imports from Brazil and China would likely undersell the domestic like product to a significant degree and have significant price suppressing and depressing effects within a reasonably foreseeable time if the orders were revoked.[140] The Commission found that prices

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[136] The record of these expedited reviews does not contain information concerning the potential for product-shifting in the Chinese industry.

[137] *Original Investigations*, USITC Pub. 2385 at 27.

[138] *Original Investigations*, USITC Pub. 2385 at 27–28. Subject imports from China undersold the domestic product in nine of 12 quarterly comparisons. *Id*. at A-72.

[139] *Original Investigations*, USITC Pub. 2385 at 28.

[140] *First Reviews*, USITC Pub. 3385 at 18.

generally trended downward during the period of review, although some grades showed increases toward the end of the period, and that domestic producers had to renegotiate long-term contracts with major customers to adjust prices downward. While the limited pricing data showed that subject imports from Brazil undersold the domestic like product, prices for silicon metal from China were primarily for secondary aluminum, brought into the United States under TIB and not subject to antidumping duties.[141]

Second Reviews. There were no pricing comparisons available for subject imports from China, but the Commission stated that the low unit values of the TIB imports from China not subject to duties provided some indication of the likely prices of subject merchandise upon revocation of the order. The Commission also pointed to prices for Chinese silicon metal reported in the publication *Metal Bulletin,* which showed that the price of Chinese silicon metal was below the price of U.S. silicon metal in all months for which such data were available between 2000 and 2006.[142]

The Commission stated that the quality of subject imports from China had improved since the first five-year reviews, which rendered subject imports more interchangeable with the domestic product and made it more likely that U.S. purchasers would buy increased volumes of the lower-priced subject Chinese imports upon revocation of the order. The Commission found that data from the original investigations and first reviews indicated that the likely significant increased volumes of subject imports from China were likely to enter the U.S. market at prices that would significantly undersell the domestic product as well as significantly depress or suppress domestic prices within a reasonably foreseeable time if the order were revoked.[143]

Third Review. In the expedited five-year review, the Commission collected no new product-specific pricing information but observed that domestic silicon metal prices fell from 2008 to 2009 because of the economic downturn and recovered in the second half of 2009 and in 2010. The Commission found that prices of exports of silicon metal from China to all markets were well below prevailing prices in the U.S. market. The Commission found that, if the order were revoked, it was likely that subject producers would resume their pattern of underselling from the original investigations in order to increase their share of the U.S. market.[144] The Commission concluded that, given the likely significant volume of subject imports, the importance of price in the U.S. silicon metal market, the substitutability of subject imports and

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[141] *First Reviews*, USITC Pub. 3385 at 18.
[142] *Second Reviews*, USITC Pub. 3892 at 24.
[143] *Second Reviews*, USITC Pub. 3892 at 24.
[144] *Third Review*, USITC Pub. 4312 at 15–16.

the domestic like product, and past pricing patterns, it was likely that increased volumes of subject imports from China would enter at prices that would significantly undersell the domestic product as well as significantly depress or suppress domestic prices within a reasonably foreseeable time if the order were revoked.[145]

Fourth Review. There were no pricing comparisons available for subject imports from China.[146] The Commission noted, however, that eight of nine responding purchasers reported that the price of domestically produced silicon metal was higher than the price of silicon metal imported from China.[147] Further, the Commission found that revocation of the order would likely cause significant underselling by subject imports, as in the original investigations, because suppliers of subject imports would need to offer low prices to increase their sales and market share. The Commission found that, given the importance of price in purchasing decisions and the high degree of substitutability between domestically produced silicon metal and subject imports, the increasing volumes of low-priced subject imports that were likely after revocation would require the domestic industry to cut prices and/or restrain price increases when its costs increased in order to retain sales. Thus, the Commission concluded that subject imports would likely have significant price effects after revocation.[148]

2. The Current Review

As discussed in section III.B.2.c above, we have found that there is a high degree of substitutability between domestically produced silicon metal and subject imports and that price is an important factor in purchasing decisions for silicon metal.

The record in this expedited review does not contain new product-specific pricing information. Based on the available information, including the high degree of substitutability between the domestic like product and subject imports and the importance of price in purchasing decisions, we find that, if the order were revoked, significant volumes of subject imports would likely undersell the domestic like product, as they did in the original

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[145] *Third Review*, USITC Pub. 4312 at 16.

[146] *Fourth Review*, USITC Pub. 4783 at 25.

[147] *Fourth Review*, USITC Pub. 4783 at 26. The Commission accorded little weight to respondents' secondary information concerning the prices of subject producers, purporting to show rising prices in line with international prices due to higher production costs in China. *Id.*

[148] *Fourth Review*, USITC Pub. 4783 at 26.

investigations, to gain market share.[149] Absent the discipline of the order, the significant volumes of low-priced subject imports would likely take sales and market share from domestic producers and/or force the domestic industry to cut prices or forego price increases necessary to cover increasing costs, thereby depressing or suppressing prices for the domestic like product. Consequently, we find that if the order were revoked, subject imports would likely have significant price effects.

E. Likely Impact

1. The Original Investigations and Prior Five-Year Reviews

The Original Investigations. The Commission noted that the domestic producers had in a number of cases been unable to modernize their facilities, had curtailed expansion, and were experiencing difficulty in raising capital due to the effects of the cumulated subject imports.[150] In addition, the Commission found that the domestic industry's share of apparent U.S. consumption decreased during the period, while production and employment data were mixed. The Commission found that the industry's net sales had declined as had its aggregate gross profit and gross profit margins, and its operating and net return on total assets suffered steep declines during the period.[151] Thus, the Commission found material injury by reason of the subject imports.[152]

First Reviews. The Commission found that the domestic industry was vulnerable to material injury should the orders be revoked, noting that several firms had declared bankruptcy and two domestic producers had closed during the period of review. Although the Commission stated that the domestic industry's condition had improved since the orders were imposed, it found that the gains had eroded over the period of review, as the industry experienced declines in capacity utilization, production, shipments, net sales, several employment indicators, and capital expenditures. The Commission found that the domestic industry's likely price and volume declines as a result of cumulated subject imports from Brazil and China would likely

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[149] As also detailed below, the Commission notes that in its expedited review of the antidumping duty order, Commerce determined that revocation of the order would result in the continuation or recurrence of dumping, with margins of up to 139.49 percent. *Silicon Metal from the People's Republic of China: Final Results of the Expedited Fifth Sunset Review of the Antidumping Duty Order*, 88 Fed. Reg. 63933, 63934 (Sept. 18, 2023).

[150] *Original Investigations*, USITC Pub. 2385 at 28.

[151] *Original Investigations*, USITC Pub. 2385 at 15–18.

[152] *Original Investigations*, USITC Pub. 2385 at 28.

have a significant adverse impact on the production, shipment, sales, and revenue levels of the domestic industry, and those reductions would have a direct adverse impact on the industry's profitability as well as its ability to raise capital and maintain necessary capital investments, and would result in commensurate employment declines for domestic firms.[153]

Second Reviews. The Commission did not find the domestic industry to be vulnerable, stating that the industry's financial indicators showed significant improvement, especially toward the end of the period of review, which the domestic industry ascribed, at least in part, to the antidumping duty order that was imposed on imports of silicon metal from Russia in 2003.[154] Although demand was projected to grow, the Commission found that the likely substantial volume and price effects of the subject imports from China would have a significant negative impact on the production, shipment, sales, and revenue levels of the domestic industry. It stated that these reductions were likely to have a direct adverse impact on the industry's profitability as well as its ability to raise capital and maintain necessary capital investments, and it was likely that revocation of the order would also result in commensurate employment declines for domestic firms. Based on the facts available, the Commission concluded that if the order were revoked, the circumstances present during the original investigation and first review period would recur and there would be a significant impact on the domestic industry.[155]

Third Review. In the expedited five-year review, the Commission observed that it had limited information regarding the domestic industry's financial performance, since it had collected data for only 2010, and stated that the limited record was insufficient for it to make a finding as to whether the domestic industry was vulnerable to material injury.[156] The Commission found that the domestic industry was smaller in size than it was in the original investigations, and its capacity, production, capacity utilization rate, U.S. shipments, and market share were all lower in 2010 than they had been in 2005. However, the Commission stated that the domestic industry was *** and its financial performance was better in 2010 than it had been in 2005.[157]

The Commission concluded that should the order be revoked, the likely adverse volume and price effects would likely have a significant impact on the production, shipment, sales,

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[153] *First Reviews*, USITC Pub. 3385 at 19–20.

[154] *Second Reviews*, USITC Pub. 3892 at 21, 24.

[155] *Second Reviews*, USITC Pub. 3892 at 23.

[156] *Third Review*, USITC Pub. 4312 at 18.

[157] *Third Review*, USITC Pub. 4312 at 18; *Confidential Views of the Commission (Third Review)*, EDIS Doc. 477478 at 29 (Apr. 4, 2012).

market share, and revenues of the domestic industry, and that declines in those performance indicators would have a direct adverse impact on the industry's profitability and employment, as well as its ability to raise capital, to make and maintain necessary capital investments, and to fund research and development.[158]

In its analysis of the role of factors other than subject imports, the Commission noted that market share of nonsubject imports was higher, at *** percent, in 2010 than it had been at *** percent in 2005, but it found that this increase ***. Moreover, the Commission found no evidence that the presence of nonsubject imports in the U.S. market would prevent subject imports from entering the U.S. market at injurious levels and prices and found that the expected increase in subject imports would be at the expense of the domestic industry even if nonsubject imports were also impacted. The Commission found that demand was forecast to continue to grow modestly and therefore was not expected to have a negative impact on the domestic industry.[159]

Fourth Review. The Commission observed that most of the domestic industry's trade and employment indicators increased or remained stable over the period of review, while its financial indicators had deteriorated overall during the period and declined sharply in 2016.[160] The Commission found that revocation of the order would likely result in a significant increase in subject import volume, which would likely have adverse price effects on the domestic industry.[161] The Commission observed that the likely significant volume of the cumulated subject imports would likely have an adverse impact on the production, shipments, sales, market share, and revenues of the domestic industry. In turn, those reductions would likely have a direct adverse impact on the industry's profitability and employment, as well as its ability to raise capital and make and maintain necessary capital investments. The Commission therefore concluded that if the order were revoked, subject imports from China would likely have a significant impact on the domestic industry within a reasonably foreseeable time.[162]

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[158] *Third Review*, USITC Pub. 4312 at 19.

[159] *Third Review*, USITC Pub. 4312 at 19; *Confidential Views of the Commission (Third Review)*, EDIS Doc. 477478 at 30–31 (Apr. 4, 2012).

[160] *Fourth Review*, USITC Pub. 4783 at 28–29.

[161] *Fourth Review*, USITC Pub. 4783 at 30. The Commission rejected respondents' argument that subject import competition would be attenuated after revocation by the domestic industry's alleged focus on different end uses than subject imports as unsupported by the record. *Id.* As the Commission explained, the record indicated that the domestic industry served all segments of the U.S. market and that subject producers were capable of supplying all segments of the U.S. market. *Id.*

[162] *Fourth Review*, USITC Pub. 4783 at 30.

Considering the role of nonsubject imports in the U.S. market, the Commission found that the volume and market share of nonsubject imports had declined during the period of review, although they were higher in interim 2017 than in interim 2016.[163] The Commission referenced its recent antidumping and countervailing duty investigations regarding imports of silicon metal from Australia, Brazil, Kazakhstan, and Norway, where it determined that silicon metal imported from those countries did not materially injure or threaten the domestic industry.[164] Because of the negative determinations in those investigations, the Commission concluded that nonsubject imports would not likely be a source of injury to the domestic industry if the order were revoked.[165]

2. The Current Review[166]

The record in this expedited review contains limited information concerning the domestic industry's performance since the prior five-year review of the subject order.

The information available indicates that the domestic industry's performance was *** in terms of trade measures *** in terms of financial measures in 2022, as compared to its performance in the last years of the periods examined in the prior proceedings.[167] The domestic industry's capacity, at *** short tons, production, at *** short tons, and capacity utilization, at *** percent, were all *** in 2022 than in the prior proceedings.[168] The domestic industry's U.S. shipments of silicon metal, at *** short tons, and share of apparent U.S. consumption, at *** percent, were also lower in 2022 than in the prior proceedings with the exception of the industry's market share in 2010.[169]

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[163] *Fourth Review*, USITC Pub. 4783 at 30.

[164] *Fourth Review*, USITC Pub. 4783 at 30–31.

[165] *Fourth Review*, USITC Pub. 4783 at 31.

[166] In its expedited review of the antidumping duty order, Commerce determined that revocation of the order would result in the continuation or recurrence of dumping, with margins of up to 139.49 percent. *Silicon Metal from the People's Republic of China: Final Results of the Expedited Fifth Sunset Review of the Antidumping Duty Order*, 88 Fed. Reg. 63933, 63934 (Sept. 18, 2023).

[167] CR/PR at Table I-5.

[168] CR/PR at Table I-5. The domestic industry's capacity was 183,174 short tons in 1990, 236,857 short tons in 1999, *** short tons in 2005, *** short tons in 2010, and *** short tons in 2016. *Id.* The domestic industry's production was 157,218 short tons in 1990, 209,117 short tons in 1999, *** short tons in 2005, *** short tons in 2010, and *** short tons in 2016. *Id.* The domestic industry's capacity utilization was 85.8 percent in 1990, 88.3 percent in 1999, *** percent in 2005, *** percent in 2010, and *** percent in 2016. *Id.*

[169] CR/PR at Table I-7. The domestic industry's U.S. shipments were 144,729 short tons in 1990, 203,342 short tons in 1999, *** short tons in 2005, *** short tons in 2010, and *** short tons in 2016. (Continued…)

The domestic industry's net sales value of $*** in 2022, however, was *** than in the prior proceedings.[170] The industry's gross profit of $***, operating income of $***, and operating-income-to-net-sales ratio of *** percent were all *** in 2022 than in the prior proceedings.[171] This limited information is insufficient for us to make a finding as to whether the domestic industry is vulnerable to the continuation or recurrence of material injury in the event of revocation of this order.

Based on the information available on the record, we find that revocation of the order would likely result in a significant volume of subject imports that would likely undersell the domestic like product to a significant degree. Given the high degree of substitutability between the domestic like product and subject imports and the importance of price in purchasing decisions, significant volumes of low-priced subject imports would likely capture sales and market share from the domestic industry and/or depress or suppress prices to a significant degree for the domestic like product. The likely significant volume of low-priced subject imports and their adverse price effects would likely have a significant adverse impact on the production, shipments, sales, market share and revenues of the domestic industry, which, in turn, would have a direct adverse impact on the industry's profitability and employment, as well as its ability to raise capital and make and maintain necessary capital investments. We thus conclude that, if the order were revoked, subject imports from China would be likely to have a significant impact on the domestic industry within a reasonably foreseeable time.

We have also considered the role of factors other than subject imports, including the presence of nonsubject imports. Nonsubject imports maintained a substantial presence in the U.S. market during the period of review, accounting for *** percent of apparent U.S consumption in 2022.[172] The record provides no indication, however, that the presence of nonsubject imports would prevent subject imports from China from significantly increasing

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Id. The domestic industry's share of apparent U.S. consumption was 66.7 percent in 1990, 61.7 percent in 1999, *** percent in 2005, *** percent in 2010, and *** percent in 2016. *Id.*

[170] CR/PR at Table I-5. The domestic industry's net sales were $168.7 million in 1990, $*** in 1999, $*** in 2005, $*** in 2010, and $*** in 2016. *Id.*

[171] CR/PR at Table I-5. The domestic industry's gross profit was $8.8 million in 1990, $*** in 1999, $*** in 2005, $*** in 2010, and $*** in 2016. *Id.* The domestic industry had operating losses of $1.7 million in 1990 ***, and it had operating incomes of ***. *Id.* The domestic industry's operating-income-to-net-sales ratio was negative 1.0 percent in 1990, *** percent in 1999, *** percent in 2005, *** percent in 2010, and *** percent in 2016. *Id.*

[172] CR/PR at Table I-7. The volume of nonsubject imports fluctuated during the period of review, declining from 173,105 short tons in 2017 to 133,806 short tons in 2018, increasing to 157,517 short tons in 2019, declining to 138,586 short tons in 2020, and then increasing to 140,139 short tons in 2021 and 171,010 short tons in 2022. CR/PR at Table I-6.

their presence in the U.S. market after revocation. In light of the high degree of substitutability between subject imports and the domestic like product and the importance of price to purchasers, the significant volume of low-priced subject imports that we have found likely after revocation would likely take market share from the domestic industry, at least in part, as well as potentially from nonsubject imports, and/or force domestic producers to either lower prices or forgo price increases to retain market share. Consequently, we find that any future effects of nonsubject imports would be distinct from the likely effects attributable to subject imports.

In addition, the Commission observes that apparent U.S. consumption of silicon metal declined by *** percent between 2016 (the terminal year of the fourth five-year review) and 2022.[173] As noted above, Domestic Producers state that demand for silicon metal in the United States decreased primarily due to reduced production of downstream products made with silicon metal and the increasing availability of alternatives to silicon metal within the secondary aluminum industry.[174] Given the high degree of substitutability between subject imports and the domestic like product and the importance of price to purchasers, declining demand would not prevent low-priced subject imports from China from significantly increasing their presence in the U.S. market after revocation of the order, but rather would exacerbate the likely adverse impact of subject imports on the domestic industry in a smaller U.S. market.

IV. Conclusion

For the foregoing reasons, we determine that revocation of the antidumping duty order on silicon metal from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

[173] CR/PR at Table I-7.

[174] *Domestic Response* at 9. Responding purchaser *** reported that ***. CR/PR at D-3.

Information obtained in this review

Background

On May 1, 2023, the U.S. International Trade Commission ("Commission") gave notice, pursuant to section 751(c) of the Tariff Act of 1930, as amended ("the Act"),[1] that it had instituted a review to determine whether revocation of the antidumping duty order on silicon metal from China would likely lead to the continuation or recurrence of material injury.[2] All interested parties were requested to respond to this notice by submitting certain information requested by the Commission.[3] [4] Table I-1 presents information relating to the background and schedule of this proceeding:

Table I-1
Silicon metal: Information relating to the background and schedule of this proceeding

Effective date	Action
May 1, 2023	Notice of initiation by Commerce (88 FR 26522, May 1, 2023)
May 1, 2023	Notice of institution by Commission (88 FR 26595, May 1, 2023)
August 4, 2023	Commission's vote on adequacy (88 FR 61613, September 7, 2023)
September 18, 2023	Commerce's results of its expedited review (88 FR 63933, September 18, 2023)
November 3, 2023	Commission's vote
November 14, 2023	Commission's determination and views

[1] 19 U.S.C. 1675(c).

[2] 88 FR 26595, May 1, 2023. In accordance with section 751(c) of the Act, the U.S. Department of Commerce ("Commerce") published a notice of initiation of a five-year review of the subject antidumping order. 88 FR 26522, May 1, 2023. Pertinent Federal Register notices are referenced in app. A, and may be found at the Commission's website (www.usitc.gov).

[3] As part of their response to the notice of institution, interested parties were requested to provide company-specific information. That information is presented in app. B. Summary data compiled in the original investigation and subsequent full reviews are presented in app. C.

[4] Interested parties were also requested to provide a list of three to five leading purchasers in the U.S. market for the domestic like product and the subject merchandise. Presented in app. D are the responses received from purchaser surveys transmitted to the purchasers identified in this proceeding.

Responses to the Commission's notice of institution

Individual responses

The Commission received one submission in response to its notice of institution in the subject review filed on behalf of Globe Specialty Metals, Inc. ("Globe") and Mississippi Silicon LLC ("Mississippi Silicon"), domestic producers of silicon metal (collectively referred to herein as "domestic interested parties").

A complete response to the Commission's notice of institution requires that the responding interested party submit to the Commission all the information listed in the notice. Responding firms are given an opportunity to remedy or explain deficiencies in their responses and to provide clarifying details where appropriate. A summary of the number of responses and estimates of coverage for each is shown in table I-2.

Table I-2
Silicon metal: Summary of responses to the Commission's notice of institution

Interested party	Type	Number of firms	Coverage
U.S. producers	Domestic	2	***%

Note: Globe estimated its share of total U.S. production in 2022 to be *** percent and Mississippi Silicon estimated its share of total U.S. production in 2022 to be *** percent. Domestic interested parties' response to the notice of institution, May 31, 2023, exh. 1.

Party comments on adequacy

The Commission received party comments on the adequacy of responses to the notice of institution and whether the Commission should conduct an expedited or full review from the domestic interested parties. The domestic interested parties argue that the Commission should find the domestic industry's response to be adequate, that the lack of any response from respondent interested parties should constitute an inadequate response, and that an expedited review in favor of continuation of the order in this proceeding is appropriate.[5]

[5] Domestic interested parties' comments on adequacy, July 13, 2023, p. 2.

The original investigations

The original investigations resulted from a petition filed on August 24, 1990 with Commerce and the Commission by American Alloys, Inc., Pittsburgh, Pennsylvania; Elkem Metals Co., Pittsburgh, Pennsylvania; Silicon Metaltech, Inc., Seattle, Washington; SiMETCO, Inc., Canton, Ohio; and SKW Alloys, Inc., Niagara, New York.[6] The petition alleged that an industry in the United States was materially injured and threatened with further material injury by reason of subsidized imports of silicon metal from Brazil and less-than-fair value ("LTFV") imports of silicon metal from Argentina, Brazil, and China.[7]

On April 23, 1991, Commerce determined that imports of silicon metal from China were being sold at LTFV.[8] The Commission determined on June 3, 1991 that the domestic industry was materially injured by reason of LTFV imports of silicon metal from China.[9] On June 10, 1991, Commerce issued its antidumping duty order with respect to China with a final weighted-average dumping margin of 139.49 percent.[10]

On June 12, 1991, Commerce determined that silicon metal from Brazil was being, or was likely to be, sold in the United States at LTFV but that no benefits which constituted countervailable subsidies were being provided to manufacturers, producers, or exporters in Brazil.[11] The Commission determined on July 24, 1991 that the domestic industry was materially injured by reason of LTFV imports of silicon metal from Brazil.[12] On June 10, 1991, Commerce issued its antidumping duty order with respect to Brazil with final weighted-average dumping margins ranging from 87.79 to 93.20 percent.[13]

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[6] On October 3, 1990, the petition was amended to add the following unions as petitioners: Oil, Chemical and Atomic Workers, Local 3-89; International Union of Electrical, Machine and Furniture Workers, AFL-CIO Local 693; Textile Processors, Service Trades, Health Care Professional and Technical Employees International Union, Local 60; and the United Steelworkers of America, Locals 5171, 8538, and 12646.

[7] Silicon Metal from the People's Republic of China, Inv. No. 731-TA-472 (Final), USITC Publication 2385, June 1991 ("Original publication"), p. I-1.

[8] 56 FR 18570, April 23, 1991.

[9] 56 FR 27033, June 12, 1991. The Commission also found that imports subject to Commerce's affirmative critical circumstances determination were not likely to undermine seriously the remedial effect of the order on China.

[10] 56 FR 26649, June 10, 1991.

[11] 56 FR 26977 and 26988, June 12, 1991.

[12] 56 FR 37572, August 7, 1991. The Commission also determined that critical circumstances did not exist with respect to LTFV imports of silicon metal from Brazil.

[13] 56 FR 36135, July 31, 1991.

On August 9, 1991, Commerce determined that imports of silicon metal from Argentina were being sold at LTFV.[14] The Commission determined on September 19, 1991 that the domestic industry was materially injured by reason of LTFV imports of silicon metal from Argentina.[15] On September 26, 1991, Commerce issued its antidumping duty order with respect to Argentina with a final weighted-average dumping margin of 8.65 percent.[16]

The first five-year reviews

On August 8, 2000, the Commission determined that it would conduct full reviews of the antidumping duty orders on silicon metal from Argentina, Brazil, and China.[17] On June 5, 2000, Commerce determined that revocation of the antidumping duty orders on silicon metal from Brazil, Argentina, and China would be likely to lead to continuation or recurrence of dumping.[18] On January 25, 2001, the Commission determined that revocation of the antidumping duty orders on subject imports of silicon metal from Brazil and China would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time but that the revocation of the antidumping duty order on silicon metal from Argentina would not be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time.[19] Following the negative determination by the Commission with respect to Argentina, effective January 1, 2000, Commerce issued the revocation of the antidumping duty order on imports of silicon metal from Argentina.[20] Following affirmative determinations in the five-year reviews by Commerce and the Commission with respect to Brazil and China, effective February 16, 2001, Commerce issued a continuation of the antidumping duty orders on imports of silicon metal from Brazil and China.[21]

[14] 56 FR 37891, August 9, 1991.
[15] 56 FR 48577, September 25, 1991.
[16] 56 FR 48779, September 26, 1991.
[17] 65 FR 7891, February 16, 2000.
[18] 65 FR 35607, 35608, and 35609, June 5, 2000.
[19] 66 FR 8981, February 5, 2001.
[20] 66 FR 10669, February 16, 2001.
[21] 66 FR 10669, February 16, 2001.

The second five-year reviews

On April 10, 2006, the Commission determined that it would conduct full reviews of the antidumping duty orders on silicon metal from Brazil and China.[22] On May 4, 2006, Commerce determined that revocation of the antidumping duty orders on silicon metal from Brazil and China would be likely to lead to continuation or recurrence of dumping.[23] On December 6, 2006, the Commission determined that revocation of the antidumping duty order on silicon metal from Brazil would not be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time but that revocation of the antidumping duty order on silicon metal from China would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time.[24] Following the negative determination in the five-year review by Commission with respect to Brazil and the affirmative determination in the five-year review by Commission with respect to China, effective February 16, 2006, Commerce issued a revocation of the antidumping duty order on imports of silicon metal from Brazil and a notice of continuation of the antidumping duty order with respect to imports of silicon metal from China.[25]

[22] 71 FR 23947, April 25, 2006.
[23] 71 FR 26334, May 4, 2006.
[24] 71 FR 71554, December 11, 2006.
[25] 71 FR 76636, December 21, 2006.

The third five-year review

On February 6, 2012, the Commission determined that it would conduct an expedited review of the antidumping duty order on silicon metal from China.[26] On February 22, 2012, Commerce determined that revocation of the antidumping duty order on silicon metal from China would be likely to lead to continuation or recurrence of dumping.[27] On March 30, 2012, the Commission determined that material injury would be likely to continue or recur within a reasonably foreseeable time.[28] Following affirmative determinations in the five-year reviews by Commerce and the Commission, effective April 20, 2012, Commerce issued a continuation of the antidumping duty order on imports of silicon metal from China.[29]

The fourth five-year review

On June 5, 2017, the Commission determined that it would conduct a full review of the antidumping duty order on silicon metal from China.[30] On July 3, 2017, Commerce determined that revocation of the antidumping duty order on silicon metal from China would be likely to lead to continuation or recurrence of dumping.[31] On May 15, 2018, the Commission determined that material injury would be likely to continue or recur within a reasonably foreseeable time.[32] Following affirmative determinations in the five-year reviews by Commerce and the Commission, effective June 4, 2018, Commerce issued a continuation of the antidumping duty order on imports of silicon metal from China.[33]

[26] 77 FR 10774, February 23, 2012.
[27] 77 FR 10477, February 22, 2012.
[28] 77 FR 20649, April 5, 2012.
[29] 77 FR 23660, April 20, 2012.
[30] 82 FR 27525, June 15, 2017.
[31] 82 FR 30841, July 3, 2017.
[32] 83 FR 23484, May 21, 2018.
[33] 83 FR 25644, June 4, 2018.

Previous and related investigations

The Commission has conducted several previous import relief investigations on silicon metal or similar merchandise, as presented in table I-3.

Table I-3
Silicon metal: Previous and related Commission proceedings and status of orders

Date	Number	Country	ITC original determination	Current status of order
1979	AA1921-192	Canada	Negative	Not applicable.
1990	731-TA-470	Argentina	Affirmative	ITA revoked effective January 1, 2000 (66 FR 10669, February 16, 2001).
1990	731-TA-471	Brazil	Affirmative	ITA revoked effective February 16, 2006 (71 FR 76635, December 21, 2006).
2002	731-TA-991	Russia	Affirmative	Order continued effective June 24, 2020, following third five-year review (85 FR 37831).
2004	701-TA-441	Brazil	Petition withdrawn	Not applicable.
2004	731-TA-1081	South Africa	Petition withdrawn	Not applicable.
2017	731-TA-1343	Australia	Negative	Not applicable.
2017	701-TA-567	Australia	Negative	Not applicable.
2017	731-TA-1344	Brazil	Negative	Not applicable.
2017	701-TA-568	Brazil	Negative	Not applicable.
2017	701-TA-569	Kazakhstan	Negative	Not applicable.
2017	731-TA-1345	Norway	Negative	Not applicable.
2020	731-TA-1524	Bosnia and Herzegovina	Affirmative	Order issued April 19, 2021 (86 FR 20364).
2020	731-TA-1525	Iceland	Affirmative	Order issued April 19, 2021 (86 FR 20364).
2020	701-TA-652	Kazakhstan	Affirmative	Order issued April 19, 2021 (86 FR 20365).
2020	731-TA-1526	Malaysia	Affirmative	Order issued August 19, 2021 (86 FR 46677).

Source: U.S. International Trade Commission publications and Federal Register notices.

Note: “Date” refers to the year in which the investigation was instituted by the Commission.

Commerce's five-year review

Commerce announced that it would conduct an expedited review with respect to the order on imports of silicon metal from China with the intent of issuing the final results of this review based on the facts available not later than August 29, 2023.[34] Commerce publishes its Issues and Decision Memoranda and its final results concurrently, accessible upon publication at https://access.trade.gov/public/FRNoticesListLayout.aspx. Issues and Decision Memoranda contain complete and up-to-date information regarding the background and history of the order, including scope rulings, duty absorption, changed circumstances reviews, and anticircumvention, as well as any decisions that may have been pending at the issuance of this report. Any foreign producers/exporters that are not currently subject to the antidumping duty order on imports of silicon metal from China are noted in the sections titled "The original investigation" and "U.S. imports," if applicable.

[34] Letter from Eric Greynolds, Office Director, Office IV, AD/CVD Operations, Enforcement and Compliance, U.S. Department of Commerce to Nannette Christ, Director of Investigations, June 20, 2023.

The product

Commerce's scope

Commerce has defined the scope as follows:

> *The product covered by the order is silicon metal containing at least 96.00 but less than 99.99 percent of silicon by weight, and silicon metal with a higher aluminum content containing between 89 and 96 percent silicon by weight. The subject merchandise is currently classifiable under item numbers 2804.69.10 and 2804.69.50 of the Harmonized Tariff Schedule of the United States (HTSUS) as a chemical product, but is commonly referred to as a metal. Semiconductor-grade silicon (silicon metal containing by weight not less than 99.99 percent of silicon and provided for in subheading 2804.61.00 of the HTSUS) is not subject to this order. This order is not limited to silicon metal used only as an alloy agent or in the chemical industry. Although the HTSUS subheadings are provided for convenience and customs purposes, the written description of the merchandise is dispositive* [35]

[35] 83 FR 25644, June 4, 2018.

U.S. tariff treatment

Silicon metal is currently provided for in Harmonized Tariff Schedule of the United States ("HTS") subheadings 2804.69.10 (containing by weight less than 99.99 percent but not less than 99 percent of silicon) and 2804.69.50 (other silicon). The general rate of duty is 5.3 percent ad valorem for HTS subheading 2804.69.10 and 5.5 percent ad valorem for HTS subheading 2804.69.50.[36] Subject silicon metal originating in China is not subject to additional duties under section 301 of the Trade Act of 1974. Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

Description and uses[37]

Silicon is a light chemical element with both metallic and nonmetallic characteristics. It is a semiconductor, meaning it does not conduct electricity at room temperature, but does so when it is heated. Silicon is rarely found free in nature; rather, it combines with oxygen and other elements to form silicates, which compose more than 25 percent of the Earth's crust.

Silica in the form of quartz or quartzite[38] is used to produce silicon ferroalloys for the iron and steel industries, as well as to make silicon metal that is primarily used by the aluminum and chemical industries.[39] Silicon metal is a product normally composed almost entirely of elemental silicon, along with small amounts of other elements, such as iron, aluminum, and calcium. It is manufactured and sold in various degrees of purity. Whether domestic or imported, it is usually sold in lump form, typically with size designations ranging from 6 inches x ½ inch down to 4 inches x ¼ inch, or in powder form.[40]

[36] USITC, HTS (2023) Basic Revision 9, Publication 5445, June 2023, p. 28-4.

[37] Unless otherwise noted, this information is based on Silicon Metal from China, Investigation No. 731-TA-472 (Fourth Review), USITC Publication 4783, May 2018 ("Fourth review publication"), pp. I-15-I-17.

[38] Quartz is the mineral form of silicon dioxide (SiO_2) and quartzite is a massive, metamorphic rock consisting predominantly of quartz along with small amounts of other minerals. However, only silica with silicon dioxide content in excess of 99 percent and a low iron content (less than one percent) can be used effectively in the production of silicon metal.

[39] Schnebele, Emily K., "Silicon" U.S. Geological Survey, January 2022, https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-silicon.pdf, retrieved June 29, 2023.

[40] These dimensional designations refer to the maximum and minimum sizes of the silicon metal lumps.

Silicon metal is principally used as an alloying agent in aluminum production, as an input in the production of silicones, and to produce polycrystalline silicon ("polysilicon").[41] As an alloying agent, silicon metal is used in the production of both primary aluminum (produced from ore) and secondary aluminum (produced from scrap). Silicon is a necessary ingredient in aluminum casting alloys, where it improves fluidity, castability, strength, and weldability of the aluminum.[42] Aluminum producers add silicon in lump form to molten aluminum during the refining process. Primary aluminum typically contains 8-12 percent silicon and is used in applications where appearance is important, such as wheels for automobiles. Secondary aluminum typically contains less silicon than primary aluminum and is used for internal automobile parts and applications where appearance is not significant. Other applications for silicon metal include the production of brass; bronze; die casting; steel; copper alloys; ceramic powders; and refractory coatings.

Chemical manufacturers use silicon metal in powder form to produce silicones and polysilicon. The chemical manufacturers that have their own grinding facilities purchase silicon metal in lump form and grind it into a powder themselves. Otherwise, firms that do not have grinding facilities purchase silicon metal as a powder.[43] A lower grade of powder called "fines", a by-product of the crushing and sizing process, is sold for ceramic and refractory applications. In the chemicals industry, silicon metal is used as the starting material for the production of silanes, which are used to produce a family of organic compounds known as "silicones". Silicones are used for a variety of applications, including adhesives, resins, lubricants, plastomers, anti-foaming agents, and water-repellent compounds.[44]

Silicon metal is used as the base material for making polysilicon, a very high purity form of silicon manufactured by chemicals producers that is primarily used in semiconductors and

[41] Subject silicon metal can be further processed into ultra-high-purity semiconductor or solar grades whose silicon content is 99.99 percent or greater. Semiconductor-grade silicon metal is not included within the scope of this investigation. However, the subject silicon metal may be used as a starting material for the manufacture of semiconductor-grade silicon metal.

[42] Many aluminum alloys are used by the transportation sector as a substitute for heavier metals to reduce weight and improve the efficiency of vehicles and aircraft.

[43] Size consistency is important to chemical producers that purchase silicon metal in powder form. Suppliers to such customers must qualify their product before bidding to supply the chemical manufacturer. For that reason, there is no difference in terms of size consistency between qualified imports and domestic products.

[44] The silicones production process involves reacting silicon metal with methyl chloride in the presence of a copper catalyst to produce a mixture of methylchlorosilanes. Certain of these silanes are then hydrolyzed to produce the basic methylsilicone building block for the various silicone products.

solar cells.[45] Polysilicon producers typically have very stringent quality standards for silicon and sometimes require low-boron silicon metal.

According to U.S. producer Globe, although silicon metal is often described in terms of different grades, there is no uniformly accepted grade classification system. Silicon metal "grades" refer to ranges of specifications that are typically sold to particular types of customers.[46] These specifications establish the minimum amounts of silicon and the maximum amounts of other elements, such as boron, iron, calcium, and aluminum, that the silicon metal may contain. The ranges of specifications vary depending on the type of end use for the silicon metal and the differences between these ranges of specifications can be relatively small but important; type and level of impurities and silicon content are the principal factors that determine if the silicon metal product can be used in a given application.[47] There are four broadly defined categories, or grades, of silicon metal, which are generally ranked in descending order of purity as: (1) semiconductor grade;[48] (2) chemical grade; (3) metallurgical grade used to produce primary aluminum; and (4) metallurgical grade used to produce secondary aluminum. U.S. producer Globe lists its silicon metal product specifications as:

- Chemical grade: silicon 98.50 percent minimum, iron 0.50 percent maximum, calcium 0.07 percent maximum, aluminum 0.20 percent maximum.
- Primary aluminum grade: silicon 98.50 percent minimum, iron 0.35 percent maximum, calcium 0.07 percent maximum.
- Secondary aluminum grade: silicon 98.50 percent minimum, iron 1.00 percent maximum, calcium 0.40 percent maximum.

[45] Polysilicon, which is not within the scope of the order, generally contains over 99.999 percent silicon and is made by reacting high purity metallurgical silicon with hydrogen chloride gas in the presence of catalysts, producing silicon tetrachloride, which is then purified by fractional distillation. The purified distillate is pyrotically decomposed to produce hyperpure metal and hydrochloric acid.

[46] Some suppliers, customers, and publications refer to numerical grade designations such as "Grade 553." "Grade 553" is silicon metal with a maximum iron content of 0.5 percent, a maximum aluminum content of 0.5 percent, and a maximum calcium content of 0.3 percent. Such silicon metal normally has a minimum silicon content of 98.5 percent.

[47] In some cases, higher grade silicon metal is shipped to a purchaser with a lower specification requirement. Moreover, it is not possible to assume that silicon metal imported under HTS subheading 2804.69.10 (silicon containing by weight less than 99.99 percent but not less than 99.00 percent silicon) is necessarily better quality than silicon metal imported under HTS subheading 2804.69.50 (silicon containing by weight less than 99.00 percent silicon), even though the silicon content of the former is higher.

[48] Semiconductor grade silicon, used in the electronics industry, is not covered by the scope of these investigations. It is a high-purity product generally containing over 99.99 percent silicon.

- High purity grade: silicon 98.50 percent minimum, iron 0.10 percent maximum, calcium 0.07 percent maximum, aluminum 0.20 percent maximum.

Silicon specifications can be customer specific as some customers, such as certain polysilicon producers, require higher grades of silicon than the ones listed by Globe. Some chemical and polysilicon producers require suppliers to go through a qualification process and undergo subsequent monitoring of their manufacturing facilities to ensure that their products are consistent in both size and grade.

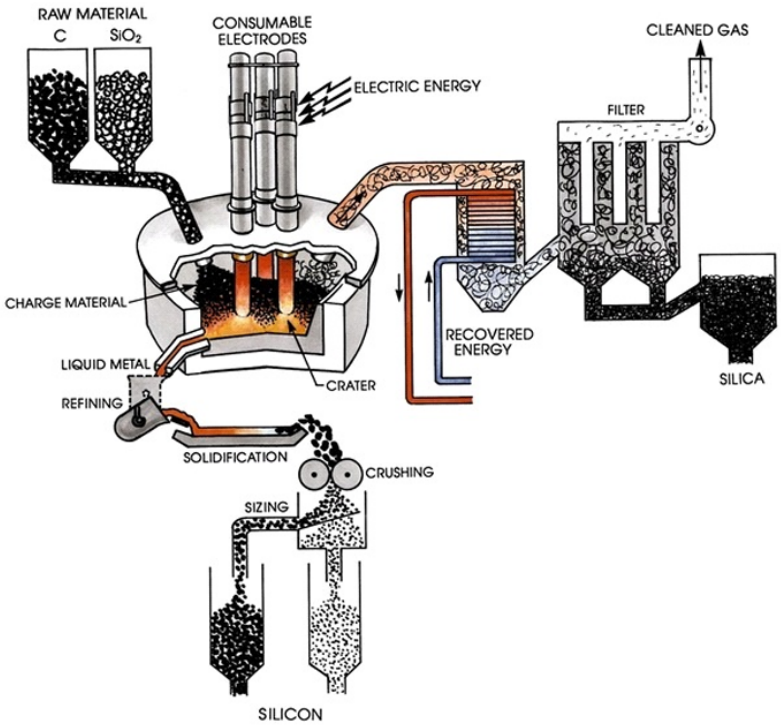
Manufacturing process[49]

The basic process for producing silicon has remained essentially unchanged for decades.[50] Generally, all silicon metal, regardless of specification, is produced using essentially the same process and inputs. Silica, in the form of high-purity quartz, is combined in a "charge" with a carbon source such as low-ash coal, charcoal, or petroleum coke; and a bulking agent, usually wood chips produced from hardwood trees. The charge is placed in a submerged electric-arc furnace. A transformer system delivers high-current, low-voltage electricity to the furnace by electrodes made from pre-baked or self-baking amorphous carbon. The electrodes are slowly consumed during the production process. The charge is heated to approximately 3,000 degrees Fahrenheit, at which point the oxygen in the silica separates from the silicon and combines with the carbon in the reductant to form carbon monoxide gas. The simplified chemical reaction is summarized as SiO_2 (silica) + 2C (carbon) → Si (silicon metal) + 2CO (carbon monoxide). This reaction requires a substantial amount of electricity, giving the transformation process its name of "electrometallurgy". The off-gas (primarily carbon dioxide and silicon dioxide) escapes from the furnace and into a baghouse for collection, leaving molten silicon. The liquid silicon is removed or "tapped" from the bottom of the furnace on either a continuous or an intermittent basis and collected in a refractory lined ladle. In the molten state, the silicon metal is often refined by oxygen injection to remove impurities, principally aluminum and calcium. Some impurities cannot be removed from the liquid silicon and, therefore, must be controlled by raw-material selection.[51] After tapping (or refining), the silicon metal is poured from the ladle into large, flat iron molds or onto beds of silicon metal fines. The resulting ingot or billet is subsequently crushed to the desired size specification. It can be further ground into powder for some customers in the chemicals industry. The silicon is

[49] Unless otherwise noted, this information is based on fourth review publication, pp. I-17-I-19.
[50] Mississippi Silicon LLC, https://www.missilicon.com/process, retrieved June 29, 2023.
[51] Silicon Metal from Bosnia and Herzegovina, Iceland, and Kazakhstan, Investigation Nos. 701-TA-652 and 731-TA-1524-1525 (Final), USITC Publication 5180, April 2021, pp. I-14-I-15.

typically delivered to end users in 2,000–3,000-pound super sacks, wooden boxes, or customer-specific packaging. Some customers elect to send their own trucks to the plant to transport the silicon in bulk form. Figure I-1 depicts the silicon metal production process (through tapping of molten silicon).

Figure I-1
Silicon metal: Production process



Source: Xakalashe, B.S. and M. Tangsted, "Silicon Processing: From Quartz to Crystalline Silicon Solar Cells" Southern African Prometallurgy 2011, Southern African Institute of Mining and Metallurgy, Johannesburg, March 2011, p. 88.

Silica fume (microsilica) is composed of small particles of unreduced silicon dioxide recovered from the off-gases of silicon metal furnaces and is an important by-product of silicon metal production. Silica fume is used in making concrete, oil well grouts, cementitious repair products, refractories and ceramics, and other products.

Silicon metal plants are typically located at sites that have access to a competitively priced and reliable source of electricity, an ample supply of raw materials, and an adequate labor pool. Given the large amounts of quartz required to produce silicon metal, plants are normally located near quartz sources. Silicon plants typically operate furnaces 24 hours per day, 7 days per week, to maximize efficiency, so they constantly consume raw materials.

Forty-nine percent of the cost of silicon metal production is attributable to raw materials (coal, woodchips, quartz, and carbon electrodes), 21 percent to energy, 18 percent to labor, and 12 percent to other costs.

Submerged arc furnaces used for silicon production are relatively similar worldwide, but there are some physical differences in furnace designs and the electrodes. In some cases, newer furnaces are more energy efficient. Reportedly, Globe requires about 13,000 to 14,000 kilowatt hours ("kwh") of electricity to produce one short ton of silicon metal, but some plants with newer furnaces, like Mississippi Silicon, can produce the same quantity of silicon metal using only 9,500 to 10,000 kwh of electricity. Purities of the raw materials and the carbon sources used can vary widely. Some producers of silicon metal also produce ferrosilicon, which is used in the production of steel (especially stainless and heat-resisting steels) and cast iron.[52] Ferrosilicon can be produced at lower temperatures than silicon because of the iron, resulting in less power consumption to produce ferrosilicon than silicon. In the United States, Globe produced both silicon metal and ferrosilicon, but did not use the same furnaces for both.

Producers can switch production on a furnace between ferrosilicon and silicon metal with varying degrees of cost, downtime, and efficiency loss. It is generally easier for firms to switch from silicon metal production to ferrosilicon production than the reverse. Iron and other elements that may be contained in ferrosilicon tend to remain in a furnace lining and result in impurities intolerable in silicon metal production. In addition, certain furnace designs are more efficient at producing one product than another, leading to possible efficiency loss when switching production.

According to Globe, incentives for converting ferrosilicon furnaces to silicon metal furnaces may exist if the profit margins for silicon metal are sufficiently better than the profit margins for ferrosilicon. Globe indicated that conversion from ferrosilicon to silicon production can be conducted relatively quickly, easily, and "at a relatively moderate cost." Such a conversion would require removal of the material from the furnace, the replacement of the electrodes and possibly the ceramic refractory lining in the furnace, and a change in the raw materials used for production.

[52] Ferrosilicon is a product used by the steel industry as an alloying agent. Ferrosilicon differs from silicon metal in that it has much lower silicon content and contains 4 percent or more of iron.

The industry in the United States

U.S. producers

During the final phase of the original investigations, the Commission received U.S. producer questionnaires from eight firms, which accounted for all production of silicon metal in the United States from 1988-90.[53] During the first full five-year reviews, the Commission received U.S. producer questionnaires from five firms, which accounted for all production of silicon metal in the United States from 1997-99.[54] During the second full five-year reviews, the Commission received U.S. producer questionnaires from three firms, which accounted for all known production of silicon metal in the United States from 2000-05.[55] During the third expedited five-year review, Globe provided a list of two known and currently operating U.S. producers of silicon metal. Globe accounted for approximately *** percent of production of silicon metal in the United States during 2010.[56] During the fourth full five-year review, the Commission received U.S. producer questionnaires from three firms, which accounted for virtually all production of silicon metal in the United States during 2016.[57]

In response to the Commission's notice of institution in this current review, domestic interested parties listed themselves as the only currently operating U.S. producers of silicon metal. As such, the two firms providing U.S. industry data in response to the Commission's notice of institution accounted for all production of silicon metal in the United States during 2022.[58]

[53] Original publication, p. A-19.

[54] Silicon Metal from Argentina, Brazil, and China, Investigation Nos. 731-TA-470-472 (Review), USITC Publication 3385, January 2001 ("First review publication"), p. I-12 and table I-4. By the end of the period of the first five-year reviews, two of the five firms had ceased production.

[55] Silicon Metal from Brazil and China, Investigation nos. 731-TA-471-472 (Second Review), USITC Publication 3892, December 2006 ("Second review publication"), p. I-17.

[56] Investigation Nos. 731-TA-471-472 (Third Review): Silicon Metal from China, Confidential Report, INV-KK-021, March 1, 2012 ("Third review confidential report"), pp. I-15-16.

[57] Fourth review publication, p. III-1.

[58] Domestic interested parties' response to the notice of institution, May 31, 2023, exh. 1.

Recent developments

Table I-4 presents events in the U.S. industry since the Commission's last five-year review.

Table I-4
Silicon Metal: Developments in the U.S. industry

Item	Firm	Event
Closures	Globe	Globe suspended production operations at its silicon plant in Niagara Falls, New York in December 2018. The shutdown put 100 employees out of work. Globe also idled its Selma, Alabama plant.
Firm Production Transition	Momentive Performance Materials	Momentive Performance Materials ("MDM") announced a plan in August of 2020 to sell off a portfolio of consumer sealants to Henkel Corporation. MDM will invest $15 million in its Waterford, New York headquarters as part of its efforts to pursue computer chip industry customers to capitalize on growth in that sector. MDM said the workforce in Waterford, New York would drop from 1,000 to about 700.
Re-opening	Globe	In December 2021, Globe announced that it was reopening its Selma, Alabama two-furnace operation that it had idled in 2018. The facility can produce up to 22,000 tons of silicon metal per year
Supply Increase	REC Silicon	REC Silicon is expected to restart its idled Moses Lake, Washington facility in Q4 2023 with an aim to reach full capacity utilization by the end of the year to produce fluidized bed reactor polysilicon.

Source: Cropley, John, "Momentive to Cut 300 Jobs in Waterford in Two-Year Transition." The Daily Gazette, August 5, 2020, https://dailygazette.com/2020/08/05/momentive-to-cut-300-jobs-in-waterford-in-two-year-transition/; Yuen, Simon, "REC Silicon to Supply FBR Polysilicon Produced at Idle Facility in US," PV Tec, February 2, 2023, https://www.pv-tech.org/rec-silicon-to-supply-fbr-polysilicon-produced-at-idle-facility-in-us/; "Ferroglobe Unit Sets Plan to Restart Silicon Metal Facility in Selma," Made in Alabama, December 15, 2021, https://www.madeinalabama.com/2021/12/ferroglobe-unit-sets-plan-to-restart-silicon-metal-facility-in-selma/; Gambini, Philip, "Globe Specialty Metals Closing in Niagara Falls," Niagara Gazette, December 28, 2018, https://www.niagara-gazette.com/news/local_news/globe-specialty-metals-closing-in-niagara-falls/article_b25b1826-0a82-11e9-b0df-9303635fd226.html.

U.S. producers' trade and financial data

The Commission asked domestic interested parties to provide trade and financial data in their response to the notice of institution in the current five-year review.[59] Table I-5 presents a compilation of the trade and financial data submitted from all responding U.S. producers in the original investigations and subsequent five-year reviews.

Table I-5
Silicon metal: Trade and financial data submitted by U.S. producers, by period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton; ratio is in percent

Item	Measure	1990	1999	2005	2010	2016	2022
Capacity	Quantity	183,174	236,857	***	***	***	***
Production	Quantity	157,218	209,117	***	***	***	***
Capacity utilization	Ratio	85.8	88.3	***	***	***	***
U.S. shipments	Quantity	144,729	203,342	***	***	***	***
U.S. shipments	Value	171,964	277,641	***	***	***	***
U.S. shipments	Unit value	1,188	1,365	***	***	***	***
Net sales	Value	168,679	***	***	***	***	***
COGS	Value	159,900	***	***	***	***	***
COGS to net sales	Ratio	94.8	***	***	***	***	***
Gross profit or (loss)	Value	8,779	***	***	***	***	***
SG&A expenses	Value	10,487	***	***	***	***	***
Operating income or (loss)	Value	(1,708)	***	***	***	***	***
Operating income or (loss) to net sales	Ratio	(1.0)	***	***	***	***	***

Source: For the years 1990, 1999, 2005, 2010, and 2016, data are compiled using data submitted in the Commission's original investigations and subsequent five-year reviews. For the year 2022, data are compiled using data submitted by domestic interested parties in their response to the Commission's notice of institution. Domestic interested parties' response to the notice of institution, May 31, 2023, exh. 1.

Note: For a discussion of data coverage, please see "U.S. producers" section.

[59] Individual company trade and financial data are presented in app. B.

Definitions of the domestic like product and domestic industry

The domestic like product is defined as the domestically produced product or products which are like, or in the absence of like, most similar in characteristics and uses with, the subject merchandise. The domestic industry is defined as the U.S. producers as a whole of the domestic like product, or those producers whose collective output of the domestic like product constitutes a major proportion of the total domestic production of the product. Under the related parties provision, the Commission may exclude a U.S. producer from the domestic industry for purposes of its injury determination if "appropriate circumstances" exist.[60]

In its original determination, the Commission defined the domestic like product as all silicon metal, regardless of grade, having a silicon content of at least 96.00 percent but less than 99.99 percent of silicon by weight, and excluding semiconductor grade silicon, corresponding to Commerce's scope. In its full first and second five-year review determinations, its expedited third five-year review determination, and its full fourth five-year review determination, the Commission defined the domestic like product as all silicon metal, regardless of grade, corresponding to Commerce's scope of the order. In its original determination, its full first and second five-year review determinations, its expedited third five-year review determination, and its full fourth five-year review determination, the Commission defined the domestic industry as all domestic producers of silicon metal.[61]

[60] Section 771(4)(B) of the Tariff Act of 1930, 19 U.S.C. § 1677(4)(B).
[61] 88 FR 26595, May 1, 2023.

U.S. importers

During the final phase of the original investigations, the Commission received U.S. importer questionnaires from 16 firms, which accounted for more than 90 percent of total U.S. imports of silicon metal from China from 1988 through 1990.[62] Import data presented in the original investigations are based on official Commerce statistics.

During the first full five-year reviews, the Commission received U.S. importer questionnaires from 16 firms, which accounted for approximately 87.6 percent of total U.S. imports of silicon metal from Argentina, Brazil, and China during 1999.[63] Import data presented in the first reviews are based on official Commerce statistics.

During the second full five-year reviews, the Commission received U.S. importer questionnaires from 17 firms, which accounted for approximately *** percent of total U.S. imports of silicon metal from all sources in 2005.[64] Import data presented in the second reviews are based on official Commerce statistics.

Although the Commission did not receive responses from any respondent interested parties in its third expedited five-year review, Globe provided a list of two firms that were believed to import silicon metal from China.[65] Import data presented in the third review are based on official Commerce statistics.

During the fourth full five-year review, the Commission received U.S. importer questionnaires from 25 firms, which accounted for approximately *** percent of total U.S. imports of silicon metal from China during 2016.[66] Import data presented in the fourth review are based on official Commerce statistics.

Although the Commission did not receive responses from any respondent interested parties in this current review, in its response to the Commission's notice of institution, the domestic interested parties provided a list of 25 potential U.S. importers of silicon metal.[67]

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[62] Original publication, p. A-25.

[63] First review publication, p. I-12.

[64] Investigation Nos. 731-TA-471 and 472 (Second Review): Silicon Metal from Brazil and China, Confidential Report, INV-DD-146, October 25, 2006, as revised in INV-DD-156, November 13, 2006 ("Second review confidential report"), p. I-27.

[65] Silicon Metal from China, Inv. No. 731-TA-472 (Third Review), USITC Publication 4312, March 2012 ("Third review publication"), pp. I-11-12.

[66] Investigation Nos. 731-TA-471 (Fourth Review): Silicon Metal from China, Confidential Report, INV-QQ-041, April 13, 2018, as revised in INV-QQ-043, April 20, 2018 ("Fourth review confidential report"), p. IV-1.

[67] Domestic interested parties' response to the notice of institution, May 31, 2023, exh. 1.

U.S. imports

Table I-6 presents the quantity, value, and unit value of U.S. imports from China as well as the top sources of U.S. imports (shown in descending order of 2022 imports by quantity).

Table I-6
Silicon metal: U.S. imports, by source and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton

U.S. imports from	Measure	2017	2018	2019	2020	2021	2022
China	Quantity	267	230	216	280	336	126
Brazil	Quantity	78,460	41,361	57,720	55,829	77,157	89,481
Canada	Quantity	25,396	30,135	31,617	23,582	30,044	36,485
Norway	Quantity	15,532	21,634	18,752	20,761	15,965	14,940
Malaysia	Quantity	126	--	3,928	11,109	950	9,584
All other sources	Quantity	53,591	40,676	45,501	27,305	16,023	20,520
Nonsubject sources	Quantity	173,105	133,806	157,517	138,586	140,139	171,010
All import sources	Quantity	173,372	134,035	157,734	138,866	140,475	171,136
China	Value	378	334	275	310	415	230
Brazil	Value	177,842	107,071	137,708	113,924	167,593	367,074
Canada	Value	60,356	82,733	78,039	50,554	65,861	181,336
Norway	Value	29,146	55,104	41,340	42,053	33,752	87,872
Malaysia	Value	179	--	6,595	16,912	1,508	46,304
All other sources	Value	102,847	100,177	91,122	47,625	38,003	68,353
Nonsubject sources	Value	370,370	345,085	354,804	271,069	306,717	750,940
All import sources	Value	370,748	345,419	355,079	271,378	307,133	751,170
China	Unit value	1,414	1,454	1,272	1,105	1,235	1,827
Brazil	Unit value	2,267	2,589	2,386	2,041	2,172	4,102
Canada	Unit value	2,377	2,745	2,468	2,144	2,192	4,970
Norway	Unit value	1,877	2,547	2,205	2,026	2,114	5,882
Malaysia	Unit value	1,423	--	1,679	1,522	1,587	4,832
All other sources	Unit value	1,919	2,463	2,003	1,744	2,372	3,331
Nonsubject sources	Unit value	2,140	2,579	2,252	1,956	2,189	4,391
All import sources	Unit value	2,138	2,577	2,251	1,954	2,186	4,389

Source: Compiled from official Commerce statistics for HTS statistical reporting numbers 2804.69.1000 and 2804.69.5000, accessed June 29, 2023. Official import statistics are based on General Imports, which measure the total physical arrivals of merchandise from foreign countries, whether such merchandise enters the U.S. customs territory immediately or is entered into bonded warehouses or free trade zones ("FTZs") under Customs custody. Value data reflect Customs insurance and freight ("CIF") values.

Note: Because of rounding, figure may not add to total shown. Zeros, null values, and undefined calculations are suppressed and shown as "---".

Apparent U.S. consumption and market shares

Table I-7 presents data on U.S. producers' U.S. shipments, U.S. imports, apparent U.S. consumption, and market shares.

Table I-7
Silicon metal: Apparent U.S. consumption and market shares, by source and period

Quantity in short tons; value in 1,000 dollars; shares in percent

Source	Measure	1990	1999	2005	2010	2016	2022
U.S. producers	Quantity	144,729	203,342	***	***	***	***
China	Quantity	26,360	3,324	44	460	339	126
All other sources	Quantity	45,989	123,120	***	186,810	166,348	171,010
All import sources	Quantity	72,349	126,444	162,525	187,270	166,687	171,136
Apparent U.S. consumption	Quantity	217,078	329,786	***	***	***	***
U.S. producers	Value	171,964	277,641	***	***	***	***
China	Value	23,539	2,885	76	913	453	230
All other sources	Value	46,525	145,547	***	465,956	367,127	750,940
All import sources	Value	70,064	148,432	239,940	466,870	367,580	751,170
Apparent U.S. consumption	Value	242,028	426,073	***	***	***	***
U.S. producers	Share of quantity	66.7	61.7	***	***	***	***
China	Share of quantity	12.1	1.0	***	***	***	***
All other sources	Share of quantity	21.2	37.3	***	***	***	***
All import sources	Share of quantity	33.3	38.3	***	***	***	***
U.S. producers	Share of value	71.1	65.2	***	***	***	***
China	Share of value	9.7	0.7	***	***	***	***
All other sources	Share of value	19.2	34.1	***	***	***	***
All import sources	Share of value	28.9	34.8	***	***	***	***

Source: For the years 1990, 1999, 2005, 2010, and 2016, data are compiled using data submitted in the Commission's original investigations and subsequent five-year reviews. For the year 2022, U.S. producers' U.S. shipments are compiled from the domestic interested parties' response to the Commission's notice of institution and U.S. imports are compiled using official Commerce statistics under HTS statistical reporting numbers 2804.69.1000 and 2804.69.5000, accessed June 29, 2023. Official import statistics are based on General Imports, which measure the total physical arrivals of merchandise from foreign countries, whether such merchandise enters the U.S. customs territory immediately or is entered into bonded warehouses or FTZs under Customs custody. Value data reflect CIF values.

Note: Share of quantity is the share of apparent U.S. consumption by quantity in percent; share of value is the share of apparent U.S. consumption by value in percent. Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Note: For a discussion of data coverage, please see "U.S. producers" and "U.S. importers" sections.

The industry in China

Producers in China

During the final phase of the original investigations, the Commission received no Chinese foreign producer/exporter questionnaires, although Commerce identified at least 17 producers of silicon metal in China.[68] During the first five-year reviews, the Commission received foreign producer/exporter questionnaires from five firms, which accounted for approximately *** percent of imports of silicon metal from China during 1999.[69] During the second five-year reviews, there were no valid data available on the number of silicon producers nor on the amount of production capacity in China.[70] Although the Commission did not receive responses from any respondent interested parties in its third five-year review, Globe provided a list of 18 possible producers of silicon metal in China in that proceeding.[71] During the fourth full five-year review, the Commission received foreign producer/exporter questionnaires from six firms, which accounted for approximately *** percent of production of silicon metal in China during 2016.[72]

Although the Commission did not receive responses from any respondent interested parties in this current review, the domestic interested parties provided a list of 17 possible producers and/or exporters of silicon metal in China.[73]

[68] Original publication, p. A-55.

[69] Investigation Nos. 731-TA-470-472 (First Review): Silicon Metal from Argentina, Brazil, and China, Confidential Report, INV-X-254, December 19, 2000 ("First review confidential report"), p. IV-8.

[70] Second review publication, p. IV-9.

[71] Third review publication, p. I-14.

[72] Fourth review confidential report, pp. IV-9-10.

[73] Domestic interested parties' response to the notice of institution, May 31, 2023, exh. 1.

Recent developments

Table I-8 presents events in the Chinese industry since the Commission's last five-year review.

Table I-8
Silicon metal: Developments in the Chinese industry

Item	Firm	Event
New Capacity	Various	New projects that were expected to add around 655,000 metric tons per year of new silicon metal production capacity were planned in the Chinese provinces of Xinjiang and Inner Mongolia for 2022.

Source: Shanghai Metals Market, "Review of China Silicon Metal Producing Areas and Capacity Commissioning Progress in 2022," September 28, 2022, https://news.metal.com/newscontent/101961599/review-of-china-silicon-metal-producing-areas-and-capacity-commissioning-progress-in-2022.

Exports

Table I-9 presents export data for HS subheading 2804.69, a category that includes subject silicon metal and out-of-scope products, from China (by export destination in descending order of quantity for 2022). The top three destination markets in 2022 were Japan, South Korea, and the United Arab Emirates.

Table I-9
Silicon metal: Quantity of exports from China, by destination and period

Quantity in short tons

Destination market	2017	2018	2019	2020	2021	2022
Japan	208,538	221,296	181,465	169,068	206,231	160,945
South Korea	164,728	148,065	128,121	89,171	98,556	91,215
United Arab Emirates	55,926	61,505	51,915	31,667	64,657	67,272
India	57,260	64,592	57,144	56,093	65,993	65,722
Thailand	72,887	52,767	55,147	63,236	78,028	54,345
Malaysia	35,496	40,326	42,788	48,446	60,906	42,980
Netherlands	37,284	34,720	30,186	25,012	39,767	40,945
Mexico	35,184	34,893	30,113	25,447	25,778	28,230
Bahrain	13,320	18,760	18,858	11,622	24,259	25,143
Qatar	25,512	21,482	17,678	18,814	22,991	20,029
All other markets	217,543	200,361	152,139	141,111	170,201	120,798
All markets	923,679	898,767	765,555	679,687	857,365	717,624

Note: Because of rounding, figures may not add to totals shown.

Source: Global Trade Information Services, Inc., Global Trade Atlas, HS subheading 2804.69, accessed June 29, 2023. These data may be overstated as HS subheading 2804.69 may contain products outside the scope of this review.

Third-country trade actions

An antidumping order on imports of silicon metal from China was imposed in the European Communities in 1990 and has been extended in the European Union ever since, most recently on August 12, 2022.[74] Canada has maintained an antidumping order on silicon metal imported from China since November 2013 and most recently extended the order on August 22, 2019.[75] Australia imposed an antidumping order on June 3, 2015, and extended it on March 6, 2020.[76]

[74] World Trade Organization ("WTO"), Committee on Anti-Dumping Practices, Semi-Annual Report Under Article 16.4 of the WTO Antidumping Agreement: European Union, Reporting period July 1 to December 31, 2022 – Revised, retrieved June 29, 2023.

[75] WTO, Committee on Anti-Dumping Practices, Semi-Annual Report Under Article 16.4 of the WTO Antidumping Agreement: Canada, Reporting period July 1 to December 31, 2022, retrieved June 29, 2023.

[76] WTO, Committee on Anti-Dumping Practices, Semi-Annual Report Under Article 16.4 of the WTO Antidumping Agreement: Australia, Reporting period July 1 to December 31, 2022, retrieved June 29, 2023.

The global market

Table I-10 presents global export data for silicon containing less than 99.99 percent silicon by weight, a category that includes subject silicon metal and out-of-scope products, (by exporter in descending order of quantity for 2022). In 2022, the three largest exporters, by quantity, were China, Norway, and Brazil.

Table I-10
Silicon metal: Quantity of global exports by country and period

Quantity in short tons

Exporting country	2017	2018	2019	2020	2021	2022
China	923,679	898,767	765,555	679,687	857,365	717,624
Norway	204,178	199,821	214,456	231,608	257,684	244,968
Brazil	171,331	212,057	208,426	199,152	206,913	216,089
Netherlands	136,336	139,656	152,666	130,937	144,821	156,763
France	145,474	139,929	106,082	89,413	104,691	104,670
Canada	26,871	32,366	32,563	25,297	32,519	57,887
Iceland	7,893	7,756	31,302	30,758	30,872	54,850
Malaysia	1,721	1,665	9,745	42,401	57,758	46,797
Australia	51,398	45,747	46,621	47,510	47,543	45,817
Bosnia & Herzegovina	37,888	32,044	29,831	21,462	--	29,373
All other exporters	144,624	195,134	158,654	110,149	139,548	106,775
All exporters	1,851,393	1,904,942	1,755,901	1,608,375	1,879,716	1,781,614

Source: Global Trade Information Services, Inc., Global Trade Atlas, HS subheadings 2804.69. These data may be overstated as HS subheading 2804.69 may contain products outside the scope of this review.

Note: Because of rounding, figures may not add to total shown. France's exports are constructed using mirror data from its trading partners. A "–" indicates that data are not available.

APPENDIX A

FEDERAL REGISTER NOTICES

The Commission makes available notices relevant to its investigations and reviews on its website, www.usitc.gov. In addition, the following tabulation presents, in chronological order, Federal Register notices issued by the Commission and Commerce during the current proceeding.

Citation	Title	Link
88 FR 26522, May 1, 2023	*Initiation of Five-Year (Sunset) Reviews*	https://www.govinfo.gov/content/pkg/FR-2023-05-01/pdf/2023-09221.pdf
88 FR 26595, May 1, 2023	*Silicon Metal From China; Institution of a Five-Year Review*	https://www.govinfo.gov/content/pkg/FR-2023-05-01/pdf/2023-09023.pdf

APPENDIX B

COMPANY-SPECIFIC DATA

* * * * * * *

APPENDIX C

SUMMARY DATA COMPILED IN PRIOR PROCEEDINGS

Table C-1
Silicon metal: Summary data concerning the U.S. market, 1997-99, January-June 1999, and January-June 2000

(Quantity=gross short tons, value=1,000 dollars, unit values, unit labor costs, and unit expenses are per gross short ton; period changes=percent, except where noted)

	Reported data					Period changes			
				January-June					Jan.-June
Item	1997	1998	1999	1999	2000	1997-99	1997-98	1998-99	1999-00
U.S. consumption quantity:									
Amount	338,951	320,683	329,786	165,658	179,223	-2.7	-5.4	2.8	8.2
Producers' share (1)	61.0	64.5	61.7	62.9	56.8	0.7	3.5	-2.8	-6.1
Importers' share (1):									
Argentina	0.0	(2)	0.0	0.0	0.0	0.0	(3)	(3)	0.0
Brazil	3.2	2.0	4.3	3.2	5.8	1.1	-1.2	2.3	2.6
China	0.9	1.0	1.0	1.0	1.0	0.1	0.0	0.1	(3)
Subtotal	4.1	2.9	5.3	4.2	6.8	1.2	-1.2	2.4	2.6
Other sources	34.9	32.6	33.0	32.9	36.3	-1.9	-2.3	0.4	3.5
Total imports	39.0	35.5	38.3	37.1	43.2	-0.7	-3.5	2.8	6.1
U.S. consumption value:									
Amount	519,337	458,509	426,073	216,543	216,095	-18.0	-11.7	-7.1	-0.2
Producers' share (1)	61.8	67.6	65.2	66.1	61.6	3.4	5.8	-2.4	-4.5
Importers' share (1):									
Argentina	0.0	(2)	0.0	0.0	0.0	0.0	(3)	(3)	0.0
Brazil	3.3	1.8	4.0	3.0	6.1	0.8	-1.5	2.2	3.1
China	0.6	0.6	0.7	0.7	0.7	0.0	-0.1	0.1	(3)
Subtotal	3.9	2.4	4.7	3.6	6.8	0.8	-1.6	2.3	3.1
Other sources	34.3	30.0	30.1	30.3	31.6	-4.2	-4.3	0.1	1.3
Total imports	38.2	32.4	34.8	33.9	38.4	-3.4	-5.8	2.4	4.5
U.S. imports from:									
Argentina:									
Quantity	0	44	0	0	0	(4)	(4)	-100.0	(4)
Value	0	61	0	0	0	(4)	(4)	-100.0	(4)
Unit value	(4)	$1,406	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Brazil:									
Quantity	10,795	6,341	14,268	5,324	10,411	32.2	-41.3	125.0	95.5
Value	17,010	8,251	17,203	6,425	13,083	1.1	-51.5	108.5	103.6
Unit value	$1,576	$1,301	$1,206	$1,207	$1,257	-23.5	-17.4	-7.3	4.2
Ending inventory quantity	***	***	***	***	***	***	***	***	***
China:									
Quantity	3,214	3,058	3,324	1,673	1,812	3.4	-4.9	8.7	8.3
Value	3,373	2,559	2,885	1,471	1,522	-14.5	-24.1	12.7	3.5
Unit value	$1,050	$837	$868	$879	$840	-17.3	-20.3	3.7	-4.4
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Subtotal:									
Quantity	14,009	9,442	17,592	6,997	12,222	25.6	-32.6	86.3	74.7
Value	20,383	10,872	20,088	7,895	14,606	-1.5	-46.7	84.8	85.0
Unit value	$1,455	$1,151	$1,142	$1,128	$1,195	-21.5	-20.9	-0.8	5.9
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Other sources:									
Quantity	118,250	104,453	108,852	54,463	65,130	-7.9	-11.7	4.2	19.6
Value	178,206	137,765	128,344	65,530	68,311	-28.0	-22.7	-6.8	4.2
Unit value	$1,507	$1,319	$1,179	$1,203	$1,049	-21.8	-12.5	-10.6	-12.8
Ending inventory quantity	***	***	***	***	***	***	***	***	***
All sources:									
Quantity	132,259	113,895	126,444	61,460	77,353	-4.4	-13.9	11.0	25.9
Value	198,589	148,637	148,432	73,426	82,917	-25.3	-25.2	-0.1	12.9
Unit value	$1,502	$1,305	$1,174	$1,195	$1,072	-21.8	-13.1	-10.0	-10.3
Ending inventory quantity	***	***	***	***	***	***	***	***	***

Table continued on next page.

Table C-1--Continued
Silicon metal: Summary data concerning the U.S. market, 1997-99, January-June 1999, and January-June 2000

(Quantity=gross short tons, value=1,000 dollars, unit values, unit labor costs, and unit expenses are per gross short ton; period changes=percent, except where noted)

	Reported data					Period changes			
				January-June					Jan.-June
Item	1997	1998	1999	1999	2000	1997-99	1997-98	1998-99	1999-00
U.S. producers':									
Average capacity quantity	225,690	234,099	236,857	119,952	110,769	4.9	3.7	1.2	-7.7
Production quantity	213,010	213,274	209,117	107,009	106,744	-1.8	0.1	-1.9	-0.2
Capacity utilization (1)	94.4	91.1	88.3	89.2	96.4	-6.1	-3.3	-2.8	7.2
U.S. shipments:									
Quantity	206,692	206,788	203,342	104,198	101,870	-1.6	(2)	-1.7	-2.2
Value	320,748	309,872	277,641	143,117	133,178	-13.4	-3.4	-10.4	-6.9
Unit value	$1,552	$1,499	$1,365	$1,374	$1,307	-12.0	-3.4	-8.9	-4.8
Export shipments:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	11,174	10,982	9,151	8,056	9,679	-18.1	-1.7	-16.7	20.1
Inventories/total shipments (1)	5.3	5.2	4.4	3.8	4.6	-1.0	-0.1	-0.9	0.9
Production workers	816	816	770	771	719	-5.6	0.0	-5.6	-6.7
Hours worked (1,000s)	1,936	1,801	1,750	911	835	-9.6	-7.0	-2.8	-8.3
Wages paid ($1,000s)	31,474	31,829	32,174	16,440	15,626	2.2	1.1	1.1	-5.0
Hourly wages	$16.26	$17.67	$18.39	$18.05	$18.71	13.1	8.7	4.0	3.7
Productivity (gross short tons 1000/hrs.)	110.0	118.4	119.5	117.5	127.8	8.6	7.6	0.9	8.8
Unit labor costs	$147.76	$149.24	$153.86	$153.63	$146.39	4.1	1.0	3.1	-4.7
Net sales:									
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Cost of goods sold (COGS)	***	***	***	***	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***	***	***	***	***
SG&A expenses	***	***	***	***	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***	***	***	***	***
Capital expenditures	***	***	***	***	***	***	***	***	***
Unit COGS	***	***	***	***	***	***	***	***	***
Unit SG&A expenses	***	***	***	***	***	***	***	***	***
Unit operating income or (loss)	***	***	***	***	***	***	***	***	***
COGS/sales (1)	***	***	***	***	***	***	***	***	***
Operating income or (loss)/ sales (1)	***	***	***	***	***	***	***	***	***

(1) "Reported data" are in percent and "period changes" are in percentage points.
(2) Less than 0.05 percent.
(3) Less than 0.05 percentage points absolute difference.
(4) Not applicable.

Note.--Financial data are reported on a fiscal year basis and may not necessarily be comparable to data reported on a calendar year basis. Because of rounding, figures may not add to the totals shown. Unit values and shares are calculated from the unrounded figures.

Source: Compiled from data submitted in response to Commerce questionnaries and offical statistcs of the U.S. Department of Commerce.

Table C-1

Silicon metal: Summary data concerning the U.S. market, 2000-05

(Quantity=gross short tons, value=1,000 dollars, unit values, unit labor costs, and unit expenses are per short ton; period changes=percent except where noted)

	Reported data						Period changes					
Item	2000	2001	2002	2003	2004	2005	2000-05	2000-01	2001-02	2002-03	2003-04	2004-05
U.S. consumption quantity:												
Amount	***	***	***	***	***	***	***	***	***	***	***	***
Producers' share (1)	***	***	***	***	***	***	***	***	***	***	***	***
Importers' share (1):												
Brazil (subject)	***	***	***	***	***	***	***	***	***	***	***	***
China (subject)	***	***	***	***	***	***	***	***	***	***	***	***
Subtotal (subject)	***	***	***	***	***	***	***	***	***	***	***	***
Brazil (non-subject)	***	***	***	***	***	***	***	***	***	***	***	***
China (non-subject)	***	***	***	***	***	***	***	***	***	***	***	***
All other sources	***	***	***	***	***	***	***	***	***	***	***	***
Subtotal (non-subject)	***	***	***	***	***	***	***	***	***	***	***	***
Total imports	***	***	***	***	***	***	***	***	***	***	***	***
U.S. consumption value:												
Amount	***	***	***	***	***	***	***	***	***	***	***	***
Producers' share (1)	***	***	***	***	***	***	***	***	***	***	***	***
Importers' share (1):												
Brazil (subject)	***	***	***	***	***	***	***	***	***	***	***	***
China (subject)	***	***	***	***	***	***	***	***	***	***	***	***
Subtotal (subject)	***	***	***	***	***	***	***	***	***	***	***	***
Brazil (non-subject)	***	***	***	***	***	***	***	***	***	***	***	***
China (non-subject)	***	***	***	***	***	***	***	***	***	***	***	***
All other sources	***	***	***	***	***	***	***	***	***	***	***	***
Subtotal (non-subject)	***	***	***	***	***	***	***	***	***	***	***	***
Total imports	***	***	***	***	***	***	***	***	***	***	***	***
U.S. imports from:												
Brazil (subject):												
Quantity	22,797	***	***	***	***	***	***	***	***	***	***	***
Value	29,520	***	***	***	***	***	***	***	***	***	***	***
Unit value	$1,295	***	***	***	***	***	***	***	***	***	***	***
Ending inventory quantity	0	***	***	***	***	***	***	***	***	***	***	***
China (subject):												
Quantity	52	1,177	33	22	116	44	-15.4	2163.5	-97.2	-33.3	427.3	-62.1
Value	55	1,109	39	23	117	76	38.2	1916.4	-96.5	-41.0	408.7	-35.0
Unit value	$1,058	$942	$1,182	$1,045	$1,009	$1,727	63.3	-10.9	25.4	-11.5	-3.5	71.3
Ending inventory quantity	0	0	0	0	0	0	(2)	(2)	(2)	(2)	(2)	(2)
Subtotal (subject):												
Quantity	22,849	***	***	***	***	***	***	***	***	***	***	***
Value	29,575	***	***	***	***	***	***	***	***	***	***	***
Unit value	$1,294	***	***	***	***	***	***	***	***	***	***	***
Ending inventory quantity	0	***	***	***	***	***	***	***	***	***	***	***
Brazil (non-subject):												
Quantity	0	***	***	***	***	***	***	***	***	***	***	***
Value	0	***	***	***	***	***	***	***	***	***	***	***
Unit value	(2)	***	***	***	***	***	***	***	***	***	***	***
Ending inventory quantity	0	***	***	***	***	***	***	***	***	***	***	***
China (non-subject):												
Quantity	4,878	3,156	5,478	3,074	3,022	2,681	-45.0	-35.3	73.6	-43.9	-1.7	-11.3
Value	3,867	2,273	4,152	2,637	3,379	2,855	-26.2	-41.2	82.7	-36.5	28.1	-15.5
Unit value	$793	$720	$758	$858	$1,118	$1,065	34.3	-9.1	5.2	13.2	30.3	-4.8
Ending inventory quantity	0	0	0	0	0	0	(2)	(2)	(2)	(2)	(2)	(2)
All other sources:												
Quantity	113,040	107,766	111,851	79,042	97,449	90,467	-20.0	-4.7	3.8	-29.3	23.3	-7.2
Value	123,846	112,794	114,367	88,818	127,481	139,163	12.4	-8.9	1.4	-22.3	43.5	9.2
Unit value	$1,096	$1,047	$1,022	$1,124	$1,308	$1,538	40.4	-4.5	-2.3	9.9	16.4	17.6
Ending inventory quantity	2,110	2,897	5,268	5,919	8,056	2,656	25.9	37.3	81.8	12.4	36.1	-67.0
Subtotal (non-subject):												
Quantity	117,918	***	***	***	***	***	***	***	***	***	***	***
Value	127,713	***	***	***	***	***	***	***	***	***	***	***
Unit value	$1,083	***	***	***	***	***	***	***	***	***	***	***
Ending inventory quantity	2,110	***	***	***	***	***	***	***	***	***	***	***
All sources:												
Quantity	140,768	129,544	159,569	138,395	176,511	162,525	15.5	-8.0	23.2	-13.3	27.5	-7.9
Value	157,287	138,823	173,191	157,572	223,549	239,940	52.5	-11.7	24.8	-9.0	41.9	7.3
Unit value	$1,117	$1,072	$1,085	$1,139	$1,266	$1,476	32.1	-4.1	1.3	4.9	11.2	16.6
Ending inventory quantity	2,110	2,897	5,268	7,843	9,606	6,486	207.4	37.3	81.8	48.9	22.5	-32.5
U.S. producers':												
Average capacity quantity	***	***	***	***	***	***	***	***	***	***	***	***
Production quantity	***	***	***	***	***	***	***	***	***	***	***	***
Capacity utilization (1)	***	***	***	***	***	***	***	***	***	***	***	***
U.S. shipments:												
Quantity	***	***	***	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***	***	***	***
Export shipments:												
Quantity	***	***	***	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***	***	***	***
Inventories/total shipments (1)	***	***	***	***	***	***	***	***	***	***	***	***
Production workers	***	***	***	***	***	***	***	***	***	***	***	***
Hours worked (1,000s)	***	***	***	***	***	***	***	***	***	***	***	***
Wages paid ($1,000s)	***	***	***	***	***	***	***	***	***	***	***	***
Hourly wages	***	***	***	***	***	***	***	***	***	***	***	***
Productivity (tons/1,000 hours)	***	***	***	***	***	***	***	***	***	***	***	***
Unit labor costs	***	***	***	***	***	***	***	***	***	***	***	***
Net sales:												
Quantity	***	***	***	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***	***	***	***
Cost of goods sold (COGS)	***	***	***	***	***	***	***	***	***	***	***	***
Impairment	***	***	***	***	***	***	***	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***	***	***	***	***	***	***	***
SG&A expenses	***	***	***	***	***	***	***	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***	***	***	***	***	***	***	***
Capital expenditures	***	***	***	***	***	***	***	***	***	***	***	***
Unit COGS	***	***	***	***	***	***	***	***	***	***	***	***
Unit SG&A expenses	***	***	***	***	***	***	***	***	***	***	***	***
Unit operating income or (loss)	***	***	***	***	***	***	***	***	***	***	***	***
COGS/sales (1)	***	***	***	***	***	***	***	***	***	***	***	***
Operating income or (loss)/ sales (1)	***	***	***	***	***	***	***	***	***	***	***	***

(1) "Reported data" are in percent and "period changes" are in percentage points.

(2) Not applicable.

Note.--Financial data are reported on a fiscal year basis and may not necessarily be comparable to data reported on a calendar year basis. Because of rounding, figures may not add to the totals shown. Unit values and shares are calculated from the unrounded figures.

Source: Compiled from data submitted in response to Commission questionnaires.

Table C-1
Silicon metal: Summary data concerning the U.S. market, 2014-16, January to September 2016, and January to September 2017
(Quantity=short tons contained silicon; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per STCS; Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			January to September		Calendar year			Jan-Sep
	2014	2015	2016	2016	2017	2014-16	2014-15	2015-16	2016-17
U.S. consumption quantity:									
Amount	***	***	***	***	***	***	***	***	***
Producers' share (fn1)	***	***	***	***	***	***	***	***	***
Importers' share (fn1):	***	***	***	***	***	***	***	***	***
China	***	***	***	***	***	***	***	***	***
Nonsubject sources	***	***	***	***	***	***	***	***	***
All import sources	***	***	***	***	***	***	***	***	***
U.S. consumption value:									
Amount	***	***	***	***	***	***	***	***	***
Producers' share (fn1)	***	***	***	***	***	***	***	***	***
Importers' share (fn1):	***	***	***	***	***	***	***	***	***
China	***	***	***	***	***	***	***	***	***
Nonsubject sources	***	***	***	***	***	***	***	***	***
All import sources	***	***	***	***	***	***	***	***	***
U.S. imports from:									
China:									
Quantity	120	264	339	269	210	183.0	120.4	28.4	(21.7)
Value	405	362	453	370	315	11.7	(10.8)	25.2	(14.9)
Unit value	$3,384	$1,370	$1,336	$1,377	$1,497	(60.5)	(59.5)	(2.5)	8.8
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Nonsubject sources:									
Quantity	211,438	179,529	166,348	126,427	132,762	(21.3)	(15.1)	(7.3)	5.0
Value	552,804	479,757	367,127	279,967	285,749	(33.6)	(13.2)	(23.5)	2.1
Unit value	$2,614	$2,672	$2,207	$2,214	$2,152	(15.6)	2.2	(17.4)	(2.8)
Ending inventory quantity	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity	211,558	179,793	166,687	126,695	132,971	(21.2)	(15.0)	(7.3)	5.0
Value	553,210	480,118	367,580	280,337	286,064	(33.6)	(13.2)	(23.4)	2.0
Unit value	$2,615	$2,670	$2,205	$2,213	$2,151	(15.7)	2.1	(17.4)	(2.8)
Ending inventory quantity	***	***	***	***	***	***	***	***	***
U.S. producers':									
Average capacity quantity	***	***	***	***	***	***	***	***	***
Production quantity	***	***	***	***	***	***	***	***	***
Capacity utilization (fn1)	***	***	***	***	***	***	***	***	***
U.S. shipments:	***	***	***	***	***	***	***	***	***
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Export shipments:	***	***	***	***	***	***	***	***	***
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***
Inventories/total shipments (fn1)	***	***	***	***	***	***	***	***	***
Production workers	***	***	***	***	***	***	***	***	***
Hours worked (1,000s)	***	***	***	***	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***	***	***	***	***
Hourly wages (dollars)	***	***	***	***	***	***	***	***	***
Productivity (short tons 1,000 per hour)	***	***	***	***	***	***	***	***	***
Unit labor costs	***	***	***	***	***	***	***	***	***
Net sales:	***	***	***	***	***	***	***	***	***
Quantity	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***
Cost of goods sold (COGS)	***	***	***	***	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***	***	***	***	***
SG&A expenses	***	***	***	***	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***	***	***	***	***
Net income or (loss)	***	***	***	***	***	***	***	***	***
Capital expenditures	***	***	***	***	***	***	***	***	***
Unit COGS	***	***	***	***	***	***	***	***	***
Unit SG&A expenses	***	***	***	***	***	***	***	***	***
Unit operating income or (loss)	***	***	***	***	***	***	***	***	***
Unit net income or (loss)	***	***	***	***	***	***	***	***	***
COGS/sales (fn1)	***	***	***	***	***	***	***	***	***
Operating income or (loss)/sales (fn1)	***	***	***	***	***	***	***	***	***
Net income or (loss)/sales (fn1)	***	***	***	***	***	***	***	***	***

Note.--Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Undefined.

Source: Official U.S. imports based on General Imports using statistical reporting numbers 2804.69.1000 and 2804.69.5000, accessed on January 9, 2018.

APPENDIX D

PURCHASER QUESTIONNAIRE RESPONSES

As part of their response to the notice of institution, interested parties were asked to provide a list of three to five leading purchasers in the U.S. market for the domestic like product. A response was received from the domestic interested parties who provided contact information for the following five firms as top purchasers of silicon metal: ***. Purchaser questionnaires were sent to these five firms, and three firms (***, ***, and ***) provided responses, which are presented below.

1. Have there been any significant changes in the supply and demand conditions for silicon metal that have occurred in the United States or in the market for silicon metal in China since January 1, 2018?

Purchaser	Yes / No	Changes in supply and demand conditions
***	***	***
***	***	***
***	***	***

2. Do you anticipate any significant changes in the supply and demand conditions for silicon metal in the United States or in the market for silicon metal in China within a reasonably foreseeable time?

Purchaser	Yes / No	Anticipated changes
***	***	***
***	***	***
***	***	***