Barium Chloride from India

Investigation No. 701-TA-678 (Final)

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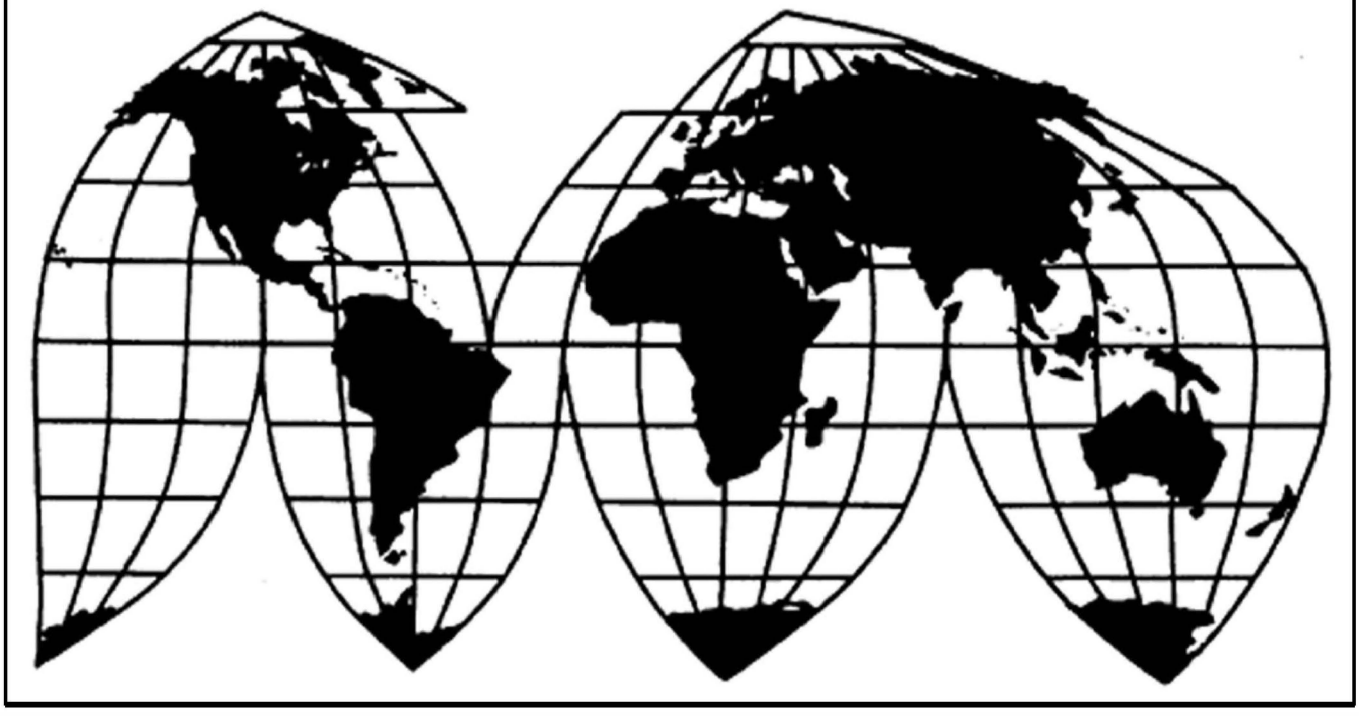
U.S. International Trade Commission



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UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation No. 701-TA-678 (Final)

Barium Chloride from India

DETERMINATION

On the basis of the record[1] developed in the subject investigation, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that an industry in the United States is materially injured by reason of imports of barium chloride from India, provided for in subheading 2827.39.45 of the Harmonized Tariff Schedule of the United States, that have been found by the U.S. Department of Commerce ("Commerce") to be subsidized by the government of India.[2]

BACKGROUND

The Commission instituted this investigation effective January 12, 2022, following receipt of a petition filed with the Commission and Commerce by Chemical Products Corp., Cartersville, Georgia. The Commission scheduled the final phase of the investigation following notification of a preliminary determination by Commerce that imports of barium chloride from India were being subsidized within the meaning of section 703(b) of the Act (19 U.S.C. 1671b(b)). Notice of the scheduling of the final phase of the Commission's investigation and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of September 7, 2022 (87 FR 54714). The Commission conducted its hearing on January 5, 2023. All persons who requested the opportunity were permitted to participate.

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

[2] 88 FR 1044 (January 6, 2023).

Views of the Commission

Based on the record in the final phase of this investigation, we determine that an industry in the United States is materially injured by reason of imports of barium chloride from India found by the U.S. Department of Commerce ("Commerce") to be subsidized by the Government of India.

I. Background

Chemical Products Corp. ("CPC" or "Petitioner"), a U.S. producer of barium chloride, filed the petition in this investigation on January 12, 2022.[1] Petitioner appeared at the hearing, accompanied by counsel, and submitted prehearing and posthearing briefs, as well as final comments. Respondents BassTech International ("BassTech"), a U.S. importer of barium chloride from India and a ***, and Chaitanya Chemicals ("Chaitanya"), a producer and exporter of barium chloride in India, also participated in the final phase of the investigation. Both respondents appeared at the hearing with counsel and both respondents submitted prehearing briefs and posthearing briefs.[2]

[1] Confidential Report ("CR"), Memorandum INV-VV-005 (Jan. 20, 2023) at Table I-1, as revised by Memorandum INV-VV-006 (Jan. 23, 2023); Public Report, *Barium Chloride from India*, Inv. No. 701-TA-678 (Final), USITC Pub. 5406 (Feb. 2023) ("PR") at Table I-1. On the same day, CPC also filed petitions with Commerce and the Commission alleging that an industry in the United States was materially injured and threatened with material injury by reason of imports of barium chloride from India sold in the United States at less-than-fair-value. Following Commerce's negative final determination of sales at less-than-fair-value, the Commission terminated its antidumping duty investigation of barium chloride from India on January 6, 2023. *Id*. at n.1; *Barium Chloride From India; Termination of Investigation*, 88 Fed. Reg. 2638 (Jan. 17, 2023).

[2] BassTech also submitted final comments.

U.S. industry data are based on the questionnaire response from CPC, which accounted for *** percent of domestic production of barium chloride in 2021.[3] U.S. import data are based on questionnaire responses from 13 U.S. importers of barium chloride during the January 2019 to June 2022 period of investigation ("POI"), accounting for *** U.S. imports of barium chloride from India in 2021.[4] Data concerning the subject industry are based on questionnaire responses from four producers of barium chloride in India, which reportedly accounted for *** percent of barium chloride production in India in 2021.[5]

II. Domestic Like Product

A. In General

In determining whether an industry in the United States is materially injured or threatened with material injury by reason of imports of subject merchandise, the Commission first defines the "domestic like product" and the "industry."[6] Section 771(4)(A) of the Tariff Act of 1930, as amended ("the Tariff Act"), defines the relevant domestic industry as the "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."[7] In turn, 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."[8]

[3] CR/PR at I-5, III-1.

[4] CR/PR at I-5, IV-1.

[5] CR/PR at I-5, VII-3. Of the four responding foreign producers, Chaitanya *** to the United States in 2021. CR/PR at Table VII-1. It accounted for approximately *** percent of reported imports of subject merchandise from India to the United States in 2021. CR/PR at VII-3 n.6.

[6] 19 U.S.C. § 1677(4)(A).

[7] 19 U.S.C. § 1677(4)(A).

[8] 19 U.S.C. § 1677(10).

By statute, the Commission's "domestic like product" analysis begins with the "article subject to an investigation," *i.e.*, the subject merchandise as determined by Commerce.[9] Therefore, Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value is "necessarily the starting point of the Commission's like product analysis."[10] The Commission then defines the domestic like product in light of the imported articles Commerce has identified.[11] The decision regarding the appropriate domestic like product(s) in an investigation is a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in characteristics and uses" on a case-by-case basis.[12] No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[13] The Commission looks for clear dividing lines among possible like products and disregards minor variations.[14]

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[9] 19 U.S.C. § 1677(10). The Commission must accept Commerce's determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value. *See*, *e.g.*, *USEC, Inc. v. United States*, 34 Fed. App'x 725, 730 (Fed. Cir. 2002) ("The ITC may not modify the class or kind of imported merchandise examined by Commerce."); *Algoma Steel Corp. v. United States,* 688 F. Supp. 639, 644 (Ct. Int'l Trade 1988), *aff'd*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

[10] *Cleo Inc. v. United States*, 501 F.3d 1291, 1298 (Fed. Cir. 2007); *see also Hitachi Metals, Ltd. v. United States*, Case No. 19-1289, slip op. at 8–9 (Fed. Circ. Feb. 7, 2020) (the statute requires the Commission to start with Commerce's subject merchandise in reaching its own like product determination).

[11] *Cleo*, 501 F.3d at 1298, n.1 ("Commerce's {scope} finding does not control the Commission's {like product} determination."); *Hosiden Corp. v. Advanced Display Mfrs*., 85 F.3d 1561, 1568 (Fed. Cir. 1996) (the Commission may find a single like product corresponding to several different classes or kinds defined by Commerce); *Torrington Co. v. United States*, 747 F. Supp. 744, 748–52 (Ct. Int'l Trade 1990), *aff'd*, 938 F.2d 1278 (Fed. Cir. 1991) (affirming the Commission's determination defining six like products in investigations where Commerce found five classes or kinds).

[12] *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); *Torrington Co. v. United States*, 747 F. Supp. 744, 749 n.3 (Ct. Int'l Trade 1990), aff'd, 938 F.2d 1278 (Fed. Cir. 1991) ("every like product determination 'must be made on the particular record at issue' and the 'unique facts of each case'"). The Commission generally considers a number of factors, including the following: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price. *See Nippon*, 19 CIT at 455 n.4; *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int'l Trade 1996).

[13] *See*, *e.g.*, S. Rep. No. 96-249 at 90–91 (1979).

B. Product Description

Commerce defined the scope of the imported merchandise under investigation as follows:

> *{B}arium chloride, a chemical compound having the formulas $BaCl_2$ or $BaCl_2$-$2H_2O$, currently classifiable under subheading 2827.39.4500 of the Harmonized Tariff Schedule of the United States (HTSUS). Although the HTSUS subheading is provided for convenience and customs purposes, the written description of the scope of this investigation is dispositive*.[15]

Barium chloride is produced in dihydrate (or crystalline) and anhydrous forms.[16] In its dihydrate form, barium chloride is primarily used as an intermediate in the production of molecular catalyst sieves but it can also be used as a cleansing agent in certain chemical and water treatment processes, as a cleansing ingredient in lubricating oil additives, and as a raw material in the production of certain chemicals, pigments, and paper coatings.[17] The anhydrous form of barium chloride, which is heat-treated to remove its water content, is primarily used as an ingredient in heat-treating salts and metal fluxes.[18]

[14] *Nippon*, 19 CIT at 455; *Torrington*, 747 F. Supp. at 748–49; *see also* S. Rep. No. 96-249 at 90-91 (Congress has indicated that the like product standard should not be interpreted in "such a narrow fashion as to permit minor differences in physical characteristics or uses to lead to the conclusion that the product and article are not 'like' each other, nor should the definition of 'like product' be interpreted in such a fashion as to prevent consideration of an industry adversely affected by the imports under consideration.").

[15] *Barium Chloride From India: Final Affirmative Countervailing Duty Determination*, 88 Fed. Reg. 1044, 1046 (Jan. 6, 2023).

[16] CR/PR at I-9.

[17] CR/PR at I-10–11. In the final phase of the investigation, the Commission requested data on barium chloride dihydrate high purity, electronic grade, which is used in the electronics market and may also have limited applications in laboratories for research and development purposes. Both CPC and BassTech are not aware of a commercial market for electronic or high purity grade barium chloride dihydrate in the United States. *Id*. at n.32.

[18] CR/PR at I-11.

C. Domestic Like Product Analysis

Based on the record in the final phase of this investigation, we define a single domestic like product consisting of barium chloride, coextensive with the scope. Petitioner contends that the Commission should define a single domestic like product, coextensive with the scope of the investigation, as it did in the preliminary phase of the investigation.[19] Respondents do not oppose this domestic like product definition.

In its preliminary determinations, the Commission defined a single domestic like product consisting of barium chloride, coextensive with the scope.[20] No party proposed a different domestic like product definition.[21] The record in the final phase of this investigation contains no new information or argument concerning the characteristics and uses of domestically produced barium chloride that would warrant the Commission's reconsideration of the domestic like product definition from its preliminary determinations.[22] In light of this, and in the absence of any argument to the contrary, we again define a single domestic like product consisting of all barium chloride, coextensive with the scope of the investigation.

III. Domestic Industry

The domestic industry is defined 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."[23] 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.

[19] Petitioner's Prehearing Brief, EDIS Doc. 787032 (Dec. 29, 2023) ("Pet. Prehr'g Br.") at 3–4.

[20] *Barium Chloride from India*, Inv. Nos. 701-TA-678 and 731-TA-1584 (Preliminary), USITC Pub. 5295 (March 2022) ("*Preliminary Determinations*") at 7–8.

[21] *Preliminary Determinations*, USITC Pub. 5295 at 7.

[22] *See generally* CR/PR at I-7–12.

[23] 19 U.S.C. § 1677(4)(A).

Petitioner agrees that the domestic industry should be defined to include the sole U.S. commercial producer of barium chloride, CPC, as was done in the preliminary phase of the investigation.[24]

There are no related party issues in the final phase of the investigation.[25] The investigation also does not raise any other domestic industry issues. Consequently, consistent with our definition of the domestic like product, we define the domestic industry as CPC, the sole domestic producer of the domestic like product.[26]

IV. Material Injury by Reason of Subject Imports[27]

Based on the record in the final phase of the investigation, we find that an industry in the United States is materially injured by reason of subject imports of barium chloride from India.

[24] Pet. Prehr'g Br. at 4–5.

[25] The record in the final phase of the investigation indicates that ***, or otherwise implicates the related party provision. CR/PR at III-2.

[26] CR/PR at Table III-1. CPC accounted for *** percent of domestic production of barium chloride in 2021. While CPC acknowledges that some U.S. companies may produce small amounts of barium chloride for internal consumption, and CPC also internally consumes barium chloride to produce downstream ***, it maintains that it is the sole commercial producer of barium chloride in the United States. *Id.* at III-1 nn.4 and 5, III-8 n.12, and VI-6 n.12.

[27] Section 771(24) of the Tariff Act, which defines "negligibility," generally provides that imports from a subject country that are less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or self-initiation, as the case may be, shall be deemed negligible. 19 U.S.C. § 1677(24)(A)(i).

Subject imports from India accounted for *** percent of total imports of barium chloride in the 12-month period (January 2021 through December 2021) preceding the filing of the petition. CR/PR at Table IV-5. We consequently find that subject imports from India are not negligible.

A. Legal Standards

In the final phase of antidumping and countervailing duty investigations, the Commission determines whether an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.[28] In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production operations.[29] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[30] In assessing whether the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.[31] No single factor is dispositive, and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[32]

[28] 19 U.S.C. §§ 1671d(b), 1673d(b).

[29] 19 U.S.C. § 1677(7)(B). The Commission "may consider such other economic factors as are relevant to the determination" but shall "identify each {such} factor ... and explain in full its relevance to the determination." 19 U.S.C. § 1677(7)(B).

[30] 19 U.S.C. § 1677(7)(A).

[31] 19 U.S.C. § 1677(7)(C)(iii).

[32] 19 U.S.C. § 1677(7)(C)(iii).

Although the statute requires the Commission to determine whether the domestic industry is "materially injured or threatened with material injury by reason of" unfairly traded imports,[33] it does not define the phrase "by reason of," indicating that this aspect of the injury analysis is left to the Commission's reasonable exercise of its discretion.[34] In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the "by reason of" standard must ensure that subject imports are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.[35]

[33] 19 U.S.C. §§ 1671d(b), 1673d(b).

[34] *Angus Chemical Co. v. United States*, 140 F.3d 1478, 1484-85 (Fed. Cir. 1998) ("{T}he statute does not 'compel the commissioners' to employ {a particular methodology}."), *aff'g,* 944 F. Supp. 943, 951 (Ct. Int'l Trade 1996).

[35] The Federal Circuit, in addressing the causation standard of the statute, observed that "{a}s long as its effects are not merely incidental, tangential, or trivial, the foreign product sold at less than fair value meets the causation requirement." *Nippon Steel Corp. v. USITC*, 345 F.3d 1379, 1384 (Fed. Cir. 2003). This was further ratified in *Mittal Steel Point Lisas Ltd. v. United States*, 542 F.3d 867, 873 (Fed. Cir. 2008), where the Federal Circuit, quoting *Gerald Metals, Inc. v. United States*, 132 F.3d 716, 722 (Fed. Cir. 1997), stated that "this court requires evidence in the record 'to show that the harm occurred "by reason of" the LTFV imports, not by reason of a minimal or tangential contribution to material harm caused by LTFV goods.'" *See also Nippon Steel Corp. v. United States*, 458 F.3d 1345, 1357 (Fed. Cir. 2006); *Taiwan Semiconductor Industry Ass'n v. USITC*, 266 F.3d 1339, 1345 (Fed. Cir. 2001).

In many investigations, there are other economic factors at work, some or all of which may also be having adverse effects on the domestic industry. Such economic factors might include nonsubject imports; changes in technology, demand, or consumer tastes; competition among domestic producers; or management decisions by domestic producers. The legislative history explains that the Commission must examine factors other than subject imports to ensure that it is not attributing injury from other factors to the subject imports, thereby inflating an otherwise tangential cause of injury into one that satisfies the statutory material injury threshold.[36] In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.[37] Nor does the "by reason of" standard require that unfairly traded imports be the "principal" cause of injury or contemplate that injury from unfairly traded imports be weighed against other factors, such as nonsubject imports, which may be contributing to overall injury to an industry.[38] It is clear that the existence of injury caused by other factors does not compel a negative determination.[39]

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[36] SAA at 851–52 ("{T}he Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports."); S. Rep. 96-249 at 75 (1979) (the Commission "will consider information which indicates that harm is caused by factors other than less-than-fair-value imports."); H.R. Rep. 96-317 at 47 (1979) ("in examining the overall injury being experienced by a domestic industry, the ITC will take into account evidence presented to it which demonstrates that the harm attributed by the petitioner to the subsidized or dumped imports is attributable to such other factors;" those factors include "the volume and prices of nonsubsidized imports or imports sold at fair value, contraction in demand or changes in patterns of consumption, trade restrictive practices of and competition between the foreign and domestic producers, developments in technology and the export performance and productivity of the domestic industry"); *accord Mittal Steel*, 542 F.3d at 877.

[37] SAA at 851–52 ("{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports."); *Taiwan Semiconductor Industry Ass'n,* 266 F.3d at 1345 ("{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports ... . Rather, the Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports." (emphasis in original)); *Asociacion de Productores de Salmon y Trucha de Chile AG v. United States*, 180 F. Supp. 2d 1360, 1375 (Ct. Int'l Trade 2002) ("{t}he Commission is not required to isolate the effects of subject imports from other factors contributing to injury" or make "bright-line distinctions" between the effects of subject imports and other causes.); *see also Softwood Lumber from Canada*, Inv. Nos. 701-TA-414 and 731-TA-928 (Remand), USITC Pub. 3658 at 100–01 (Dec. 2003) (Commission recognized that "{i}f an alleged other factor is found not to have or threaten to have injurious effects to the domestic industry, *i.e*., it is not an 'other causal factor,' then there is nothing to further examine regarding attribution to injury"), *citing Gerald Metals,* 132 F.3d at 722 (the statute "does not suggest that an importer of LTFV goods can escape countervailing duties by finding some tangential or minor cause unrelated to the LTFV goods that contributed to the harmful effects on domestic market prices.").

[38] S. Rep. 96-249 at 74–75; H.R. Rep. 96-317 at 47.

Assessment of whether material injury to the domestic industry is "by reason of" subject imports "does not require the Commission to address the causation issue in any particular way" as long as "the injury to the domestic industry can reasonably be attributed to the subject imports."[40] The Commission ensures that it has "evidence in the record" to "show that the harm occurred 'by reason of' the LTFV imports," and that it is "not attributing injury from other sources to the subject imports." [41] The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[42]

The question of whether the material injury threshold for subject imports is satisfied notwithstanding any injury from other factors is factual, subject to review under the substantial evidence standard.[43] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[44]

B. Conditions of Competition and the Business Cycle

The following conditions of competition inform our analysis of whether there is material injury by reason of subject imports.

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[39] *See Nippon Steel Corp*., 345 F.3d at 1381 ("an affirmative material-injury determination under the statute requires no more than a substantial-factor showing. That is, the 'dumping' need not be the sole or principal cause of injury.").

[40] *Mittal Steel*, 542 F.3d at 876 &78; *see also id.* at 873 ("While the Commission may not enter an affirmative determination unless it finds that a domestic industry is materially injured 'by reason of' subject imports, the Commission is not required to follow a single methodology for making that determination ... {and has} broad discretion with respect to its choice of methodology.") *citing United States Steel Group v. United States*, 96 F.3d 1352, 1362 (Fed. Cir. 1996) and S. Rep. 96-249 at 75. In its decision in *Swiff-Train v. United States*, 793 F.3d 1355 (Fed. Cir. 2015), the Federal Circuit affirmed the Commission's causation analysis as comporting with the Court's guidance in *Mittal*.

[41] *Mittal Steel*, 542 F.3d at 873 (quoting from *Gerald Metals*, 132 F.3d at 722), 877–79. We note that one relevant "other factor" may involve the presence of significant volumes of price-competitive nonsubject imports in the U.S. market, particularly when a commodity product is at issue. In appropriate cases, the Commission collects information regarding nonsubject imports and producers in nonsubject countries in order to conduct its analysis.

[42] *Nucor Corp. v. United States*, 414 F.3d 1331, 1336, 1341 (Fed. Cir. 2005); *see also Mittal Steel*, 542 F.3d at 879 ("*Bratsk* did not read into the antidumping statute a Procrustean formula for determining whether a domestic injury was 'by reason' of subject imports.").

[43] We provide in our discussion below a full analysis of other factors alleged to have caused any material injury experienced by the domestic industry.

[44] *Mittal Steel*, 542 F.3d at 873; *Nippon Steel Corp*., 458 F.3d at 1350, *citing U.S. Steel Group*, 96 F.3d at 1357; S. Rep. 96-249 at 75 ("The determination of the ITC with respect to causation is ... complex and difficult, and is a matter for the judgment of the ITC.").

1. Demand Conditions

U.S. demand for barium chloride, largely consisting of barium chloride dihydrate, is derived from the downstream products in which it is used.[45] Barium chloride dihydrate is primarily used in the production of molecular catalyst sieves for oil refining and as a cleansing agent for wastewater treatment for industrial drilling and construction.[46] The anhydrous form of barium chloride is used primarily as an ingredient in heat treating salts and metal fluxes.[47] The U.S. barium chloride market is mature, with no significant new applications emerging during the POI.[48] The parties agree that the U.S. market is also characterized by a relatively small number of large purchasers,[49] the largest of which are ***, which accounted for at least *** and *** percent of total reported purchases, respectively, during the POI.[50]

[45] CR/PR at II-8–9, *see* CR/PR at Tables III-8 and IV-3.

[46] CR/PR at I-4, I-10, II-7–10; Pet. Prehr'g Br. at 8; Pet. Prehr'g Br. at 19; Petitioner Posthearing Brief, EDIS Doc. 787685, at 1–2 (Jan. 11, 2023) ("Pet. Posthr'g Br."); BassTech Prehearing Brief, EDIS Doc. 787092 at 21 (Dec. 30, 2022) ("BassTech Prehr'g Br."). CPC and *** reported that construction and drilling activities including fracking influence barium chloride demand due to its use in treating wastewater from these activities. CR/PR at II-7–8. CPC indicated that barium chloride demand is most influenced by refinery activity, which in turn is influenced by the price of crude oil and gasoline. *Id*. BassTech disputes that oil prices and broader economic trends reflect trends in demand for barium chloride and argues that barium chloride sales are motivated by consumer demand, particularly in the *** industries. BassTech Prehr'g Br. at 19–21. The record shows that industrial drilling production (mining, quarrying, and oil and gas extraction) decreased in 2019 and sharply in 2020 before recovering in 2021 and interim 2022, and oil and gas drilling wells producer prices followed similar trends. CR/PR at II-11, Fig. II-2, and Table E-2. Crude oil and gasoline prices and construction spending increased irregularly during the POI. CR/PR at II-10–12, Figs. II-1, II-3, and Tables E-1, E-3.

[47] CR/PR at I-11.

[48] CR/PR at I-9.

[49] Pet. Prehr'g Br. at 7–8; Pet. Posthr'g Br. at 1; BassTech Prehr'g Br. at 23.

[50] *Derived from* CR/PR at Table V-7. To avoid double-counting, this tally excludes ***, which is both an importer of subject imports and a purchaser of domestically produced barium chloride and otherwise appears as the *** in Table V-7. Additionally, these figures may be understated as they include imports from ***, an importer and distributor. ***'s U.S. Purchaser Questionnaire Response at II-1 and III-1. *** accounted for *** and *** percent of U.S. purchases during the POI, respectively, when excluding reported imports from *** from the volume of reported purchases. *** accounted for *** and *** percent of U.S. purchases, respectively, when including imports from ***. *Derived from* CR/PR at Table V-7.

Market participants had mixed perceptions regarding U.S. demand for barium chloride during the POI: the sole U.S. commercial producer (CPC) reported that demand ***, five of ten responding U.S. importers reported no change in demand while two responding importers, including ***, by far the *** importer, reported that demand had decreased, and six of eight responding U.S. purchasers reported either no change in demand or fluctuating demand.[51] CPC, BassTech, and Chaitanya agree that the COVID-19 pandemic contributed to declining demand during the POI.[52]

Apparent U.S. consumption of barium chloride declined from *** pounds in 2019 to *** pounds in 2020 and *** pounds in 2021, a level *** percent lower than in 2019.[53] It was higher in interim 2022 (*** pounds) than in interim 2021 (*** pounds).[54]

[51] CR/PR at Table II-4.

[52] Pet. Prehr'g Br. at 8; Pet. Posthr'g Br. at 2; BassTech Prehr'g Br. at 20, 26–28; BassTech Posthearing Brief, EDIS Doc. 787718, at 3 (Jan 11, 2023) ("BassTech Posthr'g Br."); Chaitanya Prehearing Brief, EDIS Doc. 787028 at 4–5 (Dec. 29, 2022) ("Chaitanya Prehr'g Br."). BassTech claims that, while COVID-19 impacted demand, it was not the sole reason for declining demand for barium chloride as demand also declined prior to the pandemic. It claims that some end uses for barium chloride in the United States have been eliminated due to the sourcing of the production of downstream products overseas or due to competing technologies and the substitution of alternate products. BassTech Prehr'g Br. at 20–22.

[53] CR/PR at Tables IV-6 and C-1.

[54] CR/PR at Table IV-6.

2. Supply Conditions

The U.S. barium chloride market is comprised of a limited number of suppliers, primarily supplied by subject imports and the domestic industry during the POI, with nonsubject imports accounting for a small share of supply.[55] CPC accounted for all commercial domestic production of barium chloride in 2021;[56] Chaitanya, one of four subject producers responding to the Commission's questionnaire, accounted for approximately *** percent of reported imports of subject merchandise from India to the United States in 2021 and was the *** responding exporter of barium chloride to the United States in that year.[57] [58]

The domestic industry was the second largest source of supply during the POI, with the exception of interim 2022 when it was the largest.[59] The domestic industry's share of apparent U.S. consumption declined from *** percent in 2019, to *** percent in 2020, and to *** percent in 2021; it was higher in interim 2022, at *** percent, than in interim 2021, at *** percent.[60] The domestic industry's production capacity was relatively stable during the POI, declining from *** pounds in 2019 to *** pounds in 2020, before returning to *** pounds in 2021; it was *** pounds in both interim 2022 and interim 2021. Its capacity utilization rate declined during each full year of the POI, from *** percent in 2019, to *** percent in 2020, and to *** percent in 2021; it was *** in interim 2022 (*** percent) compared to interim 2021 (*** percent).[61]

[55] CR/PR at Table IV-6.

[56] CR/PR at III-1 n.4 and Table III-1.

[57] CR/PR at VII-3 n.6 and Table VII-1. Chaitanya is the *** producer of barium chloride in India, comprising *** percent of reported production in India in 2021. *Id.*

[58] CPC produces a single grade of barium chloride that generally meets most U.S. purchaser specifications via quality control. CR/PR I-10 n.32; II-15 n.27. Chaitanya reports that it produces four grades of barium chloride: "technical grade," "catalyst grade," "electronic grade," and "high purity grade." Hearing Transcript ("Hr'g. Tr.") at 129 (Chalup). BassTech stated that it is not aware of a market for electronic or high pure grades in the United States. CR/PR at I-10 n.32; BassTech Posthr'g Br. at Exh. 1 p. 29; Hr'g. Tr. at 99–100 (Mazard) ("Chaitanya produces a very high purity dihydrate specific grade of barium chloride for the electronic industry . . . BassTech imported a trivial volume of this grade of barium chloride, but there currently is a limited demand for it in the United States.")

[59] CR/PR at Table IV-6.

[60] CR/PR at Table IV-6.

[61] CR/PR Table III-3.

Subject imports were the largest source of supply during the POI, with the exception of interim 2022 when they were the second largest. Subject imports, as a share of apparent U.S. consumption, increased from *** percent in 2019, to *** percent in 2020, and to *** percent in 2021; subject imports' market share was lower in interim 2022 (*** percent) compared to interim 2021 (*** percent).[62] Importer *** accounted for *** percent of subject imports in 2021.[63]

Nonsubject imports were the smallest source of supply during the POI. Their share of apparent U.S. consumption accounted for *** percent in 2019, *** percent in 2020, and *** percent in 2021; nonsubject import market share was higher in interim 2022 (*** percent) than in interim 2021 (*** percent).[64]

The majority of responding importers and purchasers reported that they had not experienced supply constraints either before or after the filing of the petition.[65] Eight of 10 purchasers reported that the availability of domestically produced barium chloride had not changed during the POI, and three of five reported that the availability of subject imports had not changed.[66] CPC reported *** and ***.[67]

[62] CR/PR at Table IV-6.

[63] CR/PR at Table IV-1.

[64] CR/PR at Table IV-6. According to official U.S. import statistics, Mexico was the largest source of nonsubject imports during the POI, followed by the United Kingdom. CR/PR at II-6.

[65] CR/PR at II-6.

[66] CR/PR at II-7.

[67] CR/PR Table III-2.

3. Substitutability and Other Conditions

We find that there is a high level of substitutability between domestically produced barium chloride and subject imports. The responding domestic producer and most responding U.S. purchasers reported that domestically produced barium chloride and subject imports are always interchangeable, although most responding importers reported that they are only sometimes or never interchangeable.[68] Most responding purchasers also reported that domestically produced barium chloride is comparable to subject imports across 18 purchasing factors with the exception of delivery terms, for which an equal number of purchasers reported the domestic like product was comparable or inferior to subject imports, and U.S. transportation costs, for which a plurality of purchasers reported the domestic like product was superior.[69] The responding domestic producer and most responding importers also reported that non-price differences are only sometimes significant in purchasing decisions between the domestic like product and subject imports, while half of responding purchasers reported that such differences are sometimes or never significant and half reported that such differences are always or frequently significant.[70] Reflecting the high degree of substitutability between subject imports and the domestic like product, most responding purchasers reported never making purchasing decision based on the country of origin.[71]

[68] CR/PR at Tables II-11–13. Three purchasers reported they were always interchangeable, two reported they were sometimes interchangeable, and none reported that they were never interchangeable. *Id*.

[69] CR/PR at Table II-10.

[70] CR/PR at Tables II-14–16.

[71] CR/PR at Table II-5.

We also find that price is an important factor in purchasing decisions. Responding U.S. purchasers most often cited price as among their top three purchasing factors (10), followed by quality (9) and availability (7).[72] Additionally, nine of 12 responding purchasers reported that price was a very important purchasing factor, although a greater number of responding purchasers identified availability, chemical form, product consistency, delivery time, quality meets industry standards, and reliability of supply as very important purchasing factors.[73] When asked how often they purchase barium chloride that is offered at the lowest price, eight of 13 responding purchasers reported "usually" or "sometimes," while five reported never doing so.[74] With respect to maintaining a diversity of supply, five U.S. purchasers reported that it was not important, five reported it was somewhat important, and two reported that it was very important.[75]

Most responding purchasers (nine of 13) also reported that they require their suppliers to become certified to sell barium chloride to their firm.[76] No purchaser reported that a domestic or foreign supplier had failed in its attempt to qualify for certification or had lost its approved certification status since 2019.[77] All responding purchasers reported that domestic and subject barium chloride always or usually met minimum quality specifications.[78]

*** domestically produced barium chloride and *** of subject imports were sold from inventory, with average lead times of *** days and *** days, respectively.[79]

[72] CR/PR at Table II-6.

[73] CR/PR at Table II-7. Majorities of responding purchasers reported that domestically produced barium chloride was comparable to subject imports with respect to the non-price purchasing factors identified as "very important." CR/PR at Table II-10.

[74] CR/PR at II-16.

[75] CR/PR at Table II-7.

[76] CR/PR at II-17.

[77] CR/PR at II-18.

[78] CR/PR at Table II-8. The Commission also notes that the record in this investigation demonstrates complete overlap in terms of the forms of barium chloride shipped in the United States. CR/PR at Tables III-4 (domestic producer shipments) and IV-4 (U.S. importer shipments of subject imports). Purchasers confirmed the comparability of subject imports and domestic product in terms of chemical form, product range, purity, and quality. CR/PR at Table II-10. Moreover, as noted above, the parties are not aware of a market for electronic or high pure grade barium chloride in the United States, *see* CR/PR at I-10 n.32, and the shipment data reveal no shipments of the same during the POI from any source. CR/PR at Tables III-4 and IV-4.

[79] CR/PR at II-17.

Finally, in addition to internally consuming barium chloride to produce ***, CPC's barium chloride production process ***.[80] CPC's ***, which ***, as well as the need for barium chloride to produce ***, create an economic incentive for CPC's continuous production of barium chloride.[81] CPC reported that as barium chloride production ***, this production line has *** and CPC must keep its barium chloride process running.[82]

C. Volume of Subject Imports

Section 771(7)(C)(i) of the Tariff Act provides that the "Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States, is significant."[83]

The volume of subject imports increased from *** pounds in 2019 to *** pounds in 2020, before declining to *** pounds in 2021, a level *** percent higher than in 2019.[84] The volume of subject imports was higher in interim 2022 (*** pounds) than in interim 2021 (*** pounds).[85]

As a share of apparent U.S. consumption, U.S. shipments of subject imports increased from *** percent in 2019, to *** percent in 2020, and *** percent in 2021; subject imports' market share was lower in interim 2022 (*** percent) than in interim 2021 (*** percent).[86]

As a share of U.S. production, subject imports increased from *** percent in 2019 to *** percent in 2020 and to *** percent in 2021.[87] Subject imports as a share of U.S. production were *** percent in interim 2022, compared to *** percent in interim 2021.[88]

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[80] CR/PR II-5 n.11, VI-6 n.12, VI-10 n.22.

[81] CR/PR at II-5 n.11, III-6 n.10, VI-10 n.22.

[82] CR/PR at III-6 n.10; Pet. Posthr'g Br. at 4–5 and Exh. 4 pp. 1–2, 5.

[83] 19 U.S.C. § 1677(7)(C)(i).

[84] CR/PR at Table IV-2.

[85] CR/PR at Table IV-2.

[86] CR/PR at Table IV-6. U.S. importers' U.S. shipments of subject imports declined from *** pounds in 2019 to *** pounds in 2020 and *** pounds in 2021; they were lower in interim 2022 at *** pounds compared to *** pounds in interim 2021. CR/PR at Tables IV-6 and C-1.

We find that the decline in subject imports as a share of apparent U.S. consumption in interim 2022 compared to interim 2021 was related, at least in part, to the pendency of the investigation. Responding purchasers reported a decrease in the volume of purchases of subject imports and an increase in purchases from the domestic industry in interim 2022, and a reluctance from their U.S. importer supplier to import, as a result of the filing of the petitions and concern for retroactive antidumping/countervailing duties. CR/PR at II-2 n.8, II-6–7, II-18–19; Pet. Prehr'g Br. at 19; *** Purchaser Questionnaire Response at III-13; *** Purchaser Questionnaire Response at II-2, III-13.

[87] CR/PR at Table IV-2.

[88] CR/PR at Table IV-2.

We find that the volume of subject imports is significant in absolute terms and relative to consumption and production in the United States, and that the increase in the volume of subject imports is significant relative to consumption and production in the United States.

D. Price Effects of the Subject Imports

Section 771(7)(C)(ii) of the Tariff Act provides that, in evaluating the price effects of the subject imports, the Commission shall consider whether

> *(I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and*
>
> *(II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree*.[89]

As discussed above in Section IV.B.3., we find that there is a high degree of substitutability between domestically produced barium chloride and subject imports, and that price is an important factor in purchasing decisions.

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of two pricing products that were sold to unrelated U.S. customers during the POI.[90] CPC and seven importers provided usable pricing data for sales of the requested products, although not all firms reported pricing data for all products for all quarters.[91] Quarterly pricing data reported by these firms accounted for *** percent of the domestic industry's U.S. shipments of barium chloride and 100.0 percent of U.S. shipments of subject imports in 2021.[92]

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[89] 19 U.S.C. § 1677(7)(C)(ii).

[90] CR/PR at V-8. The two pricing products are as follows:

Product 1–Barium chloride anhydrous ($BaCl_2$);

Product 2–Barium chloride dihydrate ($BaCl_2$–$2H_2O$), excluding high purity, electronic grade that has a minimum purity of 99.5 percent. *Id*.

[91] CR/PR at V-8.

[92] CR/PR at V-8.

The price comparison data show that subject imports undersold the domestic like product in all 21 quarterly price comparisons, involving 12.8 million pounds of subject imports,[93] with underselling margins that ranged from 6.8 percent to 64.1 percent and averaged 31.8 percent.[94]

We have also considered information on the record concerning lost sales. Four of 13 purchasers reported purchasing subject imports instead of the domestic like product during the POI.[95] Three of these four purchasers reported that subject imports were lower priced than the domestic like product and two reported that they had purchased *** pounds of subject imports in lieu of the domestic like product primarily due to their lower price.[96] The volume of confirmed lost sales due to price was equivalent to *** percent of total reported purchases of barium chloride and *** percent of reported U.S. shipments of subject imports during the POI.[97]

[93] U.S. importers' U.S. shipments of subject imports totaled *** million pounds over the POI. CR/PR at Table IV-3.

[94] CR/PR at Table V-6.

[95] CR/PR at Table V-8.

[96] CR/PR at Table V-8. CR/PR at Table V-8. Purchasers identified availability, small purchase quantities, need for multiple sources of supply, and customer approvals being limited to Indian product as non-price reasons for purchasing imported rather than U.S.-produced barium chloride. CR/PR at V-15 and Table V-8.

***, the largest U.S. purchaser during the POI, reported that it purchased subject imports instead of the domestic like product and that subject imports were lower priced than the domestic like product, but price was not a primary reason for its decision to purchase subject imports rather than the domestic like product. CR/PR at Tables V-7–8. Customer-specific pricing data submitted by the parties show that subject imports undersold CPC's sales to *** in all quarterly comparisons. *Compare* CPC Posthr'g Br. at Exh. 4, Attach. D *with* BassTech's Posthr'g Br. at Exh. 6. *** reported that its purchases of subject imports were based on ***. Revision to the Staff Report, Memorandum INV-VV-006 (Jan. 23, 2023) at Table V-8. However, its pattern of purchasing indicates *** over the POI. *See* ***'s Purchaser Questionnaire at II-1 (domestic share of purchases *** from *** percent in 2019 to *** percent in 2021 while subject import share *** from *** percent to *** percent). Petitioner submitted contemporaneous documentation showing that ***. Pet. Posthr'g Br. at Exh. 3; ***'s U.S. Purchaser Questionnaire Response at II-1; *see* Pet. Posthr'g Br. at Exh. 2.

[97] *Compare* CR/PR at Table V-8 *with* Tables V-7 and C-1. The volume of reported subject imports by *** have been excluded from the volume of reported purchases contained in Table V-7 for purposes of this calculation, to avoid double-counting. The volume of confirmed lost sales due to price is equivalent to *** percent of all reported purchases when including reported import data for these firms. *Compare* CR/PR at Table V-8 *with* Table V-7.

Based on the universal underselling of the domestic like product by subject imports, the substantial volume of confirmed lost sales, the high degree of substitutability between domestically produced barium chloride and subject imports, and the importance of price in purchasing decisions, we find the underselling by subject imports to be significant. The underselling by subject imports caused the domestic industry to lose a substantial volume of sales and market share to lower priced subject imports, as subject imports gained *** percentage points of market share from 2019 to 2021 at the direct expense of the domestic industry.[98]

[98] CR/PR at Table IV-6.

We are unpersuaded by BassTech's argument that the Commission's quarterly pricing data are not probative of the relative pricing of subject imports and the domestic like product, allegedly due to differences in customer and product mix.[99] As discussed above in Section IV.B.3, most responding purchasers rated subject imports as comparable to the domestic like product across 16 purchasing factors, including purity, product range, and ability to meet minimum specifications.[100] Moreover, the customer-specific pricing data submitted by the parties at the Commission's request show that subject import sales to ***, which together accounted for *** percent of reported purchases,[101] undersold the domestic like product in every quarterly comparison with respect to product 2, which accounted for most reported subject import sales.[102] These customer-specific pricing data are consistent with the overall pricing data showing pervasive subject import underselling, and with *** reporting that subject import prices were lower than prices for domestically produced barium chloride.[103] While the record reflects that different prices may be charged to different customers, it provides no indication that the Commission's quarterly price comparison data somehow mask subject import overselling by failing to account for differences in customer or product mix.[104] To the contrary, disaggregated pricing data presented by CPC and BassTech in their posthearing briefs, at the request of the Commission, also demonstrate that subject imports undersold the domestic product on a customer-specific basis.[105]

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[99] BassTech Prehr'g Br. at 36–38.

[100] *See* CR/PR at Table II-10.

[101] *Derived from* CR/PR at Table V-7. This figure excludes imports from *** to avoid double counting.

[102] *Compare* CPC Posthr'g Br. at Exh. 4, Attach. D *with* BassTech's Posthr'g Br. at Exh. 6.

[103] CR/PR at Table V-8. Both *** and ***, the first and second-largest U.S. purchasers of barium chloride respectively during the POI (excluding importer ***), reported that subject imports were lower priced than the domestically produced product. *See* CR/PR at Table V-8.

[104] At the Commission hearing, respondent's witness stated that "{i}f you recall on the comments on draft questionnaires, Chaitanya's counsel actually listed the four different types of barium chloride and they requested pricing data on it. Unfortunately, it did not make it into the record of this investigation." Hr'g Tr. at 132 (Mazard). This is not accurate. In its comments on the draft questionnaires, Chaitanya did not ask for any change or refinement in the definitions of the pricing products from the preliminary investigation, but did request that the Commission add a third pricing product: "Product 3 – barium chloride dihydrate, high purity/electronic". *See* Chaitanya Comments on Draft Questionnaire (May 9, 2022) at 7. However, as noted *supra*, BassTech stated that it is not aware of a market for electronic or high pure grades in the United States. In all, the evidence of record does not support respondent's argument that the pricing data in this final phase "mask" subject import overselling due to product mix issues.

[105] *Compare* CPC Posthr'g Br. at Exh. 4, Attach. D *with* BassTech's Posthr'g Br. at Exh. 6.

We have also considered price trends for the domestic like product and subject imports during the POI. Between the first and last quarters for which data were collected, the domestic industry's average sales prices for products 1 and 2 fluctuated but rose overall by *** percent and *** percent, respectively.[106] Subject import prices for product 2 also increased irregularly over the POI, by *** percent.[107]

[106] CR/PR at Table V-5.

[107] CR/PR at Table V-5. Subject import pricing for product 1 was not available for the majority of quarters from 2019 through interim 2022. Those limited and intermittent data available indicate that subject import prices for product 1 increased by *** percent from the first quarter of 2019 to the fourth quarter of 2021 (the last quarter for which subject import pricing was recorded for product 1). CR/PR at Table V-3.

We have also considered whether subject imports prevented price increases that would otherwise have occurred to a significant degree. The domestic industry's cost of goods sold ("COGS") to net sales ratio increased from *** percent in 2019 to *** percent in 2020 and *** percent in 2021, as the domestic industry's net sales value declined to a greater degree than its COGS.[108] From 2019 to 2021, as the domestic industry lost *** percentage points of market share and apparent U.S. consumption decreased by *** percent, the domestic industry's net sales quantity declined by *** percent while its net sales value declined by *** percent and its COGS declined by *** percent.[109] On a per-unit basis from 2019 to 2021, the industry's net sales value increased by $*** per pound; unit raw material costs decreased by $*** per pound; unit direct labor costs increased by $*** per pound; unit other factory costs increased by $*** per pound; and unit total COGS increased by $*** per pound).[110] While increasing per-unit direct labor costs drove the increase in the domestic industry's unit COGS, the industry's hourly wages paid were constant ($*** per hour) from 2019 to 2021.[111] Accordingly, the record indicates that the domestic industry experienced a cost-price squeeze during the POI as the industry's costs were spread over a declining volume of production and sales.[112] [113] Although the shift in market share from the domestic industry to subject imports had a negative impact on the domestic industry's COGS-to-net-sales ratio, the record does not indicate that subject imports prevented price increases that otherwise would have occurred to a significant degree, particularly given the substantial decline in demand during the period.[114]

[108] CR/PR Tables VI-1 and C-1.

[109] CR/PR at Tables IV-6 and VI-1.

[110] CR/PR at Table VI-2.

[111] CR/PR at Table III-10.

[112] As discussed above in Section IV.B.3, CPC reports that as a result of its ***, it keeps its barium chloride process running. *See* CR/PR at II-5 n.11, III-6 n.10, VI-10 n.22; Hr'g. Tr. at 34 (Ingram) ("We have not and never have stopped producing barium chloride or any other product."). Consistent with this, CPC reported that *** percent of its barium chloride was sold from inventory and *** was produced to order. CR/PR at II-17; CPC's U.S. Producer Questionnaire at IV-8.

[113] Commissioner Karpel finds that subject imports prevented price increases, which otherwise would have occurred, to a significant degree. She agrees with the majority that the domestic industry's COGS-to-net sales ratio increased by *** percentage points between 2019 and 2021, and that although the domestic industry was able to increase sales prices beginning in 2020, these increases were insufficient to cover the industry's increasing per-unit costs. As a result, CPC recorded a *** operating margin, which declined from *** percent in 2019 to *** percent in 2021. CR/PR at Table VI-1.

Commissioner Karpel notes that while apparent U.S. consumption declined substantially between 2019 and 2021, CPC was able to raise its prices during this period (as did subject suppliers). Thus, the substantial decline in apparent U.S. consumption over the POI did not, in the context of this investigation, prevent price increases. Yet, while CPC was able to increase prices despite the decline in apparent U.S. consumption, it was not able to rise prices sufficiently to cover increasing costs or register *** operating margins. While in some investigations it may be difficult to discern whether subject imports materially contributed to such a cost-price squeeze and prevented price increases that otherwise would have occurred, particularly when accompanied by a large decline in demand, in this investigation the evidence supports such a finding. Subject import underselling was pervasive and universal (nearly 100 percent of reported subject import volume was undersold by large margins – average 38.1 percent – during the POI) and with respect to a commodity or commodity-like product that is highly substitutable with the domestic like product. Given such facts, it is improbable that the availability of lower-priced subject imports did not materially contribute to the domestic industry's inability to sufficiently raise prices to cover its costs. Indeed, the record contains evidence that subject imports exerted pricing pressure on the domestic like product. As noted by the Commission in Section IV.E., below, CPC provided in its posthearing brief contemporaneous business documents indicating that ***, by ***. *See* CPC Posthr'g Br. at Exh. 4, Attach. E.

In addition, Commissioner Karpel notes that there is a limited number of barium chloride suppliers to the U.S. market (***). With purchasers essentially limited to barium chloride produced by CPC and subject imports, purchasers that prioritized dual sourcing needed to purchase some amount from both. However, the amount they purchased and what they paid for that amount was not fixed. As shown in Table V-7, the share of purchasers' purchases comprising domestic product declined over the POI and, as the Commission finds above, subject import underselling caused the domestic industry to lose sales and market share. For the sales and market share the domestic industry did retain, however, it should have been able to price its product at a level that covered costs, yet the domestic industry's operating margins *** over the POI and its COGS-to-net-sales ratio rose. There is no evidence on record that the decline in apparent U.S. consumption was to such an extent that it caused purchasers to expect to pay less for barium chloride than the cost to produce it. In fact, it is not even apparent that purchasers sensed any particular decline in demand over the POI. *See* CR/PR at II-12–13 and Table II-4 (majority of responding U.S. purchasers (seven of eight) reported that demand in the U.S. for barium chloride did not change over the POI, or increased or fluctuated; only one responding purchaser reported that demand declined; the majority of responding U.S. importers (eight of 10) reported that demand did not change over the POI, or increased or fluctuated; only two responding importers reported that demand declined over the POI). Rather, given the highly substitutable nature of subject imports and the domestic like product, the pervasive and universal underselling by subject imports, the contemporaneous document of pricing pressure from subject imports, and the conditions of competition in the barium chloride market, Commissioner Karpel finds that but for low-priced subject imports CPC should have been able to increase its prices to alleviate its deleterious COGS-to-net-sales ratio, and, as a result, improve its operating margins. For these reasons, Commissioner Karpel finds that subject imports prevented price increases, which otherwise would have occurred, to a significant degree.

[114] Apparent U.S. consumption declined by *** percent from 2019 to 2021. CR/PR at Tables IV-6, C-1. CPC and BassTech, which together accounted for *** percent of all U.S. shipments of barium chloride during the POI, both reported that U.S. demand for barium chloride decreased overall during the POI. CPC's U.S. Producer Questionnaire at IV-14; BassTech's U.S. Importer Questionnaire at III-14; CR/PR at Table IV-6.

In sum, we find that subject imports significantly undersold the domestic like product, causing the domestic industry to lose market share and a substantial volume of sales to subject imports. We accordingly find that the subject imports had significant price effects.

E. Impact of the Subject Imports

Section 771(7)(C)(iii) of the Tariff Act provides that examining the impact of subject imports, the Commission "shall evaluate all relevant economic factors which have a bearing on the state of the industry."[115] These factors include output, sales, inventories, capacity utilization, market share, employment, wages, productivity, gross profits, net profits, operating profits, cash flow, return on investment, return on capital, ability to raise capital, ability to service debts, research and development, and factors affecting domestic prices. No single factor is dispositive and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[116]

The domestic industry's performance declined according to most measures from 2019 to 2021, as apparent U.S. consumption declined *** percent during the period, before improving in interim 2022 compared to interim 2021.[117] The rate of declines in the domestic industry's production, U.S. shipments, and net sales far outpaced the rate of decline in apparent U.S. consumption from 2019 to 2021. This occurred as subject imports captured *** percentage points of market share from the domestic industry over the period.

[115] 19 U.S.C. § 1677(7)(C)(iii); *see also* SAA at 851 and 885 ("In material injury determinations, 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 also may demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports.").

[116] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114–27.

[117] CR/PR at IV-10, Table IV-6, and Table C-1.

Measures of the domestic industry's trade-related indicators largely declined over the POI. The domestic industry's production capacity fluctuated, decreasing from *** pounds in 2019, to *** pounds in 2020, and increasing to *** pounds in 2021; it was stable in interim 2022 and interim 2021 (*** pounds).[118] The industry's production decreased from *** pounds in 2019, to *** pounds in 2020, and to *** pounds in 2021, a level *** percent lower than in 2019; it was higher in interim 2022 (*** pounds) than in interim 2021 (*** pounds).[119] The industry's capacity utilization rate fluctuated, increasing from *** percent in 2019, to *** percent in 2020, and decreasing to *** percent in 2021, for an overall decrease of *** percentage points from 2019 to 2021; it was higher in interim 2022 (*** percent) than in interim 2021 (*** percent).[120]

The domestic industry's U.S. shipments decreased from *** pounds in 2019, to *** pounds in 2020, and to *** pounds in 2021, a level *** percent lower than in 2019; it was higher in interim 2022 (*** pounds) than in interim 2021 (*** pounds).[121] While apparent U.S consumption declined by *** percent from 2019 to 2021, the domestic industry's U.S. shipments declined by *** percent by quantity during this period.[122] Consequently, the domestic industry's share of apparent U.S. consumption declined from *** percent in 2019 to *** percent in 2020 and to *** percent in 2021; it was *** percent in interim 2022, compared to *** percent in interim 2021.[123]

[118] CR/PR at Tables III-3 and C-1.
[119] CR/PR at Tables III-5 and C-1.
[120] CR/PR at Table III-5 and C-1.
[121] CR/PR at Tables III-6 and C-1.
[122] CR/PR at Table C-1.
[123] CR/PR at Tables IV-6 and C-1.

The domestic industry's employment-related indicators were *** during the POI. Its number of production-related workers declined from *** in 2019 to *** for the remainder of the POI and interim periods.[124] Its total hours worked decreased from *** hours in 2019, to *** hours in 2020, and increased to *** hours in 2021, for an overall decrease from 2019 to 2021; they were higher in interim 2022 (*** hours) than in interim 2021 (*** hours).[125] Its total wages paid decreased from $*** in 2019, to $*** in 2020, and increased to $*** in 2021, for an overall decrease from 2019 to 2021; they were higher in interim 2022 ($***) than in interim 2021 ($***).[126] Its hourly wages were *** at $*** from 2019 to 2021; they were higher in interim 2022 ($***) than in interim 2021 ($***).[127] The domestic industry's productivity as measured in pounds per hour increased from *** in 2019, to *** in 2020, and declined to *** in 2021, for an overall decrease from 2019 to 2021; they were higher in interim 2022 (***) than in interim 2021 (***).[128]

The domestic industry's inventories increased irregularly by *** percent from 2019 to 2021, increasing from *** pounds in 2019 to *** pounds in 2020, before declining to *** pounds in 2021; they were *** percent lower in interim 2022, at *** pounds, than in interim 2021, at *** pounds.[129] As a ratio of total shipments, the domestic industry's end-of-period inventories increased from *** percent in 2019 to *** percent in 2020, and to *** percent in 2021, but were lower in interim 2022, at *** percent, than in interim 2021, at *** percent.[130]

[124] CP/PR at Tables III-10 and C-1.
[125] CP/PR at Tables III-10 and C-1.
[126] CP/PR at Tables III-10 and C-1.
[127] CP/PR at Tables III-10 and C-1.
[128] CP/PR at Tables III-10 and C-1.
[129] CR/PR at Tables III-9 and C-1.
[130] CR/PR at Table III-9.

Most of the domestic industry's financial performance indicators declined over the POI. The domestic industry's net sales revenue decreased from $*** in 2019 to $*** in 2020, and to $*** in 2021, a level *** percent lower than in 2019; it was higher in interim 2022 ($***) than in interim 2021 ($***).[131] The domestic industry's gross profits decreased from $*** in 2019, to $*** in 2020, and to $*** in 2021; it was higher in interim 2022 ($***) than in interim 2021 ($***).[132] The domestic industry's operating *** improved from *** in 2019, to *** in 2020, but worsened to *** in 2021; it was lower in interim 2022 (***) than in interim 2021 (***).[133] Its net income decreased from $*** in 2019 to $*** in 2020, and increased to $*** in 2021; it was lower in interim 2022 (***) than in interim 2021 ($***).[134] Its operating income to net sales ratio improved from *** percent in 2019, to *** percent in 2020, before declining to *** percent in 2021; it was *** percent in interim 2022 compared to *** percent in interim 2021.[135]

The domestic industry's level of capital expenditures decreased from $*** in 2019 to $*** in 2020 before increasing to $*** in 2021; its capital expenditures were $*** in interim 2022 compared to *** in interim2021.[136] The domestic industry reported *** research and development expenses during the POI.[137] The domestic industry's return on assets improved *** from negative *** percent in 2019 to negative *** percent in 2020, before declining to negative *** percent in 2021.[138]

[131] CR/PR at Tables VI-1 and C-1.

[132] CR/PR at Tables VI-1 and C-1.

[133] CR/PR at Tables VI-1 and C-1.

[134] CR/PR at Tables VI-1 and C-1. *** CR/PR at VI-1–2; VI-12 n.27. CPC reports that ***. CR/PR at VI-1–2. BassTech disputes CPC's characterization, arguing that *** was done to leverage CPC's strong position in the North American market and its outstanding application-specific technology. BassTech Prehr'g Br. at 47–48; BassTech Posthr'g Br. at 11.

While we have considered both CPC's net income and operating income data, we primarily focus on operating income data for the purposes of our injury analysis because the *** in 2021 was ***. Moreover, CPC's operating income and operating income to net sales ratios were not distorted by the ***.

[135] CR/PR at Tables VI-1 and C-1.

[136] CR/PR at Tables VI-4 and C-1.

[137] CR/PR at Tables VI-4 and C-1.

[138] CR/PR at Table VI-4.

From 2019 to 2021, significant and increasing volumes of low-priced subject imports captured a substantial volume of sales and *** percentage points of market share from the domestic industry.[139] As the domestic industry lost sales and market share to subject imports, the industry's production declined *** percent, its U.S. shipments declined *** percent, and its net sales revenues declined *** percent, well in excess of the *** percent decline in apparent U.S. consumption over the period.[140] As a consequence, the domestic industry's production, sales, and revenues were lower than they otherwise would have been.

The domestic industry's performance in interim 2022 was improved compared to interim 2021, after the filing of the petitions in January 2022.[141] Subject imports as a share of apparent U.S. consumption were *** percentage points lower in interim 2022 compared to interim 2021 and the domestic industry's share was *** percentage points higher as the industry regained sales, *** its U.S. shipments, reduced its ratio of inventories to U.S. shipments, and improved its operating income to net sales ratio.[142]

We have also considered whether there are other factors that may have had an adverse impact on the domestic industry during the POI to ensure that we are not attributing injury from such other factors to subject imports. As discussed above, nonsubject imports maintained a very small presence in the U.S. market during the POI and declined irregularly as a share of apparent U.S. consumption from *** percent in 2019 to *** percent in 2021.[143] Accordingly, nonsubject imports cannot explain the shift in market share from the domestic industry to subject imports during the POI.

[139] *See* CR/PR at Tables IV-6 and C-1.

[140] CR/PR at Tables IV-6 and C-1.

[141] As noted above, responding purchasers reported a decrease in the volume of purchases of subject imports and an increase in purchases from the domestic industry in interim 2022, and a reluctance from their U.S. importer supplier to import, as a result of the filing of the petitions. CR/PR at II-2 n.8, II-6–7, II-18–19. Apparent U.S. consumption was also *** percent higher in interim 2022 than in interim 2021. CR/PR at Tables IV-6 and C-1.

[142] CR/PR at II-2 n.8 and Tables IV-6, VI-1, and C-1; *see* Pet. Prehr'g Br. at 19.

[143] CR/PR at Tables IV-6 and C-1.

We recognize that apparent U.S. consumption declined *** percent from 2019 to 2021 due to the effects of the COVID-19 pandemic and the continuation of factors that predated the pandemic, before recovering in interim 2022 compared to interim 2021. As discussed above, however, subject imports exacerbated the effects of declining demand on the domestic industry by increasing their market share at the expense of the domestic industry and taking a substantial volume of sales from the domestic industry primarily due to their lower price. Consequently, the domestic industry's production, U.S. shipments, and net sales revenues declined to a greater degree than apparent U.S. consumption. As such, the decline in apparent U.S. consumption in the 2019-2021 period does not explain the shift in market share from the domestic industry to subject imports or the associated adverse impact on the domestic industry's output and financial indicators.

The record does not support respondents' argument that the domestic industry was incapable of supplying additional volumes of barium chloride to the U.S. market, allegedly due to supply shortages of raw material inputs, including carbon dioxide and barite ore, and a decision to focus on other barite products.[144] As discussed in Section IV.B.2., relatively few purchasers reported difficulty obtaining domestic supply during the POI or that the supply of barium chloride in the U.S. market had changed during the POI.[145] In response to the Commission's request for documentation evidencing the domestic industry's inability to supply barium chloride during the POI, BassTech ***.[146] Furthermore, carbon dioxide is not an input for CPC's production of barium chloride.[147] Therefore, any alleged shortages in carbon dioxide supply, as claimed by BassTech, had no impact on CPC's manufacturing operations. Similarly, while CPC reported *** raw material delays during the POI, it maintained sufficient supplies of barite ore to support its production of barium chloride.[148] Finally, the record shows that CPC's rate of capacity utilization declined from *** percent in 2019 to *** percent in 2021, yielding excess capacity of *** pounds in 2021.[149] Thus, CPC had *** excess capacity throughout the POI, with which ***.

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[144] BassTech Prehr'g Br. at 13–15, 23–25; BassTech Posthr'g Br. at 4, 6; Chaitanya Prehr'g Br. at 5.

[145] CR/PR at II-6–7.

[146] BassTech Posthr'g Br. at Exh. 2, Attach. 2. Communications regarding ***. *Id*. The communication concerning ***. BassTech Posthr'g Br. at Exh. 2, Attach. 4.

[147] CR/PR at Figure I-1, II-5 n.11; Hr'g. Tr. at 31 (McCall) ("Simply put, CO_2 does not impact barium chloride. There's no other way to say it."); Hr'g. Tr. at 31–32 (Waite) ("{I}n this investigation, as the Commission staff has correctly pointed out, CPC's production process of barium chloride does not use CO_2 as an input. Indeed, CO_2 is a byproduct of CPC's production of barium chloride.").

[148] Hr'g. Tr. at 15 (McCall).

[149] CR/PR at Table III-3.

We are also unpersuaded by BassTech's argument that the domestic industry's declining operating performance was due to its declining export volumes.[150] Export shipments accounted for a *** of CPC's total shipments throughout the POI, ranging from *** percent in 2020 to *** percent in 2021.[151] Moreover, the *** percent decline in the domestic industry's exports from 2019 to 2021 cannot explain declines in the domestic industry's performance resulting from its loss of market share and sales to subject imports.

BassTech's argument that the domestic industry's deteriorating performance was due to *** is unavailing.[152] As an initial matter, internal consumption accounted for a *** of CPC's total U.S. shipments during the POI, ranging from *** in 2020 in to *** percent in 2021.[153] Furthermore, a U.S. producer's *** shipments for purposes of the U.S. Producers' questionnaire is not necessarily reflective of across-the-board commercial prices,[154] and does not discredit or otherwise disallow the specific and probative pricing data gathered in this investigation. Moreover, even if there ***, which we do not find on this record, this would not detract from the other evidence showing that low-priced subject imports captured market share and a substantial volume of sales from the domestic industry from 2019 to 2021.

In sum, based on the record of the final phase of the investigation, we find that subject imports had a significant impact on the domestic industry.

V. Conclusion

For the reasons stated above, we determine that an industry in the United States is materially injured by reason of subject imports of barium chloride from India found by Commerce to be subsidized by the Government of India.

[150] BassTech Posthr'g Br. at 10; BassTech Final Comments, EDIS Doc. 788845 (Jan 30, 2023) at 4–5 ("BassTech Final Comments").

[151] CR/PR at Tables III-6 and C-1.

[152] BassTech Final Comments at 3–4.

[153] CR/PR at Table III-7. The domestic industry's *** from 2019 to 2021 was driven by a *** during this period. *Id*.

[154] CPC explained its valuation methodology for purposes of the U.S. Producers' questionnaire as follows: *** CPC's Email Response to Question from Staff, EDIS Doc. 783341.

Part I: Introduction

Background

This investigation results from petitions filed with the U.S. Department of Commerce ("Commerce") and the U.S. International Trade Commission ("USITC" or "Commission") by Chemical Products Corp. ("CPC" or "Petitioner"), Cartersville, Georgia, on January 12, 2022, alleging that an industry in the United States is materially injured and threatened with material injury by reason of subsidized imports of barium chloride from India.[1] [2] Table I-1 presents information relating to the background of this investigation.[3] [4]

[1] On January 12, 2022, CPC also filed petitions with Commerce and the Commission alleging that an industry in the United States was materially injured and threatened with material injury by reason of less-than-fair-value ("LTFV") imports of barium chloride from India. Barium Chloride from India, Inv. Nos. 701-TA-678 and 731-TA-1584 (Preliminary), USITC Publication 5295, March 2022, p. I-1.

On January 6, 2023, Commerce published a notice to the Federal Register of its final negative determination of LTFV. 88 FR 1050, January 6, 2023. The Commission, subsequently, terminated its antidumping duty investigation concerning barium chloride from India, Investigation No. 731-TA-1584 (Final). 88 FR 2638, January 17, 2023. For more information, see table I-1.

[2] See the section entitled "The subject merchandise" in Part I of this report for a complete description of the merchandise subject in this proceeding.

[3] Pertinent Federal Register notices are referenced in app. A, and may be found at the Commission's website (www.usitc.gov).

[4] Appendix B presents the witnesses who appeared at the Commission's hearing.

Table I-1
Barium chloride: Information relating to the background and schedule of this proceeding

Effective date	Action
January 12, 2022	AD/CVD petitions filed with Commerce and the Commission; institution of Commission investigations (87 FR 2901, January 19, 2022)
February 1, 2022	Commerce's notice of initiation of countervailing duty investigation (87 FR 7094, February 8, 2022); Commerce's notice of initiation of antidumping duty investigation (87 FR 7100, February 8, 2022)
February 28, 2022	Commission's preliminary determinations (87 FR 12486, March 4, 2022)
March 15, 2022	Commerce's postponement of preliminary countervailing duty determination (87 FR 14508, March 15, 2022)
May 20, 2022	Commerce's postponement of preliminary antidumping duty determination (87 FR 30871, May 20, 2022)
June 17, 2022	Commerce's preliminary affirmative countervailing duty determination and alignment of final determination with final antidumping duty determination (87 FR 36460, June 17, 2022)
August 17, 2022	Commerce's preliminary negative antidumping duty determination and postponement of final determination (87 FR 50602, August 17, 2022); scheduling of final phase of Commission investigations (87 FR 54714, September 7, 2022)
January 5, 2023	Commission's hearing
January 6, 2023	Commerce's final affirmative countervailing duty determination (88 FR 1044, January 6, 2023); Commerce's final negative antidumping duty determination (88 FR 1050, January 6, 2023)
January 6, 2023	Commission's termination of antidumping duty investigation (88 FR 2638, January 17, 2023.)
February 2, 2023	Commission's vote
February 17, 2023	Commission's determination and views

Statutory criteria

Section 771(7)(B) of the Tariff Act of 1930 (the "Act") (19 U.S.C. § 1677(7)(B)) provides that in making its determinations of injury to an industry in the United States, the Commission--

> *shall consider (I) the volume of imports of the subject merchandise, (II) the effect of imports of that merchandise on prices in the United States for domestic like products, and (III) the impact of imports of such merchandise on domestic producers of domestic like products, but only in the context of production operations within the United States; and. . . may consider such other economic factors as are relevant to the determination regarding whether there is material injury by reason of imports.*

Section 771(7)(C) of the Act (19 U.S.C. § 1677(7)(C)) further provides that--[5]

> *In evaluating the volume of imports of merchandise, the Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States is significant.. . .In evaluating the effect of imports of such merchandise on prices, the Commission shall consider whether. . .(I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.. . . In examining the impact required to be considered under subparagraph (B)(i)(III), the Commission shall evaluate (within the context of the business cycle and conditions of competition that are distinctive to the affected industry) all relevant economic factors which have a bearing on the state of the industry in the United States, including, but not limited to. . . (I) actual and potential decline in output, sales, market share, gross profits, operating profits, net profits, ability to service debt, productivity, return on investments, return on assets, and utilization of capacity, (II) factors affecting domestic prices, (III) actual and potential negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, (IV) actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.*
>
> *In addition, Section 771(7)(J) of the Act (19 U.S.C. § 1677(7)(J)) provides that—*[6]
>
> *(J) EFFECT OF PROFITABILITY.—The Commission may not determine that there is no material injury or threat of material injury to an industry in the United States merely because that industry is profitable or because the performance of that industry has recently improved.*

[5] Amended by PL 114-27 (as signed, June 29, 2015), Trade Preferences Extension Act of 2015.
[6] Amended by PL 114-27 (as signed, June 29, 2015), Trade Preferences Extension Act of 2015.

Organization of report

Part I of this report presents information on the subject merchandise, subsidy rates, and domestic like product. Part II of this report presents information on conditions of competition and other relevant economic factors. Part III presents information on the condition of the U.S. industry, including data on capacity, production, shipments, inventories, and employment. Parts IV and V present the volume of subject imports and pricing of domestic and imported products, respectively. Part VI presents information on the financial experience of U.S. producers. Part VII presents the statutory requirements and information obtained for use in the Commission's consideration of the question of threat of material injury as well as information regarding nonsubject countries.

Market summary

Barium chloride is an inorganic chemical compound that has applications in the laboratory and industry. Barium chloride is produced and sold in two forms. In its anhydrous form ($BaCl_2$), barium chloride is primarily used as an ingredient in heat-treating salts and metal fluxes; in its dihydrate form ($BaCl_2 \bullet 2H_2O$), barium chloride is primarily used as an intermediate in the production of molecular catalyst sieves.[7] The leading U.S. producer of barium chloride is CPC, while the leading producer of barium chloride in India is ***. The leading U.S. importers of barium chloride from India are ***. The leading importers of barium chloride from nonsubject countries (primarily China and Mexico) include ***. The leading U.S. purchasers of barium chloride are ***.

[7] Petition, p. I-5. See "The product" section of this report for more information on barium chloride and its different forms.

Apparent U.S. consumption of barium chloride totaled approximately *** pounds ($***) in 2021. U.S. producers' U.S. shipments of barium chloride, reported by the sole responding domestic producer CPC, totaled *** pounds ($***) in 2021 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. importers' U.S. shipments from India totaled *** pounds ($***) in 2021 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. importers' U.S. shipments from nonsubject sources totaled *** pounds ($***) in 2021 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

Summary data and data sources

A summary of data collected in this investigation is presented in appendix C, table C-1. Except as noted, U.S. industry data are based on the questionnaire response of one firm, CPC, which accounted for an estimated *** percent of U.S. production of barium chloride during 2021. U.S. import data are based on the questionnaire responses of 13 firms, which account for *** imports of barium chloride from India during 2021. Foreign producer/exporter data are based on the questionnaire responses of four firms, which accounted for an estimated *** percent of production of barium chloride in India during 2021. U.S. purchaser data are based on the responses of 13 firms, believed to account for the majority of purchases of barium chloride during 2021.

Previous and related investigations

Barium chloride or similar merchandise has been the subject of prior antidumping duty investigations in the United States. Table I-2 presents information on previous and related import injury investigations and a discussion follows.

Table I-2
Barium chloride or similar merchandise: Previous and related import injury investigations and status of the orders

Instituted	Investigation Number	Subject Country	Product Scope	Commission Determination	Current Status of Order
1980	731-TA-31	Federal Republic of Germany	Barium carbonate	Affirmative	Commerce revocation of order effective 01/01/2000 (First Review).
1983	731-TA-149	China	Barium chloride	Affirmative	Commerce continuation of order effective 06/11/2021 (Fifth Review).
1983	731-TA-150	China	Barium carbonate	---	Commission preliminary affirmative. Commerce final negative determination. Commission terminated investigation.
2002	731-TA-1020	China	Barium carbonate	Affirmative	Commerce continuation of order effective 08/20/2020 (Third Review).
2022	731-TA-1584	India	Barium chloride	---	Commission preliminary affirmative. Commerce final negative determination. Commission terminated investigation.

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

On October 25, 1983, CPC filed an antidumping duty petition on barium chloride from China. The Commission made a final affirmative determination[8] and Commerce subsequently issued an antidumping duty order.[9] Effective June 11, 2021, Commerce issued a continuation of the antidumping duty order on barium chloride from China following a fifth five-year sunset review.[10] [11]

[8] Barium Chloride from the People's Republic of China, Investigation No. 731-TA-149 (Final), USITC Pub 1584, October 1984; and 49 FR 40675, October 17, 1984 (Commission's final determination notice).

[9] 49 FR 40635, October 17, 1984.

[10] Barium Chloride from China, Investigation No. 731-TA-149 (Fifth Review), USITC Pub. 5203, June 2021; and 86 FR 31280, June 11, 2021 (Commerce's continuation order).

[11] The Commission's third five-year sunset review on barium chloride from China was a full review. Barium Chloride from China, Investigation No. 731-TA-149 (Third Review), USITC Publication 4157, June 2010. All other reviews on barium chloride from China were expedited.

The Commission has also conducted investigations on a related product, barium carbonate.[12] On September 9, 1980, CPC, along with FMC Corp. and Sherwin-Williams Co., filed an antidumping duty petition on barium carbonate from the Republic of Germany. The Commission made a final affirmative determination,[13] and Commerce subsequently issued an antidumping duty order.[14] Effective January 1, 2000, Commerce revoked the antidumping duty order on barium carbonate from Germany, as no domestic interested party provided a response to the notice of initiation during the first five-year sunset review.[15]

On October 25, 1983, CPC filed an antidumping duty petition on imports of barium carbonate from China. The Commission made a preliminary affirmative determination;[16] however, Commerce made a final negative determination and the investigation was terminated.[17]

On September 30, 2002, CPC filed another antidumping duty petition on imports of barium carbonate from China. Following final affirmative determinations by Commerce and the Commission, effective October 1, 2003, Commerce issued an antidumping duty order on imports of barium carbonate from China.[18] [19] Effective August 20, 2020, Commerce issued a continuation of the antidumping duty order on barium carbonate from China following a third five-year sunset review.[20]

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[12] Barium carbonate ($BaCO_3$) is a heavy, odorless, white-to-cream-colored chemical produced from barite ore. Barium carbonate is sold in granular, powder, or high-purity form into two major end uses: specialty glass and brick, tile, and other ceramic goods. Demand for this specialty glass, containing reflective beads for road signage and markers, roughly tracks transportation infrastructure spending. Demand for barium carbonate for clay and ceramic goods roughly tracks housing construction. High-purity barium carbonate is used to produce ceramic capacitors and fuses. Barium Carbonate from China, Investigation No. 731-TA-1020 (Third Review), USITC Publication 5098, August 2020, pp. I-5-I-6.

[13] Precipitated Barium Carbonate from the Federal Republic of Germany, Investigation No. 731-TA-31 (Final), USITC Pub. 1154, June 1981; and 46 FR 32698, June 24, 1981 (Commission's final determination notice).

[14] 46 FR 32864, June 25, 1981.

[15] 63 FR 64677, November 23, 1998.

[16] Barium Chloride and Barium Carbonate (Precipitated) from the People's Republic of China, Investigation Nos. 731-TA-149 and 150 (Preliminary), USITC Pub. 1458, December 1983; and 48 FR 56449, December 21, 1983 (Commission's preliminary determination notice).

[17] 49 FR 33913, August 27, 1984.

[18] Barium Carbonate from China, Investigation No. 731-TA-1020 (Final), USITC Pub. 3631, September 2003; and 68 FR 55653, September 26, 2003 (Commission's final determination notice).

[19] 68 FR 56619, October 1, 2003.

[20] Barium Carbonate from China, Investigation No. 731-TA-1020 (Third Review), USITC Pub. 5098, August 2020; and 85 FR 51409, August 20, 2020 (Commerce's continuation order).

On January 12, 2022, CPC filed an antidumping duty petition on imports of barium chloride from India.[21] The Commission made a preliminary affirmative determination;[22] however, Commerce made a final negative determination[23] and the investigation was subsequently terminated.[24]

Nature and extent of subsidies

Subsidies

On January 6, 2023, Commerce published a notice in the Federal Register of its final affirmative determination of countervailable subsidies for producers and exporters of barium chloride from India.[25] Table I-3 presents Commerce's findings of subsidization of barium chloride in India.

Table I-3
Barium chloride: Commerce's final subsidy determination with respect to imports from India

Company	Subsidy rate (percent *ad valorem*)
Chaitanya Chemicals	23.57
All others	23.57

Source: 88 FR 1044, January 6, 2023.

Note: For further information on programs determined to be countervailable, see Commerce's associated Issues and Decision Memorandum.

[21] 87 FR 2901, January 19, 2022.
[22] 87 FR 12486, March 4, 2022.
[23] 88 FR 1050, January 6, 2023.
[24] 88 FR 2638, January 17, 2023.
[25] 88 FR 1044, January 6, 2023.

The subject merchandise

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:

> *The merchandise covered by this investigation is barium chloride, a chemical compound having the formulas $BaCl_2$ or $BaCl_2–2H_2O$, currently classifiable under subheading 2827.39.4500 of the Harmonized Tariff Schedule of the United States (HTSUS). Although the HTSUS subheading is provided for convenience and customs purposes, the written description of the scope of this investigation is dispositive.*[26]

Tariff treatment

Based upon the scope set forth by Commerce, information available to the Commission indicates that the merchandise subject to this investigation is imported under statistical reporting number 2827.39.4500 of the Harmonized Tariff Schedule of the United States ("HTSUS" or "HTS"). The 2023 general rate of duty is 4.2 percent *ad valorem* for HTS subheading 2827.39.45. Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection ("CBP").

The product

Description and applications

Barium chloride is a solid chemical compound having the formula $BaCl_2•2H_2O$ (if in crystalline form)[27] or $BaCl_2$ (if in powdered, or anhydrous, form).[28] [29] The bulk of barium chloride is sold as barium chloride dihydrate (the crystalline form), which is used primarily in the petroleum industry.[30] The market for barium chloride is mature, without any significant new applications.[31] While all parties agree that producers ensure that customers' unique

[26] 88 FR 1044, January 6, 2023.

[27] The crystalline form of barium chloride is also called barium chloride dihydrate. Conference transcript, p. 55 (Bourdon).

[28] Petition, p. I-5.

[29] Barium chloride is considered a hazardous material and must be handled during transport as such. Conference transcript, p. 118 (Chalup).

[30] Petitioner estimates that anhydrous sales represent less than 5 percent of the barium chloride market. Conference transcript, pp. 18 and 39 (Bourdon and Ingram).

[31] Conference transcript, pp. 20 (Ingram) and 114 (Chalup).

specifications are met, the parties disagree on whether these differences constitute multiple, unique grades of barium chloride.[32]

Barium chloride dihydrate ($BaCl_2 \bullet 2H_2O$) is used primarily as an intermediate in the production of molecular catalyst sieves, which in turn are used in oil refinery complexes to separate out industrially useful paraxylene molecules from other mixed xylenes.[33] Paraxylene is a raw material used in the production of terephthalic acid, a precursor to the polyethylene terephthalate (PET) that is used to make clothing and plastic bottles.[34] Barium chloride dihydrate also serves as a cleansing agent in the removal of soluble sulfates in certain chemical and water treatment processes; as a cleansing ingredient in lubricating oil additives; and as a raw material in the production of certain chemicals, pigments, and paper coatings.[35] The

[32] Petitioner states that only one grade of barium chloride is produced, all via the same process. Petitioner asserts that customers' specifications are confirmed to be met before transport, but any differences in the product are the result of quality control, not grade. Conference transcript, p. 62 (Bourdon); Petitioner's postconference brief, pp. 4-5. Respondent Chaitanya stated during the preliminary phase that it has three grades of barium chloride dihydrate (technical grade, catalyst grade, and electronic grade) for different applications/customers, but submitted information in the final phase on a fourth grade (high purity). Respondent Chaitanya also states that these various grades result from process differences rather than raw material differences. Respondent Chaitanya's postconference brief, pp. 10-12, 14, and 37, and exh. II, p.45. Conference transcript, pp. 81 and 83 (Gupta). Correspondence with ***, November 18, 2022, pp. 5-6, EDIS. #785339. Respondent BassTech stated that both the feedstock and the process can be adjusted to meet a customer's specifications. Conference transcript, pp. 123-124 (Chalup). GFS Chemicals, Inc. communicated that ***. Correspondence with ***, January 24, 2022, EDIS #761625. In the final phase of this investigation, the Commission requested data on "high purity, electronic" barium chloride, which was defined as having a minimum purity of 99.5 percent. Petitioner stated in its questionnaire response that "High purity barium chloride for use in the electronics market requires a purity level between 99.95% and 99.99%. Specific customers would have their own criteria based on usage. However, CPC is not aware of any commercial demand for 99.95% pure barium chloride in the U.S. market today. There may be some extremely limited need in U.S. laboratories for research & development purposes, but there is no demand for its commercial use." Respondent Chaitanya stated that its electronic and high purity grades of barium chloride are used in manufacturing of barium titanate, which is the ceramic layer used in multi layered ceramic capacitors. Hearing transcript, p. 99 (Chalup); correspondence with ***, November 18, 2022, pp. 5-6, EDIS. #785339. Respondent BassTech stated that it is not aware of a market for electronic or high pure grades in the United States. Respondent BassTech posthearing brief, exhibit 1, p. 29 and hearing transcript, pp. 99-100 (Chalup).

[33] Petition, p. I-5. Conference transcript, p. 14 (Bourdon).

[34] Petition, p. I-5. Conference transcript, p. 14 (Bourdon).

[35] Petition, p. I-5. Conference transcript, p. 15 (Bourdon). There was some disagreement over how pervasive the use of barium chloride is in water treatment applications and, therefore, the impact of the recently passed infrastructure bill. Compare Conference transcript, p. 40 (Waite), p. 56 (Bourdon), and Petitioner's postconference brief, p. 6, with Conference transcript, p. 118 (Chalup).

crystalline form of barium chloride is also used as a base material for production of ink pigments and other barium intermediate products such as barium titanate and barium metaborate.[36]

The anhydrous form of barium chloride ($BaCl_2$) is used primarily as an ingredient in heat-treating salts and metal fluxes—molten baths used to harden metal parts, usually small specialty steel parts such as tools and dies.[37] The anhydrous form is used in these applications where there cannot be any moisture because of the high temperatures involved.[38]

Manufacturing processes

CPC produces barium chloride by crushing barite ore (naturally occurring barium sulfate), mixing it with petroleum coke, and reducing it at high temperatures to barium sulfide, which is purified and dissolved in water.[39] The barium sulfide solution is then reacted with hydrochloric acid to remove the byproduct hydrogen sulfide as a gas.[40] When the resulting solution is evaporated, barium chloride dihydrate crystals remain.[41] The crystalline form is reduced to the anhydrous form by applying intense heat, which drives off the water that is molecularly bonded in the crystals (see figure I-1).[42]

Respondent Chaitanya claims that there are two known processes for industrial scale manufacturing of barium chloride: the one described above and another that involves ***.[43] Respondent Chaitanya states that the production of its electronic grade and high purity grade barium chloride requires additional steps *** in order to achieve the desired purity levels.[44]

[36] Petition, p. I-6. Conference transcript, p. 15 (Bourdon).
[37] Petition, p. I-5. Conference transcript, p. 15 (Bourdon).
[38] Conference transcript, p. 38 (Bourdon).
[39] Petition, p. I-6. Conference transcript, p. 15 (Bourdon).
[40] Petition, p. I-6. Conference transcript, p. 15 (Bourdon).
[41] Petition, p. I-6. Conference transcript, pp. 15-16 (Bourdon).
[42] Petition, p. I-6.
[43] Respondent Chaitanya's postconference brief, p. 14. Petitioner stated during the conference that there was only the one production process. Conference transcript, p. 58 (Bourdon). Respondent Chaitanya uses the ***. Respondent Chaitanya's postconference brief, p. 38 and exh. II at p. 45.
[44] Correspondence with ***, November 18, 2022, pp. 5-6, EDIS. #785339. These additional steps lead to lower levels of impurities in the barium chloride.

Respondent BassTech asserted that a carbon dioxide shortage caused Petitioner CPC to curtail its production of barium chloride for two reasons.[45] First, BassTech claimed that carbon dioxide was unavailable in sufficient quantities to enable CPC to continue producing at normal levels. Second, BassTech claimed that CPC would be forced to choose between production of barium chloride and barium carbonate, both of which, according to BassTech, require carbon dioxide as an input. Further, Respondent BassTech asserted that the record in this investigation demonstrated, ***.[46]

Petitioner CPC refuted these assertions by stating that its barium chloride production process does not use carbon dioxide as an input. Instead, CPC's production process for barium chloride gives off carbon dioxide. (See "Reduction" step in figure I-1). CPC stated that the only overlap in production of barium chloride and barium carbonate is barite ore going through a kiln, which does not involve carbon dioxide.[47] CPC also refuted the assertion that it was ***, stating that it has "never stopped producing barium chloride. … We continue to produce it. We produce it right now."[48]

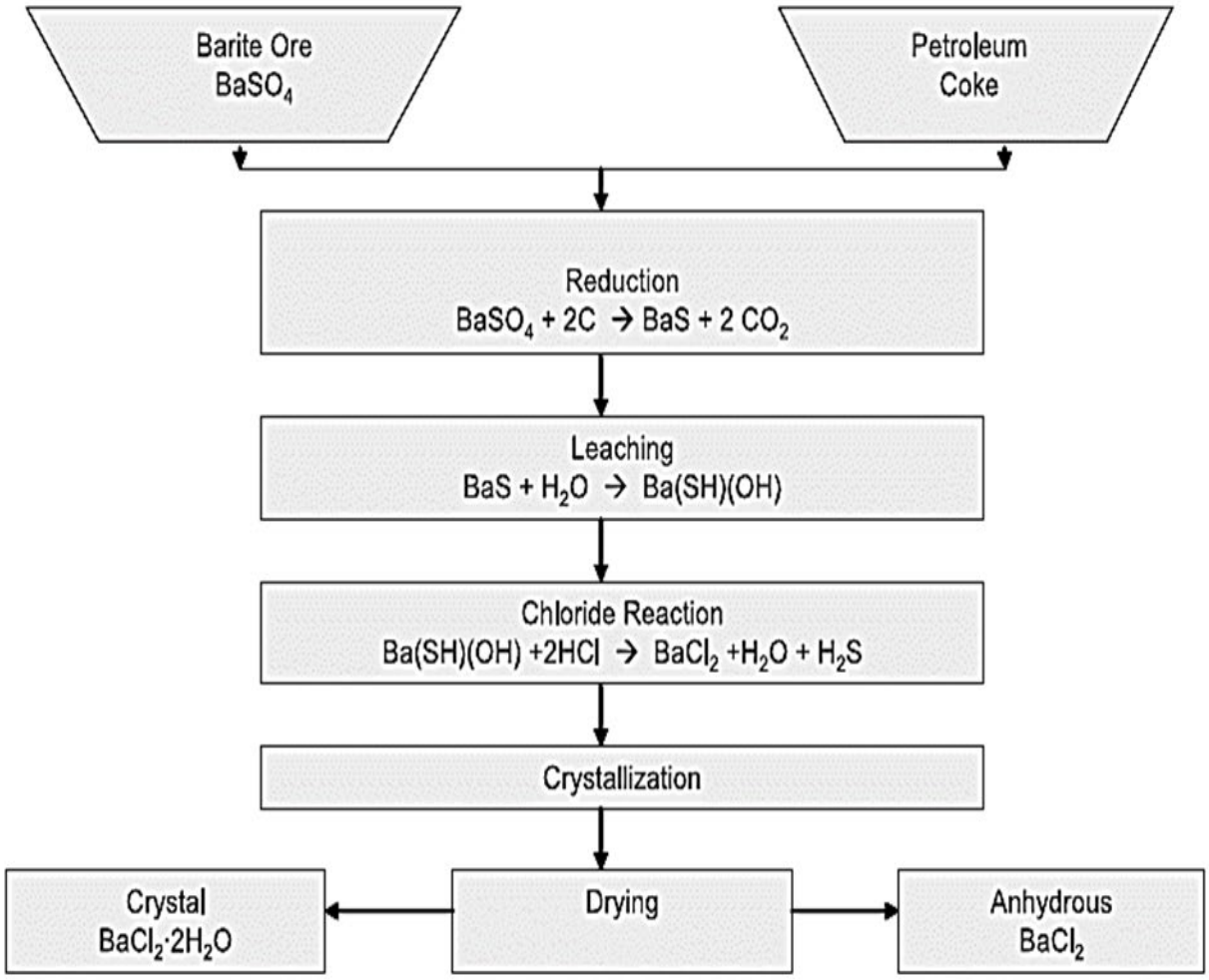
[45] Respondent BassTech's prehearing brief, p. 14; hearing transcript, p. 8 (Mazard).

[46] Respondent BassTech's prehearing brief, p. 16.

[47] Hearing transcript, p. 33 (McCall). As such, barium carbonate is not an intermediate product in CPC's barium chloride production process. Hearing transcript, p. 32 (Waite). Respondent Chaitanya submitted a flowchart of CPC's production process. The flowchart shows carbon dioxide as an input for barium carbonate but not for barium chloride. Respondent Chaitanya's posthearing brief, exh. I, p. 30.

[48] Hearing transcript, p. 34 (Ingram).

Figure I-1
Barium chloride: Manufacturing process flowchart



Source: Petition, vol. I, exh. I-1.

Domestic like product issues

In the preliminary phase of this investigation, Petitioner argued that the Commission should define a single domestic like product consisting of barium chloride. No respondents challenged Petitioner's proposed domestic like product definition during the preliminary phase. In its preliminary determinations, the Commission found a single domestic like product consisting of barium chloride, coextensive with Commerce's scope.[49]

[49] Barium Chloride from India, Investigation Nos. 701-TA-678 and 731-TA-1584 (Preliminary), USITC Publication 5295, March 2022, pp. 7-8.

Part II: Conditions of competition in the U.S. market

U.S. market characteristics

There are two primary forms of barium chloride – anhydrous and dihydrate (also known as crystalline). The primary end use of barium chloride dihydrate is as an intermediate product in the production of molecular catalyst sieves, which are used by oil refineries to separate an industrially useful product (paraxylene molecules) from other mixed xylenes.[1] Barium chloride dihydrate is also used as a cleansing agent in certain chemical and wastewater treatment processes, in lubricating oil additives, and as a raw material in the production of certain chemicals, pigments, and paper coatings. The anhydrous form of barium chloride is used primarily as an ingredient in heat-treating salts and metal fluxes for hardening steel.[2] The market for barium chloride is mature, and the end use applications have narrowed over time.

Demand for barium chloride decreased during January 2019-June 2022. Overall, apparent U.S. consumption, by quantity, in 2021 was *** percent lower than in 2019. Apparent U.S. consumption during January-June 2022 was *** percent higher than January-June 2021.

The barium chloride market is dominated by one major U.S. producer, CPC, and several importers. India is by far the largest import source, and *** accounted for the large majority of reported imports during January 2019-June 2022. CPC accounted for a lower share of the market in 2021 than in 2019 but a higher share of the market during January-June 2022 compared with 2019, 2020, or January-June 2021. Imports from India accounted for a higher share in 2021 compared with 2019, but a lower share in January-June 2022 compared to any other period.[3] Nonsubject imports accounted for *** percent or less of domestic shipments throughout the period of investigation.

[1] Paraxylene is a raw material used in the production of terephthalic acid, which is a precursor to polyethylene terephthalate (PET) (the chemical name for polyester), which is in turn used in the production of clothing fibers and plastic bottles, as well as other manufactured products. Petitions, pp. 5-6. See also conference transcript, pp. 14 and 38-39 (Bourdon).

[2] Petitioner estimates that sales of barium chloride anhydrous represent less than 5 percent of the barium chloride market. Conference transcript, pp. 18 and 39 (Bourdon and Ingram).

[3] CPC accounted for *** percent of the domestic market in 2019, *** percent in 2020, *** percent in 2021, and *** percent in January-June 2022. Imports from India accounted for *** percent of the domestic market in 2019, *** percent in 2020, *** percent in 2021, and *** percent in January-June 2022.

U.S. purchasers

The Commission received 13 usable questionnaire responses from firms that purchased barium chloride during January 2019-June 2022.[4] [5] [6] Six responding purchasers were distributors, five were end users, one was ***, and one (***) was ***. Responding U.S. purchasers were located in the Northeast region (5 firms), the Midwest region (4 firms), the Southeast region (3 firms), and the Mountains region (1 firm). The responding distributor-purchasers reported selling to firms in a variety of domestic industries, including water treatment, uranium mining, industrial manufacturing, and to laboratory chemical re-sellers and hot-dip galvanizers. The end user-purchasers described their end use applications or products as wastewater treatment, flux, steel hardening, flash-freeze freezers, and adsorbents.[7] The largest purchasers/importers of barium chloride during the investigation period were ***. In 2021, *** accounted for *** percent of all reported purchases/imports, *** accounted for *** percent, and *** accounted for *** percent. Over the entire January 2019-June 2022 period, *** accounted for *** percent of reported purchases/imports, *** accounted for *** percent, and *** accounted for *** percent. Overall, purchasers reported decreasing quantities of domestic product purchased from 2019 to 2021 (from *** to *** percent of all reported purchases/imports), then an increased amount (*** percent) from domestic producer CPC in January-June 2022.[8]

[4] The following firms provided purchaser questionnaire responses: ***.

[5] Of the 13 responding purchasers, 10 purchased domestic barium chloride, 6 purchased and/or imported subject merchandise from India, and 2 purchased imports of barium chloride from nonsubject countries, including ***.

[6] Eleven purchasers indicated they had marketing/pricing knowledge of domestic product, four of product from India, and one of product from nonsubject country ***.

[7] Adsorption refers to the gathering of deposits on the surface of a material. This is opposed to absorption, in which a substance is soaked up into a material. See *ChemBAM website*, Adsoprtion vs. Absorption, https://chembam.com/definitions/adsorption-vs-absorption/, accessed December 7, 2022.

[8] According to CPC, "***." See CPC's producer questionnaire response at II-13.

Purchasers' purchases/imports of Indian product increased from *** percent of all reported purchases/imports in 2019 to *** percent in 2021, then decreased to *** percent in January-June 2022.[9] [10]

Channels of distribution

U.S. producer CPC and importers of subject product sold mainly to *** during the investigation period, as shown in table II-1. Importers of nonsubject product sold mainly to *** during 2019-20 and mainly to *** during 2021 and January-June 2022.

Table II-1
Barium chloride: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Source	Channel	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
United States	Distributor	***	***	***	***	***
United States	End user	***	***	***	***	***
India	Distributor	***	***	***	***	***
India	End user	***	***	***	***	***
Nonsubject sources	Distributor	***	***	***	***	***
Nonsubject sources	End user	***	***	***	***	***
All import sources	Distributor	***	***	***	***	***
All import sources	End user	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Geographic distribution

U.S. producer CPC and importers of subject product from India reported selling barium chloride to all regions in the contiguous United States (table II-2). For CPC, *** percent of its sales were within 100 miles of its production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. Importers sold *** percent within 100 miles of their U.S. points of shipment, *** percent between 101 and 1,000 miles, and less than *** percent over 1,000 miles.

[9] ***.
[10] ***.

Table II-2
Barium chloride: Count of U.S. producer CPC's and U.S. importers' geographic markets

Count in number of firms reporting

Region	U.S. producer CPC	Subject imports from India
Northeast	***	2
Midwest	***	4
Southeast	***	3
Central Southwest	***	3
Mountain	***	2
Pacific Coast	***	2
Other	***	0
All regions (except Other)	***	1
Reporting firms	1	8

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

Note: Other U.S. markets include AK, HI, PR, and VI.

Supply and demand considerations

U.S. supply

Table II-3 provides a summary of the supply factors regarding barium chloride from U.S. producer CPC and responding producers in India.

Table II-3
Barium chloride: Supply factors that affect the ability to increase shipments to the U.S. market, by country

Quantity in 1,000 pounds; ratio and share in percent; count in number of firms reporting

Factor	Measure	United States	India
Capacity 2019	Quantity	***	***
Capacity 2021	Quantity	***	***
Capacity utilization 2019	Ratio	***	***
Capacity utilization 2021	Ratio	***	***
Inventories to total shipments 2019	Ratio	***	***
Inventories to total shipments 2021	Ratio	***	***
Home market shipments 2021	Share	***	***
Non-US export market shipments 2021	Share	***	***
Ability to shift production (firms reporting "yes")	Count	*** of 1	*** of 4

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

Note: Responding U.S. producer CPC accounted for virtually all U.S. production of barium chloride in 2021. Responding foreign producer/exporter firms accounted for more than 75 percent of U.S. imports of barium chloride from India during 2021. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, "Summary Data and Data Sources."

Domestic production

Based on available information, U.S. producer CPC has the ability to respond to changes in demand with large changes in the quantity of shipments of U.S.-produced barium chloride to the U.S. market. The main contributing factors to this degree of responsiveness of supply are ***.

CPC reported a *** consistent level of capacity during 2019-21 along with a decrease in total production and commercial U.S. shipments of *** percent and *** percent, respectively. It also reported decreasing shipments to the U.S. market between 2019 and 2021 – from *** percent of its total shipments in 2019 to *** percent in 2021 – with the remainder shipped to export markets, primarily ***. Additionally, CPC reported in its U.S. producer questionnaire response that ***. It clarified, however, that although *** there is an overlap for a portion of the front end of the production process, there are different finishing processes.[11]

Subject imports from India

Based on available information, producers of barium chloride from India have the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments of barium chloride to the U.S. market. The main contributing factors to this degree of responsiveness of supply are ***. Factors mitigating this responsiveness of supply include a limited availability of inventories and ***.

Indian producers reported increasing their overall capacity by *** percent between 2019 and 2021, as well as increasing their production by *** percent during this time. This led to an increase in capacity utilization of *** percentage points. Indian producers' reported

[11] CPC testified that "only at a very early stage in {the multi-stage production process} does it share production processes with other products." Hearing transcript, p. 29 (Woodings). CPC also reported that ***, and that CO_2 is a byproduct of barium chloride production, but not an input. See hearing transcript, p. 32 (Waite).

exports to the United States decreased by *** percent between 2019 and 2021 while their home market shipments and exports to non-U.S. markets both increased, by *** percent and *** percent, respectively. ***.[12]

Imports from nonsubject sources

Nonsubject imports accounted for a small percent of total U.S. imports during January 2019-June 2022. In 2021, nonsubject imports represented *** percent of all reported imports and was at *** percent or less during the entire January 2019-June 2022 period. The reported nonsubject import sources during January 2019-June 2022 were the United Kingdom (***), Belgium, China, Germany, Mexico, and Russia (***). According to official import statistics, Mexico was the largest source of nonsubect imports during January 2019-June 2022, followed by the United Kingdom.

Supply constraints

Most firms (***) reported that they had not experienced supply constraints either before or after the filing of the petitions on January 12, 2022.[13] Two importers and four purchasers reported pre-petition supply constraints, including global container shortages and trouble securing freight space from India in 2020-21, as well as increasing costs and lead times. One firm (***) reported that at one point in 2019 CPC indicated that it was unable to supply enough product to meet that firm's needs.[14] Two importers and three purchasers also reported post-petitions supply constraints, including continued limitations on steamship service from

[12] Chaitanya, ***. Respondent Chaitanya's postconference brief, pp. 19, 29.

[13] CPC indicated that *** and that it "experienced supply chain difficulty, which {forced its} logistics and supply chain personnel… to be very creative," but that it "generally maintained capacity during the POI" and "did not experience any significant production disruptions during the POI." It further testified that supply chain challenges "impacted {its} cost of production… not the production itself." See CPC's prehearing brief, p. 19; hearing transcript, pp. 25 (Woodings) and 63-66 (McCall, Waite); and CPC's posthearing brief, Exhibit 4 (Responses to Questions from the Commissioners), pp. 8-9.

[14] See also BassTech's posthearing brief, pp. 1-6 and Exhibit 1 (Responses to Commission's Questions), p. 27-29, and Exhibit 2, Attachment 1.

India for hazmat products and a reluctance to import from India for fear of retroactive antidumping and countervailing duties.

When asked whether the availability of supply of domestic, Indian, and nonsubject product had changed since January 1, 2019, most purchasers reported that it had not: 8 of 10 purchasers reported that the availability of supply of U.S. product had not changed, 3 of 5 reported that the availability of Indian product had not changed, and both responding purchasers reported that the availability of nonsubject product had not changed. One firm, ***, reiterated its statement that *** refused a sale in 2019 due to insufficient quantities available to meet its needs, and one firm, ***, indicated that the supply of Indian product was disrupted by supply chain problems caused by the COVID-19 pandemic.

New suppliers

None of the responding purchasers indicated that new suppliers entered the U.S. market since January 1, 2019.

U.S. demand

Based on available information, the overall demand for barium chloride is likely to experience small changes in response to changes in price. The main contributing factors are the lack of substitutes, particularly for its largest end use application (molecular sieves in oil refining), and the small share of the cost of barium chloride in this application. Demand for barium chloride also appears to be mature, with a narrowing of end use applications over time.[15]

End uses and cost share

According to U.S. producer CPC, the primary end use for barium chloride dihydrate, the most commonly used form, is as an intermediate product in the production of molecular catalyst sieves, "which in turn are used in oil refinery complexes to separate industrially useful paraxylene molecules from other mixed xylenes."[16] CPC indicated that barium chloride dihydrate "also serves as a cleansing agent in the removal of soluble sulfates in certain chemical and water treatment processes, as a cleansing ingredient in lubricating oil additives, and as a raw material in the production of certain chemicals, pigments, and paper coatings. {It is} also

[15] Petitions, p. I-12; See also Barium Chloride from China, Inv. No. 731-TA-149 (Third Review), USITC Publication 4157, June 2010 ("China third review publication"), pp. II-9–10.

[16] As noted earlier, paraxylene is a raw material used in the production of terephthalic acid, which is a precursor to PET.

used as a base material for production of ink pigments and other barium intermediate products such as barium titanate and barium metaborate. Further, {it is} used in certain environmental applications, including wastewater treatment."[17] The anhydrous form of barium chloride is used "primarily as an ingredient in heat-treating salts and metal fluxes – that is, molten baths used to harden metal parts which are usually small specialty steel parts such as tools and dies."[18] Importers and purchasers similarly identified barium chloride as an agent in the following end uses/applications: metal fluxes, galvanizing, flash freeze freezers, laboratory and research uses, and as an adsorbent, neutral salt, and paraxylene catalyst.

Barium chloride accounts for a wide range of cost shares in its end use applications. In general, it appears to account for a small share of the cost of molecular sieves and a small to moderate share of the cost of its other applications.[19] In the current investigation, reported cost shares were less than one percent (in flash-freeze freezers) to a range of 41-65 percent (as a catalyst, adsorbent, treatment agent, and/or metal hardener).

As an intermediate product, domestic demand for barium chloride depends on demand in the downstream domestic industries that use it and for the products and services provided by these industries. *** indicated that barium chloride demand is most influenced by refinery activity, which in turn is influenced by the price of crude oil and gasoline. *** also reported that drilling activities, including fracking, and construction influence barium chloride demand due to its use in treating wastewater from these activities.[20] As noted earlier, the responding distributors reported selling to firms in a variety of domestic industries, including water treatment, mining, industrial manufacturing, and to laboratory chemical re-sellers and hot-dip galvanizers.

Business cycles

Most firms, including 9 of 12 importers and 8 of 12 purchasers indicated that the barium chloride market was not subject to business cycles. Most firms, including U.S. producer CPC, 11 of 12 importers, and 11 of 12 purchasers also indicated that the market was not subject to conditions of competition. Among the seven firms that reported business cycles, most reported cyclical and/or seasonal demand. *** reported cyclical demand for

[17] Ibid.

[18] Ibid.

[19] In the last full review on the same product from China, "most firms reported that barium chloride generally accounts for a small share of the cost of molecular sieves and a small to moderate share of the cost of its other final end use products." See China third review publication, p. II-7.

[20] See also Petitioner's postconference brief, p. 6 and exh. 2 (Responses to Questions from Commission Staff), p. 8.

molecular sieves, while *** elaborated that demand for paraxylene sequestering is impacted by the price of gasoline and polyethylene terephthalate.[21] *** also reported that demand for barium chloride as a "sulfate scavenger" for wastewater management is influenced by trends in the construction industry. The only firm reporting that the barium chloride was subject to distinct conditions of competition, ***, reported that hydrogen chloride could be used as a substitute for barium chloride in wastewater treatment (sulfate removal) applications.

Four responding firms, including ***, reported that there have been changes to the business cycles and/or conditions of competition since January 1, 2019. *** stated that ***.[22] For its part, *** reported that the demand for its finished product drastically decreased as a result of the economic downturn beginning in 2020 as a result of the COVID-19 pandemic, but that it has seen an increase in demand in 2022. *** reported that demand for barium chloride has decreased due to COVID-related decreases in construction and gasoline demand. *** reported that domestic demand for "most products since COVID" has outstripped domestic supply, citing sodium gluconate and citric acid as examples, and stated that while importers and consumers are forced to pay antidumping and countervailing duties on imports of such products, they are still less expensive domestic prices for these products.

Demand trends

As described earlier, demand for barium chloride is derived from demand in the industries that use it as a molecular catalyst sieve (primarily oil refineries) and for wastewater treatment (industrial drilling and construction). In its petitions, CPC stated that demand for

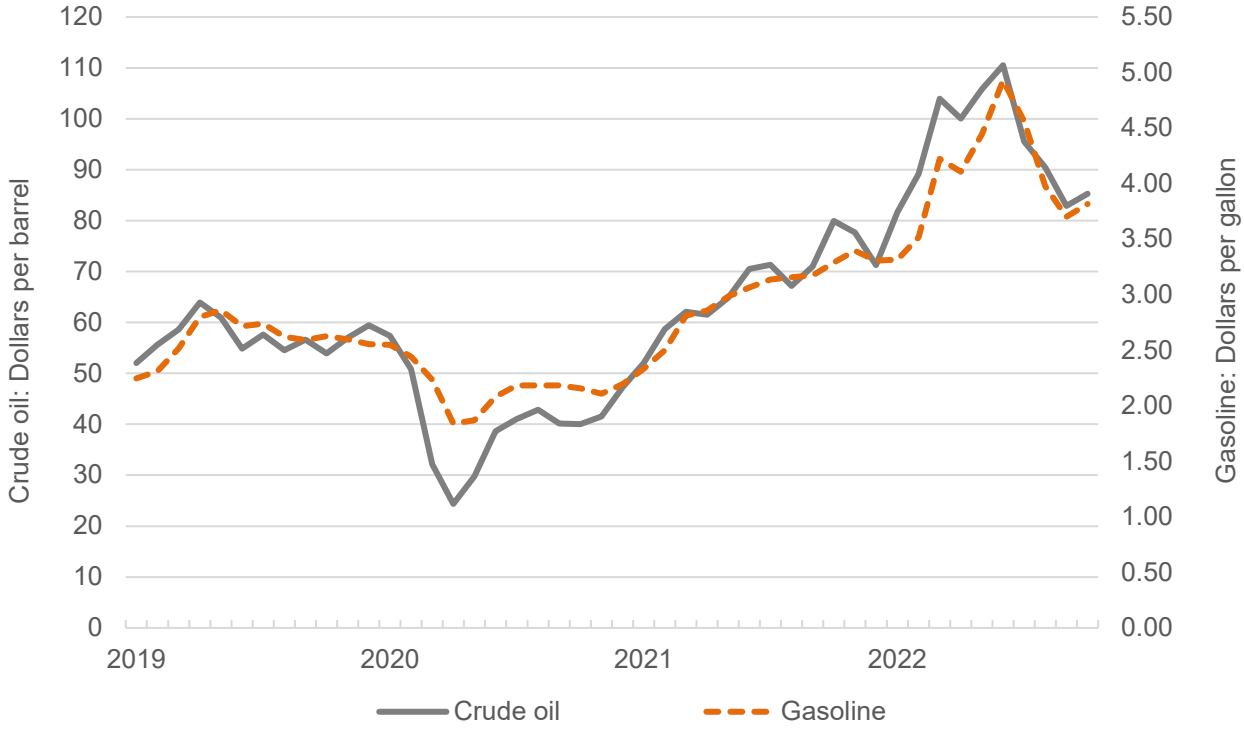
[21] Polyethylene terephthalate (or PET), is the chemical name for polyester. It is used in thermoforming for manufacturing applications, such as packaging material for foods and beverages and other types of containers, as well as in in fibers for clothing and in combination with glass fiber for engineering resins. See PET Resin Association website, An Introduction to PET (polyethylene terephthalate), available at http://www.petresin.org/news_introtoPET.asp, accessed November 4, 2022.

[22] ***.

barium chloride "has become more closely tied to end uses in the downstream refinery industry, which is itself highly dependent on prices of petroleum products."[23]

As shown in figure II-1, prices for crude oil and gasoline both increased during the investigation period and both followed similar trends, with drops in early-mid 2020 and spikes in early-mid 2022. Prices reached a period low toward the end of April 2020 (at $9.40 per barrel of crude oil on April 20, 2020 and $1.77 per gallon of gasoline the last week of April 2020), and a high in June 2022 (at $118.40 per barrel on June 8, 2022 and $5.01 per gallon the third week of June 2022).

Figure II-1
Crude oil and gasoline prices: Cushing, OK crude oil future contract 1-4 (average) price, dollars per barrel, and U.S. regular all formulations retail gasoline prices, dollars per gallon, monthly, January 2019–October 2022

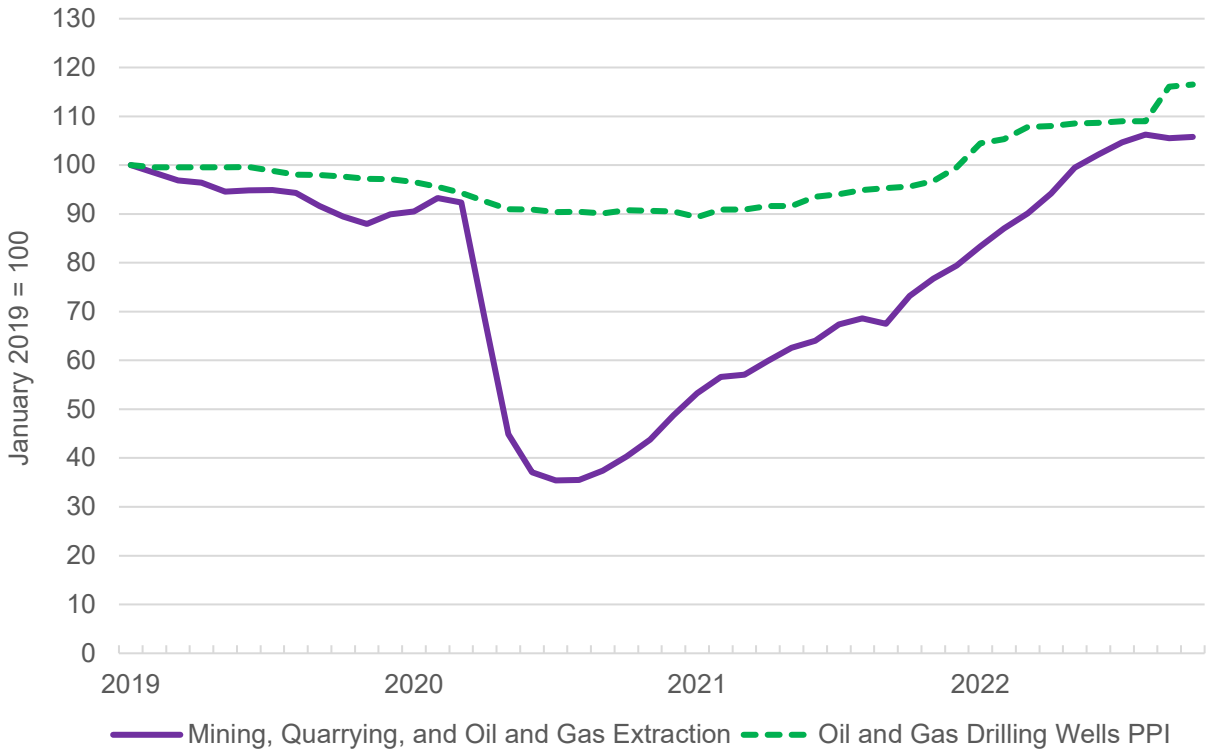


Source: U.S. Energy Information Administration, Petroleum and other liquids, available at http://www.eia.gov/oog/info/twip/twip_crude.html and http://www.eia.gov/oog/info/twip/twip_gasoline.htm, retrieved November 14, 2022.

[23] Petitions, pp. I-11–12, exh. I-12. In the Commission's expedited fifth five-year review on barium chloride from China, it found that "{t}he principal use for barium chloride … is as an intermediate material for the production of molecular catalyst sieves, used by oil refinery complexes use to separate paraxylene molecules from other mixed xylenes. Consequently, the Commission expected petroleum prices to affect demand for barium chloride." Barium Chloride from China, Inv. No. 731-TA-149 (Fifth Review), USITC Publication 5203, June 2021, p. 11.

As noted earlier, barium chloride is also used in wastewater treatment during drilling and construction activities. As shown in figure II-2, mining, quarrying, and oil and gas extraction was at its lowest in July 2020 and its highest in August 2022. The producer price index ("PPI") for oil and gas drilling wells was at its lowest in January 2021 and its highest in September 2022.

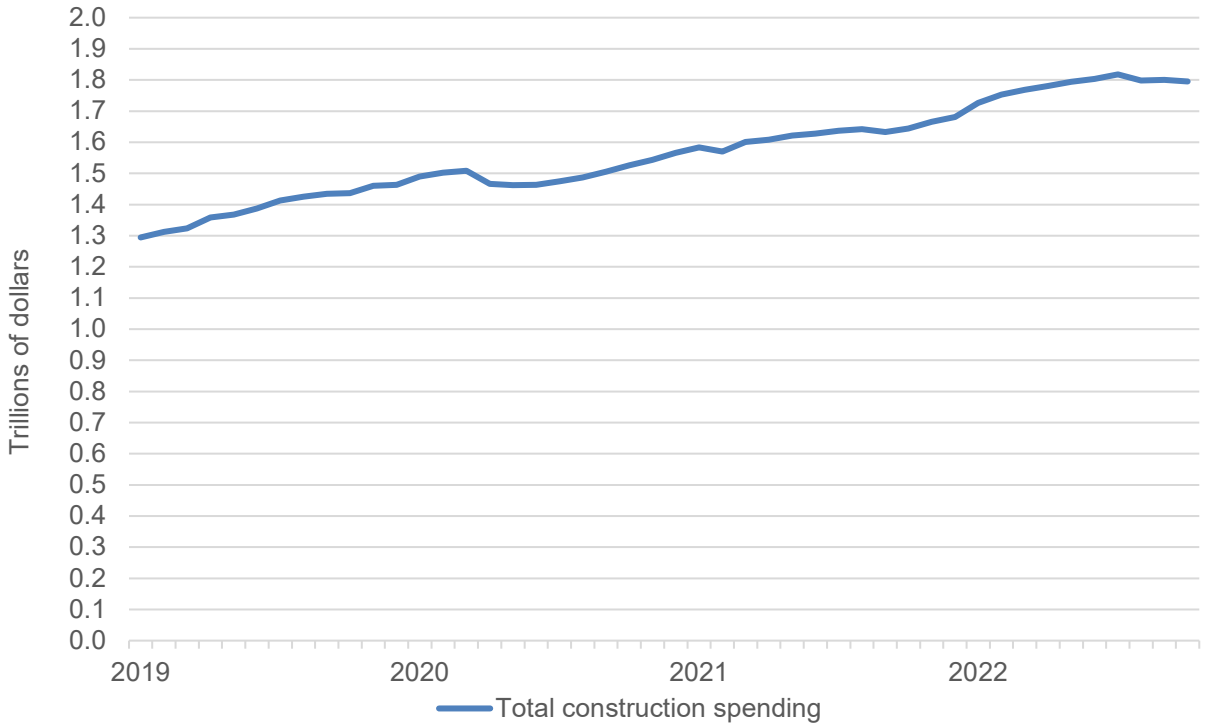
Figure II-2
Industrial drilling production and oil and gas well price indexes: Industrial production: Mining, quarrying, and oil and gas extraction: Drilling oil and gas wells (NAICS = 213111), not seasonally adjusted, and Producer Price Index by industry: Drilling oil and gas wells: Primary services, not seasonally adjusted, Index Jan 2019=100, monthly, January 2019–October 2022



Source: St. Louis Federal Reserve Economic Data, https://fred.stlouisfed.org/series/IPN213111N# and https://fred.stlouisfed.org/series/PCU213111213111P, retrieved December 1, 2022.

As shown in figure II-3, construction spending generally increased throughout the investigation period, with the exception of a drop during April-June 2020. Construction spending was at its period high in July 2022.

Figure II-3
Construction spending: Total construction spending in the United States, seasonally adjusted annual rate, trillions of dollars, monthly, January 2019–October 2022



Source: St. Louis Federal Reserve Economic Data, https://fred.stlouisfed.org/series/TTLCONS, retrieved December 1, 2022.

Firms' responses regarding trends in U.S. demand for barium chloride since January 1, 2019 were mixed, though most firms reported that demand either did not change or fluctuated (table II-4). Among the firms reporting a decrease in demand, *** indicated that the market for molecular sieves is cyclical and that market experienced a decline and *** reported that the impact of the COVID-19 pandemic caused demand to be erratic and overall trend downward. The only firm elaborating on what it perceived to be an increase in demand (***) suggested that demand for barium chloride outstripped supply due to challenges caused by ocean shipping delays.

Table II-4
Barium chloride: Count of firms' responses regarding overall domestic and foreign demand, by firm type

Market	Firm type	Increase	No change	Decrease	Fluctuate
Domestic demand	U.S. producers	***	***	***	***
Domestic demand	Importers	1	5	2	2
Domestic demand	Purchasers	1	3	1	3
Foreign demand	U.S. producers	***	***	***	***
Foreign demand	Importers	0	4	1	2
Foreign demand	Purchasers	0	0	1	2
Demand for end use products	Purchasers	2	1	3	2

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

When purchasers were asked whether the demand for their final products incorporating barium chloride had changed, responses were mixed; three firms reported a decrease, two firms each reported an increase and fluctuations in demand, and one reported no change in demand for their end use products. Seven of the eight responding purchasers reported that these changes affected their demand for barium chloride.

Substitute products

Substitutes for barium chloride are limited. Most firms – including 9 of 10 importers and 12 of 13 purchasers – reported that there are no substitutes. *** the firms reporting substitutes – *** – listed barium hydroxide as a substitute in water treatment applications.[24] *** reported that changes in the price of barium hydroxide have not affected the price for barium chloride.

Substitutability issues

This section assesses the degree to which U.S.-produced barium chloride and imports of barium chloride from India can be substituted for one another by examining the importance of certain purchasing factors and the comparability of barium chloride from domestic and imported sources based on those factors. Based on available data, staff believes that there is a high degree of substitutability between domestically produced barium chloride and barium chloride imported from India.[25] Factors contributing to this level of substitutability include

[24] Elsewhere in its questionnaire response, *** also reported that hydrogen chloride could be used as a substitute in wastewater treatment applications.

[25] The degree of substitution between domestic and imported barium chloride depends upon the extent of product differentiation between the domestic and imported products and reflects how easily

(*continued*...)

similar quality, little preference for particular country of origin or producers, no significant domestic content requirements, similarities between domestically produced barium chloride and barium chloride imported from India across multiple purchase factors, general interchangeability between domestic and subject sources, and limited significant factors other than price. Factors that may reduce substitutability include some differences in availability and lead times for product sold from inventory, and some purchaser preference for barium chloride from domestic sources over import sources.

Purchaser decisions based on source

As shown in table II-5, most purchasers and their customers either never or sometimes make purchasing decisions based on the producer or country of origin. Of the purchasers that reported always making decisions based the manufacturer, one firm (***) indicated simply that it buys from a single source, *** stated that its approval process is lengthy and goes through factory audits and product trials, and (***) cited delivery and performance as its reasons for always purchasing from ***.[26]

Table II-5
Barium chloride: Count of purchasers' responses regarding frequency of purchasing decisions based on producer and country of origin

Count in number of firms reporting

Firm making decision	Decision based on	Always	Usually	Sometimes	Never
Purchaser	Producer	3	0	4	6
Customer	Producer	1	0	2	7
Purchaser	Country	1	0	4	8
Customer	Country	0	0	2	8

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

Importance of purchasing domestic product

Ten of 11 responding purchasers reported that most or all of their purchases did not require purchasing U.S.-produced product, for an estimated 97.9 percent of reported purchases

purchasers can switch from domestically produced barium chloride to the barium chloride imported from subject countries (or vice versa) when prices change. The degree of substitution may include such factors as relative prices (discounts/rebates), quality differences (e.g., grade standards, defect rates, etc.), and differences in sales conditions (e.g., lead times between order and delivery dates, reliability of supply, product services, etc.).

[26] *** listed its source as ***. *** indicated that it purchased ***.

in 2021. Only one firm reported that domestic product was required by its customers, for the remaining 2.1 percent of reported U.S. purchases. No firm reported that domestic product was required by law, and no firms reported other preferences for domestic product.

Only one of the 11 responding purchasers reported that certain grades, types, or forms of barium chloride were only available from certain sources: *** reported that CPC "only produces one grade of barium chloride dihydrate, whereas {Chaitanya} has 4 individual grades that are designed for specific applications."[27] When asked whether they or their customers ever specifically order from one country source over other sources of supply, most purchasers (9 of 12) reported that they do not. For the three firms that reported doing so, one indicated that it preferred domestic product, another reported that its customer had only approved one Indian manufacturer, and the third reported that its supplier offered Indian product based on pricing.

Most important purchase factors

As shown in table II-6, the most often cited top three factors firms consider in their purchasing decisions for barium chloride were price (cited by 10 firms), quality (9 firms), and availability (7 firms). Quality and availability were the most frequently cited first-most important factors (cited by 4 firms each); and price was the most frequently cited second- and third-most important factor (cited by 6 firms and 4 firms, respectively).

[27] BassTech stated that ***. BassTech's prehearing brief, pp. 7-13, Exhibits 1 and 2. See also Chaitanya's prehearing brief, p. 7.

CPC testified that it does not produce different grades of barium chloride, and asserts that "there are no specialized grades of barium chloride in the U.S. market because {CPC} and other producers of barium chloride are 'producing barium chloride crystalline which generally meets most of the specifications in the market.' While there may be slight differences in customer specifications, it is the same product." See CPC's prehearing brief, pp. 6-7 and hearing transcript, pp. 37-38 (Ingram) and 49 (Woodings).

Table II-6
Barium chloride: Count of ranking of factors used in purchasing decisions as reported by purchasers, by factor

Count in number of firms reporting

Factor	First	Second	Third	Total
Price	---	6	4	10
Quality	4	3	2	9
Availability	4	3	---	7
Lead time	1	1	1	3
All other factors	4	---	5	9

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

Note: Other factors included an ability to supply, being an approved manufacturer, extension of credit, a history of purchasing from the same company, "if they know how to ship," relationship, trust, and reliability.

When purchasers were asked how often they purchase barium chloride that is offered at the lowest price, most firms reported that they sometimes or never do. Five firms reported sometimes purchasing the lowest-priced product, 5 reported never doing so, and 3 reported usually doing so. No firms reported always purchasing the lowest-priced product.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 18 factors in their purchasing decisions (table II-7). The factors rated as very important by more than half of responding purchasers were availability (all 13 firms); delivery time and reliability of supply (11 firms each); chemical form, product consistency, and quality meets industry standards (10 firms each); price (9 firms); and packaging and purity (8 firms each).

Table II-7
Barium chloride: Count of purchasers' responses regarding importance of purchase factors, by factor

Count in number of firms reporting

Factor	Very important	Somewhat important	Not important
Availability	13	0	0
Chemical form	10	2	0
Delivery terms	6	5	1
Delivery time	11	1	0
Discounts offered	4	3	5
Diversity of supply	2	5	5
Minimum quantity requirements	2	6	4
Packaging	8	4	1
Payment terms	6	5	1
Price	9	3	0
Product consistency	10	2	0
Product range	0	7	5
Purity	8	3	1
Quality meets industry standards	10	2	0
Quality exceeds industry standards	5	5	2
Reliability of supply	11	1	0
Technical support/service	3	6	3
U.S. transportation costs	3	9	0

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

Lead times

Barium chloride is primarily sold from inventory. U.S. producer CPC reported that *** percent of its product was sold from inventory, with an average lead time of *** days, and importers reported that *** percent of their product was sold from their U.S. inventories, with an average lead time of *** days. Importers reported that the remaining *** percent was sold from the foreign manufacturers' inventories, with an average lead time of *** days.

Supplier certification

Most purchasers (9 of 13) require their suppliers to become certified or qualified to sell barium chloride to their firm. Purchasers reported that the time to qualify a new supplier ranged from 10 to 240 days, for a simple average of 89 days. Purchasers cited several processes and factors they consider in the certification process, including the following: the ability to meet ACS (American Chemical Society) grade specifications; the completion of a quality questionnaire, COA (certificate of authenticity) and specification sheets; completion of a self-audit that includes product data sheets and analyses; material quality; supplier capacity, reliability, reputation, and history; delivered cost; packaging; whether they are a manufacturer vs. a distributor; ISO (International Organization for Standardization) compliance; and sample

performance tests. No purchaser reported that a domestic or foreign supplier had failed in its attempt to qualify barium chloride or had lost its approved status since 2019.[28]

Minimum quality specifications

Among the purchasers reporting on minimum quality specifications, most reported that both U.S. and Indian product always met minimum quality specifications, while the remaining firms reported that they usually do (table II-8). For nonsubject product, all responding firms reported that they do not know.

Table II-8
Barium chloride: Count of purchasers' responses regarding suppliers' ability to meet minimum quality specifications, by source

Count in number of firms reporting

Source of purchases	Always	Usually	Sometimes	Rarely or never	Don't Know
United States	8	2	0	0	3
India	4	2	0	0	6
Nonsubject sources	0	0	0	0	8

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

Note: Purchasers were asked how often domestically produced or imported barium chloride meets minimum quality specifications for their own or their customers' uses.

When asked to elaborate on what characteristics determine quality, firms generally listed purity, low levels of contaminants, moisture content, melting point, meeting industry standards, and meeting ACS grade or other non-specified specifications. One firm (***) also listed price as a quality characteristic.

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2019. As shown in table II-9, most firms reported either increasing or constant purchases of domestic product, while most responding firms reported decreasing or not purchasing Indian product. Purchasers reported increasing their purchases of domestic product due to better availability from domestic sources, the preliminary antidumping and countervailing duty investigations on barium chloride from India, and the loss of an import source for an unspecified reason. Purchasers reported decreasing their purchases of Indian product due to the preliminary antidumping and countervailing duty investigations,

[28] ***.

"undependable" supply chain, and the combination of oversupply and lower demand due in part to the COVID-19 pandemic.

Table II-9
Barium chloride: Count of purchasers' responses regarding changes in purchase patterns from U.S., subject, and nonsubject countries

Count in number of firms reporting

Source of purchases	Increased	Constant	Decreased	Fluctuated	Did not purchase
United States	4	4	1	3	0
India	0	1	4	0	3
Nonsubject sources	0	0	0	0	4
Sources unknown	0	0	1	1	4

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

Four responding purchasers reported that they had changed suppliers since January 1, 2019. Specifically, two firms reported dropping or reducing purchases from BassTech for reasons related to availability and supply chain problems, and one firm reported dropping Chaitanya due to the loss of a customer that only approved Chaitanya's product. The two firms that reported dropping BassTech reported adding or resuming purchases from CPC. One firm, ***, added that it sources based on availability and delivery performance.

Purchase factor comparisons of domestic products, subject imports, and nonsubject imports

Purchasers were asked a number of questions comparing barium chloride produced in the United States, India, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 18 factors (table II-10) for which they were asked to rate the importance.

Most purchasers reported that barium chloride from the United States and India were comparable on all factors besides delivery terms and U.S. transportation costs. For delivery terms, three firms rated the U.S. and India as comparable and three rated the U.S. as inferior to India. On U.S. transportation costs, a plurality of firms rated the U.S. as superior, two firms rated the U.S. and India as comparable, and two firms rated the U.S. as inferior. As noted in table II-7, most firms rated delivery terms as very important and most rated U.S. transportation costs as somewhat important.

When comparing U.S. and nonsubject barium chloride, the two responding purchasers rated the U.S. as either superior or comparable to that from nonsubject sources for all factors. When comparing Indian and nonsubject sources, the only responding purchaser rated them as comparable on all factors.

Table II-10
Barium chloride: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Count in number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	US vs. India	2	4	1
Chemical form	US vs. India	1	5	0
Delivery terms	US vs. India	1	3	3
Delivery time	US vs. India	2	4	1
Discounts offered	US vs. India	1	5	0
Diversity of supply	US vs. India	1	4	0
Minimum quantity requirements	US vs. India	2	3	0
Packaging	US vs. India	1	5	0
Payment terms	US vs. India	1	6	0
Price	US vs. India	1	4	2
Product consistency	US vs. India	1	5	0
Product range	US vs. India	1	4	1
Purity	US vs. India	2	4	0
Quality meets industry standards	US vs. India	2	5	0
Quality exceeds industry standards	US vs. India	1	4	1
Reliability of supply	US vs. India	2	4	1
Technical support/service	US vs. India	1	4	1
U.S. transportation costs	US vs. India	3	2	2

Table continued.

Table II-10 continued
Barium chloride: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Count in number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	US vs. Nonsubject	1	1	0
Chemical form	US vs. Nonsubject	1	1	0
Delivery terms	US vs. Nonsubject	1	1	0
Delivery time	US vs. Nonsubject	1	1	0
Discounts offered	US vs. Nonsubject	1	1	0
Diversity of supply	US vs. Nonsubject	1	1	0
Minimum quantity requirements	US vs. Nonsubject	1	1	0
Packaging	US vs. Nonsubject	1	1	0
Payment terms	US vs. Nonsubject	1	1	0
Price	US vs. Nonsubject	1	1	0
Product consistency	US vs. Nonsubject	1	1	0
Product range	US vs. Nonsubject	1	1	0
Purity	US vs. Nonsubject	1	1	0
Quality meets industry standards	US vs. Nonsubject	1	1	0
Quality exceeds industry standards	US vs. Nonsubject	1	1	0
Reliability of supply	US vs. Nonsubject	1	1	0
Technical support/service	US vs. Nonsubject	1	1	0
U.S. transportation costs	US vs. Nonsubject	1	1	0

Table continued.

Table II-10 continued
Barium chloride: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Count in number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	India vs. Nonsubject	0	1	0
Chemical form	India vs. Nonsubject	0	1	0
Delivery terms	India vs. Nonsubject	0	1	0
Delivery time	India vs. Nonsubject	0	1	0
Discounts offered	India vs. Nonsubject	0	1	0
Diversity of supply	India vs. Nonsubject	0	1	0
Minimum quantity requirements	India vs. Nonsubject	0	1	0
Packaging	India vs. Nonsubject	0	1	0
Payment terms	India vs. Nonsubject	0	1	0
Price	India vs. Nonsubject	0	1	0
Product consistency	India vs. Nonsubject	0	1	0
Product range	India vs. Nonsubject	0	1	0
Purity	India vs. Nonsubject	0	1	0
Quality meets industry standards	India vs. Nonsubject	0	1	0
Quality exceeds industry standards	India vs. Nonsubject	0	1	0
Reliability of supply	India vs. Nonsubject	0	1	0
Technical support/service	India vs. Nonsubject	0	1	0
U.S. transportation costs	India vs. Nonsubject	0	1	0

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

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Comparison of U.S.-produced and imported barium chloride

In order to determine whether U.S.-produced barium chloride can generally be used in the same applications as imports from India and nonsubject countries, U.S. producers, importers, and purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in tables II-11 to II-13, *** most purchasers reported that U.S. and Indian product can always be used interchangeably, while most importers reported that they can either sometimes or never be used interchangeably.

Table II-11
Barium chloride: Count of U.S. producers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
U.S. vs. India	***	***	***	***
U.S. vs. Other	***	***	***	***
India vs. Other	***	***	***	***

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

Table II-12
Barium chloride: Count of importers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
U.S. vs. India	0	1	3	2
U.S. vs. Other	1	1	1	1
India vs. Other	1	1	1	1

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

Table II-13
Barium chloride: Count of purchasers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
U.S. vs. India	3	0	2	0
U.S. vs. Other	0	0	2	0
India vs. Other	0	0	1	0

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

In further comments, *** reported that the production process in India via "the soda ash process" leaves high levels of sodium or sulfur and in China leave trace amounts of these elements, and that this makes barium chloride from these sources only sometimes interchangeable with domestic product for use as a catalyst or for water treatment applications. *** also noted that overall quality, namely purity levels, could make product from various sources sometimes interchangeable. *** reported that longer logistical and lead times from India compared to the United States makes them sometimes interchangeable.

In addition, U.S. producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of barium chloride from the United States, subject, or nonsubject countries. As seen in tables II-14 to II-16, most firms reported that

factors other than price are sometimes significant when comparing U.S. to Indian barium chloride.

Table II-14
Barium chloride: Count of U.S. producers reporting the significance of differences other than price between product produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
U.S. vs. India	***	***	***	***
U.S. vs. Other	***	***	***	***
India vs. Other	***	***	***	***

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

Table II-15
Barium chloride: Count of importers reporting the significance of differences other than price between product produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
U.S. vs. India	2	0	3	0
U.S. vs. Other	3	0	1	1
India vs. Other	0	0	1	1

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

Table II-16
Barium chloride: Count of purchasers reporting the significance of differences other than price between product produced in the United States and in other countries, by country pair

Count in number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
U.S. vs. India	2	1	2	1
U.S. vs. Other	1	1	0	0
India vs. Other	0	1	1	0

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

In additional comments, *** reported that buyers' demand for more than one source of product and the need to guarantee steady sources of supply make factors other than price always significant when comparing the United States to India and other sources. *** highlighted availability as a significant non-price factor as well, with *** also citing quality, lead time, and support. *** indicated that product purchased from other (non-U.S. or Indian sources) is "always a higher grade {of} product" and that anhydrous product purchased outside the United States meets "99.99+" percent purity standards.

Elasticity estimates

U.S. supply elasticity

The domestic supply elasticity for barium chloride measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of barium chloride. The elasticity of domestic supply depends on several factors including the level of excess capacity, the ease with which producers can alter capacity, producers' ability to shift to production of other products, the existence of inventories, and the availability of alternate markets for U.S.-produced barium chloride. Analysis of these factors above indicates that the U.S. industry has the ability to greatly increase or decrease shipments to the U.S. market; an estimate in the range of 5 to 10 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for barium chloride measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of barium chloride. This estimate depends on factors discussed above such as the existence, availability, and commercial viability of substitute products, as well as the component share of the barium chloride in the production of any downstream products. Based on the available information, the aggregate demand for barium chloride is likely to be relatively inelastic; a range of -0.2 to -0.5 is suggested.[29]

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.[30] Product differentiation, in turn, depends upon such factors as quality (e.g., chemistry, appearance, etc.) and conditions of sale (e.g., availability, sales terms/discounts/promotions, etc.). Based on available information, the elasticity of substitution between U.S.-produced barium chloride and imported barium chloride is likely to be in the range of 3 to 6. As discussed earlier, factors contributing to this level of substitutability include similar quality, little preference for particular country of origin or

[29] Respondent BassTech argues that "there is a long-run substitution away from barium chloride, though the substitution may occur downstream, such as when 'better quality salts' replaced the use of barium chloride in ChloroAlkali production," and that "this fact pattern indicates a higher elasticity of demand, at least with respect to substitute products." BassTech's prehearing brief, p. 22.

[30] The substitution elasticity measures the responsiveness of the relative U.S. consumption levels of the subject imports and the domestic like products to changes in their relative prices. This reflects how easily purchasers switch from the U.S. product to the subject products (or vice versa) when prices change.

producers, no significant domestic content requirements similarities between domestically produced barium chloride and barium chloride imported from subject countries across multiple purchase factors, interchangeability between domestic and subject sources, and limited significant factors other than price. Factors that may reduce substitutability include some differences in availability and lead times for product sold from inventory, and some purchaser preference for barium chloride from domestic sources over import sources.

Part III: U.S. producers' production, shipments, and employment

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the subsidy rates was presented in Part I of this report and information on the volume and pricing of imports of the subject merchandise is presented in Part IV and Part V. Information on the other factors specified is presented in this section and/or Part VI and (except as noted) is based on the questionnaire response of one firm.

U.S. producers

The Commission issued a U.S. producer questionnaire to seven firms.[1] One firm, petitioner CPC, provided a questionnaire response.[2] [3] Staff estimate that CPC accounted for *** percent of U.S. production of barium chloride during 2021.[4] [5]

[1] U.S. producer questionnaires were sent to (1) Alfa Aesar ("Alfa"); (2) Barium & Chemicals ("B&C"); (3) CPC; (4) GFS Chemicals, Inc. ("GFS"); (5) Global Tungsten & Powders Corp. ("GTP"); (6) Osram Sylvania ("Osram"); and (7) Spectrum Chemical ("Spectrum"). These firms were identified through the petition, industry research, and previous and related import injury investigations on barium chloride.

[2] Spectrum submitted a questionnaire and certified that it did not produce barium chloride during period of investigation. Alfa, B&C, GTP, and Osram did not respond. Alfa's parent company, Thermo Fisher Scientific Chemicals Inc., however, submitted a U.S. importer questionnaire for two of its subsidiaries, Fisher Scientific and Thermo Fisher (see Part IV of this report for more information).

[3] GFS did not formally submit a U.S. producer questionnaire. However, GFS communicated that ***.

Moreover, GFS reported that ***. Correspondences with ***, January 24, 2022, EDIS #761625 and October 27, 2022, EDIS # 783250.

[4] CPC acknowledges that other companies may produce small amounts of barium chloride for their internal consumption. Petition, p. I-3. However, CPC maintains that it is the sole remaining commercial producer of barium chloride in the United States. Petition, p. I-3; Petitioner's postconference brief, p. 9; Hearing transcript, p. 6 (Waite). Furthermore, U.S. purchasers *** reported that they are not aware of any of other domestic producer of barium chloride besides CPC. See U.S. purchasers *** questionnaire responses, section V-1.

[5] Given all the available and aforementioned information, staff estimate that CPC accounted for *** percent of domestic barium chloride production during 2021 ***.

Table III-I presents CPC's position on the petition, location of production, and share of total production during 2021.

Table III-1
Barium chloride: U.S. producer CPC, its position on the petition, location of production, and share of reported production, 2021

Shares in percent

Firm	Position on petition	Production location(s)	Share of production
CPC	Petitioner	Cartersville, GA	***
All firms	---	---	***

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

As previously noted, CPC believes that it is the sole remaining commercial producer of barium chloride in the United States. It reports ***.

Table III-2 presents CPC's reported changes in operations since January 1, 2019. CPC reported ***. CPC notes that it ***.[6] Moreover, CPC reported that ***.

CPC reported that the COVID-19 pandemic had ***. CPC explains that ***. The pandemic, CPC noted, ***.

[6] CPC reported that ***. Petitioner's prehearing brief, p. 20; Hearing transcript, pp. 16 and p. 55 (McCall).

Table III-2
Barium chloride: U.S. producer CPC's reported changes in operations, since January 1, 2019

Item	Narrative response on changes in operations
Prolonged shutdowns or curtailments	***.
Revised labor agreements	***.
Other	***.

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

U.S. production, capacity, and capacity utilization

Table III-3 and figure III-1 present CPC's production, capacity, and capacity utilization. CPC's capacity was relatively constant during 2019-21. In 2019, capacity was *** pounds, it declined to *** pounds in 2020 (a *** percent decrease), before returning to *** pounds in 2021.[7] Capacity during January-June 2022 ("interim 2022") was the same as capacity during January-June 2021 ("interim 2021") at *** pounds.

CPC's production, and consequently its utilization rate, decreased during 2019-21. Production declined from *** pounds in 2019 to *** pounds in 2020 (a *** percent decrease), and further declined to *** pounds in 2021 (a *** percent decrease). Production decreased a total of *** percent during 2019-21. The utilization rate was *** percent in 2019, *** percent in 2020, and *** percent in 2021, declining a total of *** percentage points between 2019 and 2021. Both production and capacity utilization were higher in interim 2022 as compared to interim 2021.[8]

[7] CPC reported that the decrease in capacity from 2019 to 2020 was a result of ***.
[8] CPC reported that ***.

Table III-3
Barium chloride: U.S. producer CPC's average production capacity, production, and capacity utilization, by period

Capacity and production in 1,000 pounds, capacity utilization in percent

Item	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Capacity	***	***	***	***	***
Production	***	***	***	***	***
Capacity utilization	***	***	***	***	***

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

Figure III-1
Barium chloride: U.S. producer CPC's average production capacity, production, and capacity utilization, by period

* * * * * * *

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

Production by form type

As previously noted in Part I of this report, there are two forms of barium chloride—anhydrous and dihydrate. As a result, U.S. producers were asked to report on their production of these two form types. Moreover, they were asked to report on their production of barium chloride dihydrate by two types of grades: (1) high purity/electronic and (2) all other dihydrate. Table III-4 presents CPC's reported production of barium chloride by form type.

The data show that CPC is primarily focused on the production of barium chloride ***. During the period of investigation ("POI"), CPC's share of production of barium chloride *** ranged between *** and *** percent. Although CPC's primary focus is on the production of barium chloride ***.

Table III-4
Barium chloride: U.S. producer CPC's production, by period and form type

Quantities in 1,000 pounds; shares in percent

Production type	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Anhydrous	Quantity	***	***	***	***	***
High purity/electronic dihydrate	Quantity	***	***	***	***	***
Other dihydrate	Quantity	***	***	***	***	***
All production	Quantity	***	***	***	***	***
Anhydrous	Share	***	***	***	***	***
High purity/electronic dihydrate	Share	***	***	***	***	***
Other dihydrate	Share	***	***	***	***	***
All production	Share	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Production of alternative products

CPC reported that ***. Table III-5 presents CPC's production of barium chloride, other production, and overall capacity.[9] [10]

Table III-5
Barium chloride: U.S. producer CPC's overall capacity and production on the same equipment as subject production, by period

Quantities in 1,000 pounds; shares and ratios in percent

Item	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Overall capacity	Quantity	***	***	***	***	***
Barium chloride production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
Barium chloride production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

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

[9] CPC reported that the production of barium chloride has two distinct steps. The first step is the processing of barite ore into a barium sulfide solution, and the second step involves the removal of hydrogen sulfide in gas form. The two steps are distinct and utilize different types of equipment; hence, the capacity is different. It is capacity for this second step of the production process that more accurately defines the potential output of finished barium chloride. CPC reported that the capacity presented in table III-5 includes "***." CPC explains that it produces ***. Petitioner's posthearing brief, exh. 4, pp. 3 and 40.

[10] CPC also reported that barium chloride production *** which means this production line has ***. Petitioner's posthearing brief, p. 4 and exh. 4, pp. 2 and 5.

U.S. producers' U.S. shipments and exports

Table III-6 presents CPC's shipments by destination. CPC's U.S. shipments, exports, and, consequently, total shipments all declined during 2019-21. All three metrics, however, were higher in interim 2022 as compared to interim 2021.[11]

The data show that CPC is primarily focused on domestic shipments. CPC did, however, report exports ***. CPC's exports, by quantity, accounted for between *** and *** percent of the share of its total shipments during the POI.

In terms of average unit values ("AUVs"), CPC's domestic shipments AUVs were relatively higher as compared to its export AUVs. During the POI, the unit value of CPC's U.S. shipments rose from $*** to $*** per pound, while the unit value of its exports ranged between $*** and $*** per pound.

Table III-6
Barium chloride: U.S. producer CPC's total shipments, by destination and period

Quantity in 1,000 pounds; value in 1,000 dollars; unit value in dollars per pound; shares in percent

Item	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
U.S. shipments	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Export shipments	Share of quantity	***	***	***	***	***
Total shipments	Share of quantity	***	***	***	***	***
U.S. shipments	Share of value	***	***	***	***	***
Export shipments	Share of value	***	***	***	***	***
Total shipments	Share of value	***	***	***	***	***

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

[11] CPC reported that ***.

U.S. producers' U.S. shipments by type

Table III-7 presents CPC's U.S. shipments by type. CPC reported *** transfers to related firms. CPC's commercial U.S. shipments, internal consumption,[12] and, consequently, total U.S. shipments declined during 2019-21. Total U.S. shipments declined from *** pounds in 2019 to *** pounds in 2020 to *** pounds in 2021, a total decrease of *** percent during 2019-21. Total U.S. shipments were higher in interim 2022 as compared to interim 2021.[13]

[12] During the POI, CPC reported internal consumption of between *** and *** pounds of barium chloride for the production of ***. Moreover, CPC reported that barium chloride accounts for *** percent of the share of the value/cost, and *** percent of the share of total inputs, of its downstream product. CPC further noted that ***.

[13] CPC reported that ***.

Table III-7
Barium chloride: U.S. producer CPC's U.S. shipments, by type and period

Quantity in 1,000 pounds; value in 1,000 dollars; unit value in dollars per pound; shares in percent

Item	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Commercial U.S. shipments	Quantity	***	***	***	***	***
Internal consumption	Quantity	***	***	***	***	***
Transfers to related firms	Quantity	***	***	***	***	***
U.S. shipments	Quantity	***	***	***	***	***
Commercial U.S. shipments	Value	***	***	***	***	***
Internal consumption	Value	***	***	***	***	***
Transfers to related firms	Value	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Commercial U.S. shipments	Unit value	***	***	***	***	***
Internal consumption	Unit value	***	***	***	***	***
Transfers to related firms	Unit value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Commercial U.S. shipments	Share of quantity	***	***	***	***	***
Internal consumption	Share of quantity	***	***	***	***	***
Transfers to related firms	Share of quantity	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Commercial U.S. shipments	Share of value	***	***	***	***	***
Internal consumption	Share of value	***	***	***	***	***
Transfers to related firms	Share of value	***	***	***	***	***
U.S. shipments	Share of value	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

U.S. producers' U.S. shipments by form type

As previously noted, there are different forms and grades of barium chloride. Table III-8 presents CPC's U.S. shipments by type. The data show that CPC is primarily focused on shipments of barium chloride ***. During the POI, CPC's share of U.S. shipments of barium chloride ***, by quantity, ranged between *** and *** percent. Although CPC's primary focus is on shipments of barium chloride ***.

Table III-8
Barium chloride: U.S. producer CPC's U.S. shipments, by form type and period

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound; shares in percent

Product type	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Anhydrous	Quantity	***	***	***	***	***
High purity/electronic dihydrate	Quantity	***	***	***	***	***
Other dihydrate	Quantity	***	***	***	***	***
All product types	Quantity	***	***	***	***	***
Anhydrous	Value	***	***	***	***	***
High purity/electronic dihydrate	Value	***	***	***	***	***
Other dihydrate	Value	***	***	***	***	***
All product types	Value	***	***	***	***	***
Anhydrous	Unit value	***	***	***	***	***
High purity/electronic dihydrate	Unit value	***	***	***	***	***
Other dihydrate	Unit value	***	***	***	***	***
All product types	Unit value	***	***	***	***	***
Anhydrous	Share of quantity	***	***	***	***	***
High purity/electronic dihydrate	Share of quantity	***	***	***	***	***
Other dihydrate	Share of quantity	***	***	***	***	***
All product types	Share of quantity	***	***	***	***	***
Anhydrous	Share of value	***	***	***	***	***
High purity/electronic dihydrate	Share of value	***	***	***	***	***
Other dihydrate	Share of value	***	***	***	***	***
All product types	Share of value	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

U.S. producers' inventories

Table III-9 presents CPC's end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments. CPC's end-of-period inventories increased irregularly during 2019-21. Inventories rose from *** pounds in 2019 to *** pounds in 2020 (a *** percent increase), but they decreased to *** pounds in 2021 (a *** percent decrease), for a total increase of *** percent during 2019-21.[14] Inventories were lower in interim 2022 as compared to interim 2021.

All of CPC's end-of-period inventory ratios increased during 2019-21. In interim 2021, all three ratios ***. All three ratios were lower in interim 2022 as compared to interim 2021.[15]

Table III-9
Barium chloride: U.S. producers' inventories and their ratio to select items, by period

Quantity in 1,000 pounds; inventory ratios in percent

Item	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
End-of-period inventory quantity	***	***	***	***	***
Inventory ratio to U.S. production	***	***	***	***	***
Inventory ratio to U.S. shipments	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***

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

[14] In terms of the irregular increase in end-of-period inventories during 2019-21, CPC explains: "***."
[15] CPC reported that ***.

U.S. employment, wages, and productivity

Table III-10 presents CPC's employment-related data. The number of production and related workers ("PRWs") and total hours worked declined during 2019-21. Hourly and total wages paid stayed relatively constant during the same period. Given steady wages but decreasing production (see table III-3), productivity decreased *** percent and, inversely, unit labor costs increased *** percent between 2019 and 2021.

All employment-related metrics, except for the number of PRWs and unit labor costs, were higher in interim 2022 as compared to interim 2021.[16] [17]

Table III-10
Barium chloride: U.S. producers CPC's employment related information, by item and period

Item	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (pounds per hour)	***	***	***	***	***
Unit labor costs (dollars per pound)	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

[16] The higher employment-related metrics during interim 2022, as compared to interim 2021, ***. CPC's production and U.S. shipments figures ***. See table III-3 and table III-6 for more information.

[17] CPC reports that ***. Petitioner's prehearing brief, p. 20.

Part IV: U.S. imports, apparent U.S. consumption, and market shares

U.S. importers

The Commission issued importer questionnaires to 25 firms believed to be importers of barium chloride under HTSUS subheading 2827.39.45, as well as to all identified U.S. producers of barium chloride.[1] Usable questionnaire responses were received from 13 companies, which accounted for *** U.S. imports of barium chloride from India during 2021.[2] [3] Table IV-1 lists all responding U.S. importers of barium chloride from India and other sources, their locations, and their shares of U.S. imports, in 2021.

[1] The U.S. importers were identified through the petition, industry research, and previous and related import injury investigations on barium chloride. For more information on U.S. producers, see Part III of this report.

[2] Commerce import statistics for HTSUS 2827.39.45 show that 3.6 million pounds of barium chloride from India and 2,826 pounds of barium chloride from nonsubject sources entered the United States during 2021 (see app. D of this report). The 13 companies which submitted a U.S. importer questionnaire to the Commission reported that they imported *** pounds of barium chloride from India and *** pounds of barium chloride from nonsubject sources during 2021. Accordingly, these companies accounted for *** percent of imports of barium chloride from India and *** percent of imports of barium chloride from nonsubject sources during 2021.

[3] U.S. importers reported imports of barium chloride from nonsubject sources including Belgium, China, Germany, Mexico, Russia, and the United Kingdom. Commerce import statistics, however, listed only Mexico, Russia, and the United Kingdom as nonsubject sources of barium chloride during January 2019-June 2022. Petitioner notes that to its knowledge "***." Petitioner's postconference brief, exh. 2, p. 1. Nonetheless, as noted in Part I of this report, the HTSUS subheading is provided for convenience and customs purposes, and the written description of the scope of this investigation is dispositive.

Table IV-1
Barium chloride: U.S. importers, their headquarters, and share of total imports within a given source by firm, 2021

Share in percent

Firm	Headquarters	India	Nonsubject sources	All import sources
ACS	Point Pleasant, NJ	***	***	***
BassTech	Fort Lee, NJ	***	***	***
Brenntag	Reading, PA	***	***	***
CDN	Warrenville, IL	***	***	***
Connell	San Francisco, CA	***	***	***
Fermaz	Austin, TX	***	***	***
Fisher Scientific	Bridgewater, NJ	***	***	***
Millipore	Burlington, MA	***	***	***
QualChem	Beasley, TX	***	***	***
Skyhawk	Houston, TX	***	***	***
Sun	Parsippany, NJ	***	***	***
Thermo Fisher	Tewksbury, MA	***	***	***
Wego	Great Neck, NY	***	***	***
All firms	Various	***	***	***

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

Note: Chemical Distribution Network LLC ("CDN") is a membership organization of five distributors, including ***, which has sold barium chloride to U.S. purchasers. See Part V of this report for more information.

Note: Fisher Scientific and Thermo Fisher are subsidiaries of Thermo Fisher Scientific Chemicals, Inc.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

U.S. imports

Table IV-2 and figure IV-1 present data for U.S. imports of barium chloride from India and all other sources. The majority of U.S. imports of barium chloride are from India. U.S. imports of barium chloride from nonsubject sources, by quantity, accounted for only between *** and *** percent of the share of total imports during the POI.

U.S. imports of barium chloride from India increased irregularly during 2019-21. Imports went from *** pounds in 2019 to *** pounds in 2020 (a *** percent increase), and then they declined to *** pounds in 2021 (a *** percent decrease), for a total increase of *** percent during 2019-21.[4] Imports of subject merchandise were higher in interim 2022 as compared to interim 2021. By comparison, U.S. imports from nonsubject sources declined *** percent during 2019-21; these imports were higher in interim 2022 as compared to interim 2021.

The AUVs of imports from India increased *** percent during 2019-21, from $*** per pound in 2019 to $*** per pound in 2021, and they were $*** per pound in interim 2021 and $*** per pound in interim 2022. The AUVs of imports from nonsubject sources also increased, rising *** percent, from $*** per pound in 2019 to $*** per pound in 2021, and they were $*** per pound in interim 2021 and $*** per pound in interim 2022.[5]

The ratio of imports from India to U.S. production increased from *** percent in 2019 to *** percent in 2021, an increase of *** percentage points during 2019-21. The ratio of imports from India to U.S. production was lower in interim 2022 as compared to interim 2021.[6] The ratio of imports from nonsubject sources to U.S. production was relatively steady throughout the POI, ranging between *** and *** percent.

[4] BassTech, ***, reported that its importation and subsequent sales of barium chloride are "lumpy" and not linear. Respondent BassTech's postconference brief, exh. 1, p. 3 and exh. 1, att. 5; Hearing transcript, p. 97 (Chalup). ***. *Id.* at exh. 1, p. 3.

[5] The AUVs of imports from nonsubject sources ***. The firms explained that the "***." See *** U.S. importer questionnaires responses, sections II-6a and II-8.

[6] The lower subject imports to U.S. production ratio during interim 2022, as compared to interim 2021, ***. See Part III of this report for more information.

Table IV-2
Barium chloride: U.S. imports, by source and period

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound; shares and ratios in percent; ratios represent the ratio to U.S. production

Source	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
India	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
India	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
India	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***
India	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
India	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
India	Ratio	***	***	***	***	***
Nonsubject sources	Ratio	***	***	***	***	***
All import sources	Ratio	***	***	***	***	***

Table continued.

Table IV-2 continued
Barium chloride: U.S. imports, by source and by period

%Δ in percent change

Source	Measure	2019-21	2019-20	2020-21	Jan-Jun 2021-22
India	%Δ Quantity	▲***	▲***	▼***	▲***
Nonsubject sources	%Δ Quantity	▼***	▲***	▼***	▲***
All import sources	%Δ Quantity	▲***	▲***	▼***	▲***
India	%Δ Value	▲***	▲***	▼***	▲***
Nonsubject sources	%Δ Value	▼***	▲***	▼***	▲***
All import sources	%Δ Value	▲***	▲***	▼***	▲***
India	%Δ Unit value	▲***	▲***	▲***	▲***
Nonsubject sources	%Δ Unit value	▲***	▼***	▲***	▼***
All import sources	%Δ Unit value	▲***	▲***	▲***	▲***

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

Figure IV-1
Barium chloride: U.S. import quantities and average unit values, by source and period

* * * * * * *

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

U.S. shipments of imports

As previously noted in Part I of this report, there are two forms of barium chloride—anhydrous and dihydrate. As a result, U.S. importers were asked to report on their U.S. shipments of imports by these two form types. Moreover, importers were asked to report on their U.S. shipments of barium chloride dihydrate by two types of grades: (1) high purity/electronic and (2) all other dihydrate. Table IV-3 and table IV-4 present U.S. importers' U.S. shipments of barium chloride imports by form types.

The data show that U.S. importers are primarily focused on shipments of barium chloride ***. During the POI, the share of U.S. shipments of barium chloride ***, by quantity, ranged between *** and *** percent for all importers. Although U.S. importers are primarily focused on shipments of barium chloride ***.

U.S. importers' U.S. shipments from all import sources[7] declined, from *** pounds in 2019 to *** pounds in 2021, a total decrease of *** percent during 2019-21. Their shipments were lower in interim 2022 as compared to interim 2021. Although U.S. importers' U.S. shipments declined, their AUVs increased. Their unit value increased *** percent during 2019-21, from $*** per pound in 2019 to $*** per pound in 2021. These AUVs were higher in interim 2022 as compared to interim 2021.[8]

[7] Figures for U.S. importers' U.S. shipments from all import sources are presented in app. C.

[8] The decrease in U.S. importers' U.S. shipments during the POI ***. See Part II of this report for more information.

Table IV-3
Barium chloride: U.S. importers' U.S. shipments of imports from India, by product type and period

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound; shares in percent

Product type	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Anhydrous	Quantity	***	***	***	***	***
High purity/electronic dihydrate	Quantity	***	***	***	***	***
Other dihydrate	Quantity	***	***	***	***	***
All product types	Quantity	***	***	***	***	***
Anhydrous	Value	***	***	***	***	***
High purity/electronic dihydrate	Value	***	***	***	***	***
Other dihydrate	Value	***	***	***	***	***
All product types	Value	***	***	***	***	***
Anhydrous	Unit value	***	***	***	***	***
High purity/electronic dihydrate	Unit value	***	***	***	***	***
Other dihydrate	Unit value	***	***	***	***	***
All product types	Unit value	***	***	***	***	***
Anhydrous	Share of quantity	***	***	***	***	***
High purity/electronic dihydrate	Share of quantity	***	***	***	***	***
Other dihydrate	Share of quantity	***	***	***	***	***
All product types	Share of quantity	***	***	***	***	***
Anhydrous	Share of value	***	***	***	***	***
High purity/electronic dihydrate	Share of value	***	***	***	***	***
Other dihydrate	Share of value	***	***	***	***	***
All product types	Share of value	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Table IV-4
Barium chloride: U.S. importers' U.S. shipments of imports from nonsubject sources, by product type and period

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound; shares in percent

Product type	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Anhydrous	Quantity	***	***	***	***	***
High purity/electronic dihydrate	Quantity	***	***	***	***	***
Other dihydrate	Quantity	***	***	***	***	***
All product types	Quantity	***	***	***	***	***
Anhydrous	Value	***	***	***	***	***
High purity/electronic dihydrate	Value	***	***	***	***	***
Other dihydrate	Value	***	***	***	***	***
All product types	Value	***	***	***	***	***
Anhydrous	Unit value	***	***	***	***	***
High purity/electronic dihydrate	Unit value	***	***	***	***	***
Other dihydrate	Unit value	***	***	***	***	***
All product types	Unit value	***	***	***	***	***
Anhydrous	Share of quantity	***	***	***	***	***
High purity/electronic dihydrate	Share of quantity	***	***	***	***	***
Other dihydrate	Share of quantity	***	***	***	***	***
All product types	Share of quantity	***	***	***	***	***
Anhydrous	Share of value	***	***	***	***	***
High purity/electronic dihydrate	Share of value	***	***	***	***	***
Other dihydrate	Share of value	***	***	***	***	***
All product types	Share of value	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Quantity and value shown as "0" represent values greater than zero but less than 500 pounds. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Negligibility

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[9] Negligible imports are generally defined in the Act, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then imports from such countries are deemed not to be negligible.[10]

Imports from India accounted for *** percent of total imports of barium chloride by quantity during January 2021 through December 2021 (see table IV-5).

Table IV-5
Barium chloride: U.S. imports in the twelve-month period preceding the filing of the petition, January 2021 through December 2021

Quantity in 1,000 pounds; share of quantity in percent

Source of imports	Quantity	Share of quantity
India	***	***
Nonsubject sources	***	***
All import sources	***	***

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

[9] Sections 703(a)(1), 705(b)(1), 733(a)(1), and 735(b)(1) of the Act (19 U.S.C. §§ 1671b(a)(1), 1671d(b)(1), 1673b(a)(1), and 1673d(b)(1)).

[10] Section 771 (24) of the Act (19 U.S.C § 1677(24)).

Apparent U.S. consumption and market shares

Quantity

Table IV-6 and figure IV-2 present data on apparent U.S. consumption and U.S. market shares by quantity for barium chloride.

U.S. producers' and U.S. importers' U.S. shipments, and, consequently, apparent U.S. consumption all declined during 2019-21. Apparent U.S. consumption decreased by a total of *** percent during the period.

U.S. producers' market share was *** percent in 2019, it decreased to *** percent in 2020, and then further decreased to *** percent in 2021, a decline of *** percentage points during 2019-21. U.S. producers' market share was higher in interim 2022 (*** percent) as compared to interim 2021 (*** percent).[11]

As U.S. producers' market share decreased, India's market share increased. India's share was *** percent in 2019, it increased to *** percent in 2020, and then further increased to *** percent in 2021, an increase of *** percentage points during 2019-21. India's market share was lower in interim 2022 (*** percent) as compared to interim 2021 (*** percent).

The market share of nonsubject sources did not exceed *** percent throughout the period of investigation.

[11] CPC reported that ***.

Table IV-6
Barium chloride: Apparent U.S. consumption and market shares based on quantity data, by source and period

Quantity in 1,000 pounds; shares in percent

Source	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
U.S. producers	Quantity	***	***	***	***	***
India	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers	Share	***	***	***	***	***
India	Share	***	***	***	***	***
Nonsubject sources	Share	***	***	***	***	***
All import sources	Share	***	***	***	***	***
All sources	Share	***	***	***	***	***

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

Figure IV-2
Barium chloride: Apparent U.S. consumption based on quantity data, by source and period

* * * * * * *

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

Value

Table IV-7 and figure IV-3 present data on apparent U.S. consumption and U.S. market shares by value for barium chloride. The trends for apparent U.S. consumption by value follow the trends for apparent U.S. consumption by quantity discussed above.

Table IV-7
Barium chloride: Apparent U.S. consumption and market shares based on value data, by source and period

Value in 1,000 dollars; shares in percent

Source	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
U.S. producers	Value	***	***	***	***	***
India	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***
U.S. producers	Share	***	***	***	***	***
India	Share	***	***	***	***	***
Nonsubject sources	Share	***	***	***	***	***
All import sources	Share	***	***	***	***	***
All sources	Share	***	***	***	***	***

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

Figure IV-3
Barium chloride: Apparent U.S. consumption based on value data, by source and period

* * * * * * *

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

Part V: Pricing data

Factors affecting prices

Raw material costs

Domestic barium chloride is produced by crushing barite ore, mixing it with petroleum coke, and reacting it with hydrochloric acid in order to remove the byproduct hydrogen sulfide as a gas.[1] "When the resulting solution is evaporated, barium chloride crystals remain," which forms the dihydrate (crystalline) form of barium chloride. To form barium chloride anhydrous, the dihydrate form is reduced "by applying intense heat, which drives off the water that is molecularly bonded in the crystals."[2] CPC's raw materials as a share of COGS decreased from *** percent in 2019 to *** percent in 2021 and was *** percent in January-June 2022. Barite ore made up the largest share of CPC's total COGS, accounting for between *** percent (2021) and *** percent (January-June 2022), while hydrochloric acid accounted for the next largest share – between *** percent (2021) and *** percent (2019) of CPC's total COGS. Hydrogen peroxide also made up between *** percent (January-June 2022) and *** percent (2020) of CPC's total COGS, while petroleum coke made up between *** percent (2021) and *** percent (2019).

As shown in figure V-1, the average unit values ("AUVs") for imports of ground natural barium sulfate (barite ore, or baryte) from India, China, Morocco, and Mexico – the largest import sources during January 2019-June 2022 – varied.[3] The AUVs from China showed the

[1] Petitions, p. I-6; Conference transcript, pp. 15-16 (Bourdon).

[2] Ibid.

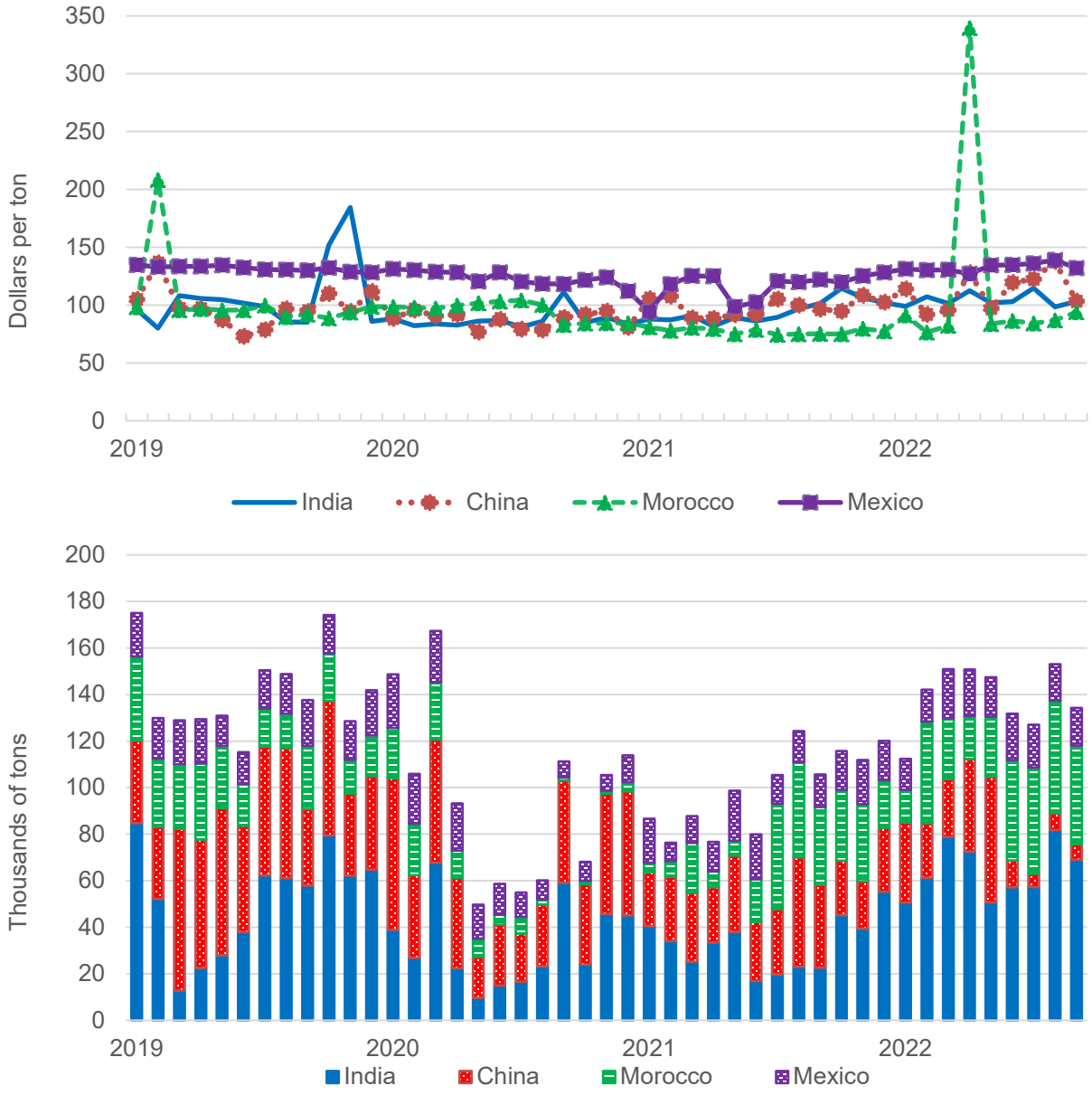
[3] In the preliminary phase investigations, CPC provided its cost data for barite ore, petroleum coke, and hydrochloric acid. It indicated that ***, and that it "***." In this final phase of the investigations, CPC confirmed that ***. See CPC's prehearing brief, pp. 2-4 and part VI, "Cost of goods sold and gross profit or loss." CPC indicated that for its coke, it has a "***," and that ***. For its hydrochloric acid, it ***. See Petitioner's postconference brief, exh. 2 (Responses to Questions from Commission Staff) at att. A, and exh. 3 (Responses to Questions from Commission Staff via Email).

BassTech argues that ***. BassTech's prehearing brief, pp. 23-24. CPC testified that it "maintained sufficient supplies of barite ore and other raw materials at the plant to support our

(*continued*...)

largest increase – 13.8 percent – between January 2019 and June 2022, while the AUVs from Morocco showed the largest decrease – 12.0 percent. The AUVs from Morocco showed the largest variation, with spikes in February 2019 and April 2022. India was the largest import source during the investigation period, followed by China, Morocco, and Mexico.

Figure V-1
Barite ore: Average unit values and quantities of imports of ground natural barium sulfate (barytes) from India, China, Morocco, and Mexico, monthly, January 2019–September 2022

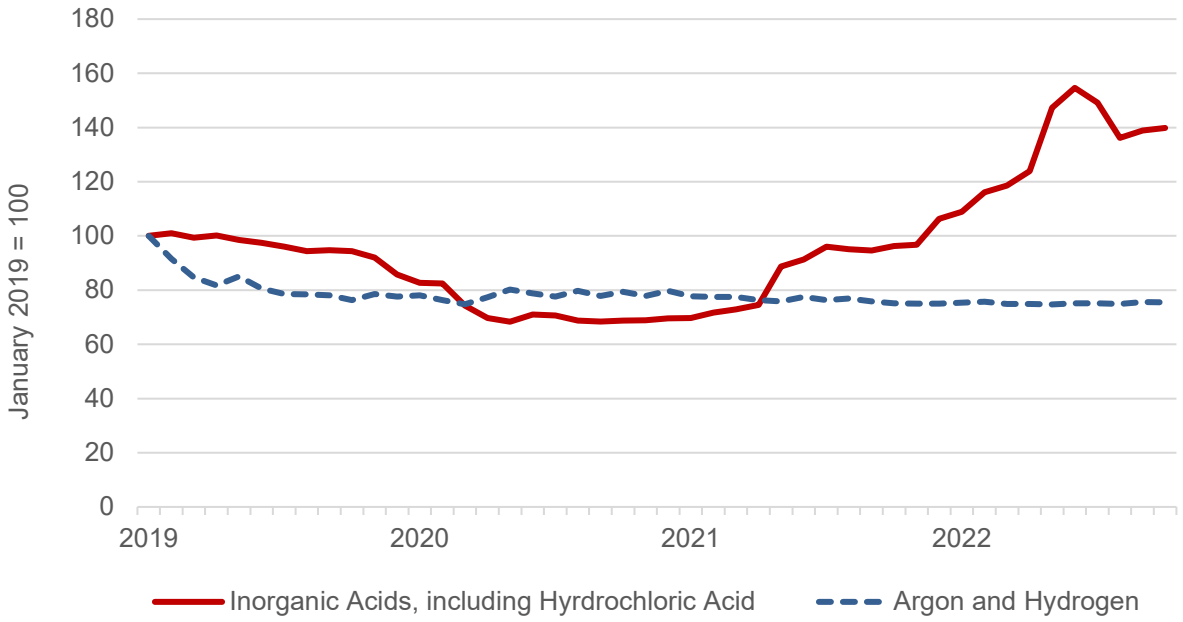


Source: USITC Dataweb, HTS statistical reporting number 2511.10.1000, accessed December 1, 2022.

production." Hearing transcript, p. 15 (McCall); see also CPC's posthearing brief, Exhibit 4 (Responses to Questions from the Commissioners), pp. 36-37.

As shown in figure V-2, the producer price index for inorganic acids (including hydrochloric acid) generally decreased during 2019 and the beginning of 2020, remained relatively stable through early 2021, then increased intermittently. The producer price index for argon and hydrogen decreased between the beginning of 2019 and mid-2019, then remained relatively stable through October 2022.

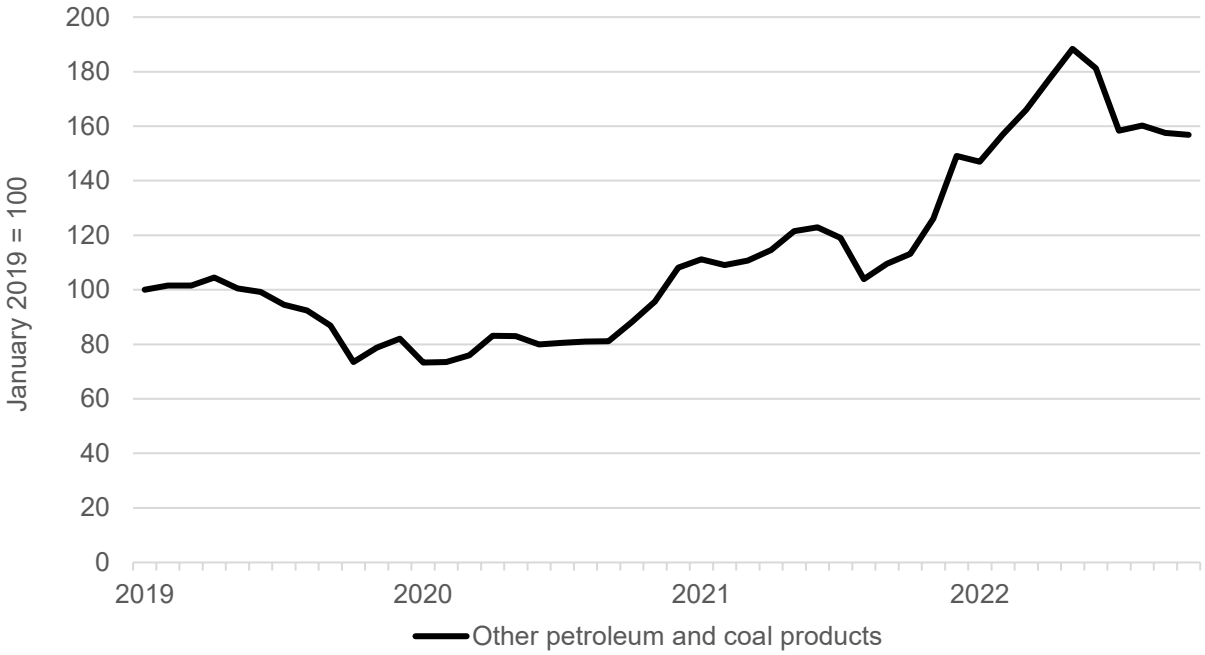
Figure V-2
Inorganic acids and hydrogen: Producer price index by commodity: Chemicals and allied products: Inorganic acids, including hydrochloric acid, sulfuric acid, and others, and Argon and Hydrogen, monthly, not seasonally adjusted, January 2019–October 2022



Source: FRED, https://fred.stlouisfed.org/series/WPU0613020T#0, and https://fred.stlouisfed.org/series/WPU06790309#0, retrieved November 18, 2022 and December 5, 2022.

As shown in figure V-3, the producer price index of petroleum and coke products including coke oven products decreased intermittently between the beginning of 2019 and late 2020, then increased intermittently through mid-2022 before decreasing through October 2022.

Figure V-3
Petroleum coke: Producer price index by commodity: Fuels and related products and power: Other petroleum and coal products, including coke oven products, not elsewhere classified, monthly, not seasonally adjusted, January 2019–October 2022

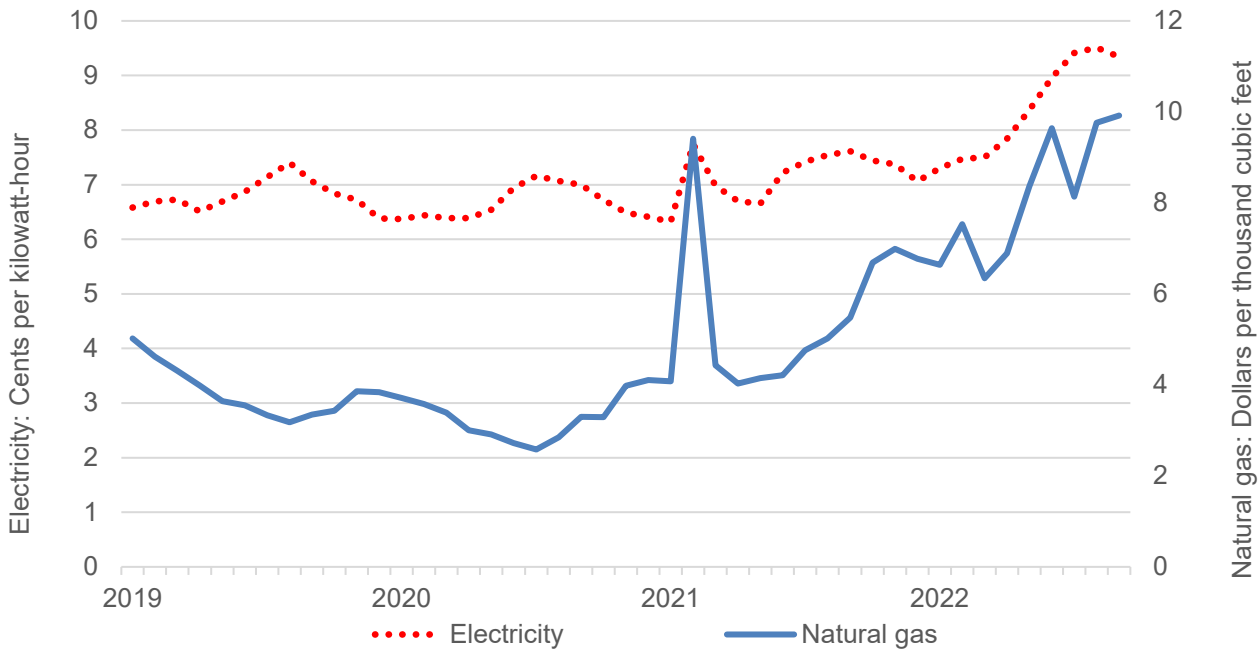


Source: U.S. Energy Information Administration, https://fred.stlouisfed.org/series/WPU058103, retrieved December 1, 2022.

Energy costs

Energy costs also made up a sizeable share of total COGS, with natural gas alone accounting for *** of CPC's total COGS. As shown in figure V-4, natural gas prices decreased intermittently between January 2019 and July 2020, then increased through September 2022, with a spike in February 2021. The average industrial retail price of electricity in the United States fluctuated but remained comparatively stable throughout the period of investigation, with the most volatility occurring at the beginning of 2021. Electricity prices then increased steadily from December 2021 through September 2022.

Figure V-4
Electricity and natural gas prices: Average retail industrial price of electricity and natural gas in the United States, monthly, January 2019–September 2022



Source: U.S. Energy Information Administration, https://www.eia.gov/electricity/data/browser/#/topic/7?agg=2 and https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htmr, retrieved December 1 and December 5, 2022.

Transportation costs to the U.S. market

Transportation costs for barium chloride shipped from India to the United States averaged 22.9 percent during 2021. These estimates were derived from official import data and represent the transportation and other charges on imports.[4]

U.S. inland transportation costs

Most responding firms (including U.S. producer CPC and 10 of 12 importers) reported that they typically arrange transportation to their customers. CPC reported a U.S. inland transportation cost of *** percent, ***. Importers reported costs of up to 15 percent.

[4] The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2021 and then dividing by the customs value based on the HTS statistical reporting number 2827.39.45. Accessed September 20, 2022. Imports are based on the imports for consumption data series.

Pricing practices

Pricing methods

As shown in table V-1, U.S. producer CPC reported setting prices ***. Importers reported primarily setting prices transaction-by-transaction, with three firms (***) using set price lists, and two firms (***) using contracts. One importer, ***, also reported setting prices based on market value.

Table V-1
Barium chloride: Count of U.S. producers' and importers' reported price setting methods

Count in number of firms reporting

Method	U.S. producers	Importers
Transaction-by-transaction	***	9
Contract	***	2
Set price list	***	3
Other	***	1
Responding firms	1	12

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

Note: The sum of responses down may not add up to the total number of responding firms as each firm was instructed to check all applicable price setting methods employed.

As shown in table V-2, CPC reported selling ***, while importers reported selling *** via long-term contract, *** via annual contract, *** via short-term contract, and the remaining *** percent in the spot market.

Table V-2
Barium chloride: U.S. producers' and importers' shares of commercial U.S. shipments by type of sale, 2021

Share in percent

Type of sale	U.S. producers	Subject importers
Long-term contracts	***	***
Annual contracts	***	***
Short-term contracts	***	***
Spot sales	***	***
Total	100.0	100.0

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

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

CPC reported that for its ***. Among importers, all reported that for their short-term, annual, and long-term contracts, prices could not typically be renegotiated, price and quantity were both typically fixed, and prices were not typically indexed to raw materials. Importers reported average contract lengths of 30-90 days for short-term contracts and *** days for their long-term contracts.

Five purchasers reported that they purchase product quarterly, three purchase annually, two purchase monthly, and three purchase as needed or as the customer demands. No responding purchasers reported purchasing more frequently than monthly. Nine of the 13 responding purchasers reported that their purchasing frequency had changed since 2019, with three of them indicating that they purchase less frequently, and two indicating that they purchase more frequently. A plurality of purchasers (6 of 13 firms) only contact one supplier before making a purchase. Three contact two suppliers, 3 contact up to three, and 1 contacts up to four suppliers before making a purchase.

Sales terms and discounts

U.S. producer CPC reported quoting prices *** and most importers (7 of 11 firms) reported typically quoting prices on a delivered basis. Four importers also reported quoting prices on an f.o.b. basis, and one reported quoting prices based on both.

Most firms, including *** 7 of 11 importers, reported having no specific discount policy. CPC indicated that it provides discounts ***. Two importers (***) offer quantity discounts, one (***) offers total volume discounts, two (***) offer volume discounts depending on the end customer's purchase, and one (***) offers discounts that are "customers and/or product driven."

Price leadership

Five purchasers reported price leaders in the barium chloride market. Four firms listed CPC as the only price leader and the fifth (***) listed CPC and BassTech. In explaining how CPC exhibited pricing leadership, the firms indicated that CPC was the only domestic producer, it had "fair pricing," and it is "able to stay consistent."[5]

[5] *** did not elaborate on how BassTech exhibited pricing leadership.

Price data

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of the following barium chloride products shipped to unrelated U.S. customers during January 2019-June 2022.

Product 1.--Barium chloride anhydrous ($BaCl_2$)

Product 2.--Barium chloride dihydrate ($BaCl_2$–$2H_2O$),[6] excluding high purity, electronic grade that has a minimum purity of 99.5 percent

U.S. producer CPC and seven importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.[7] [8] Pricing data reported by these firms accounted for approximately *** percent of the U.S. producer's U.S. shipments of barium chloride and 100.0 percent of U.S. shipments of subject imports from India in 2021.[9]

Price data for products 1 and 2 are presented in tables V-3 and V-4 and figures V-5 and V-6.

[6] This product is also referred to as barium chloride crystalline.

[7] Per-unit pricing data are calculated from total quantity and total value data provided by U.S. producers and importers. The precision and variation of these figures may be affected by rounding, limited quantities, and producer or importer estimates.

[8] ***.

[9] Pricing coverage is based on U.S. shipments reported in questionnaires.

Table V-3
Barium chloride: Weighted-average f.o.b. prices and quantities of domestic and imported product 1 and margins of underselling/(overselling), by source and quarter

Price in dollars per pound, quantity in 1,000 pounds, margin in percent.

Period	US price	US quantity	India price	India quantity	India margin
2019 Q1	***	***	***	***	***
2019 Q2	***	***	***	***	***
2019 Q3	***	***	***	***	***
2019 Q4	***	***	***	***	***
2020 Q1	***	***	***	***	***
2020 Q2	***	***	***	***	***
2020 Q3	***	***	***	***	***
2020 Q4	***	***	***	***	***
2021 Q1	***	***	***	***	***
2021 Q2	***	***	***	***	***
2021 Q3	***	***	***	***	***
2021 Q4	***	***	***	***	***
2022 Q1	***	***	***	***	***
2022 Q2	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Note: Product 1: Barium chloride anhydrous ($BaCl_2$).

Table V-4
Barium chloride: Weighted-average f.o.b. prices and quantities of domestic and imported product 2 and margins of underselling/(overselling), by source and quarter

Price in dollars per pound, quantity in 1,000 pounds, margin in percent.

Period	US price	US quantity	India price	India quantity	India margin
2019 Q1	***	***	***	***	***
2019 Q2	***	***	***	***	***
2019 Q3	***	***	***	***	***
2019 Q4	***	***	***	***	***
2020 Q1	***	***	***	***	***
2020 Q2	***	***	***	***	***
2020 Q3	***	***	***	***	***
2020 Q4	***	***	***	***	***
2021 Q1	***	***	***	***	***
2021 Q2	***	***	***	***	***
2021 Q3	***	***	***	***	***
2021 Q4	***	***	***	***	***
2022 Q1	***	***	***	***	***
2022 Q2	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Note: Product 2: Barium chloride dihydrate ($BaCl_2$–$2H_2O$), excluding high purity, electronic grade that has a minimum purity of 99.5 percent.

Figure V-5
Barium chloride: Weighted-average f.o.b. prices and quantities of domestic and imported product 1, by source and quarter

Price of product 1

* * * * * * *

Volume of product 1

* * * * * * *

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

Note: Product 1: Barium chloride anhydrous ($BaCl_2$).

Figure V-6
Barium chloride: Weighted-average f.o.b. prices and quantities of domestic and imported product 2, by source and quarter

Price of product 2

* * * * * * *

Volume of product 2

* * * * * * *

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

Note: Product 2: Barium chloride dihydrate ($BaCl_2$–$2H_2O$), excluding high purity, electronic grade that has a minimum purity of 99.5 percent.

Price trends

In general, prices increased during January 2019-June 2022. Table V-5 summarizes the price trends, by country and by product. As shown in the table, domestic price increases ranged from *** to *** percent during January 2019-June 2022, while import prices for product 2 increased by *** percent. While no pricing data were reported by importers during the last quarter of the period, prices for product 1 also trended upwards over the investigation period.

Table V-5
Barium chloride: Summary of price data, by product and source, January 2019–June 2022

Quantity in 1,000 pounds, price in dollars per pound

Product	Source	Number of quarters	Quantity of shipments	Low price	High price	First quarter price	Last quarter price	Percent change in price over period
Product 1	U.S.	***	***	***	***	***	***	***
Product 1	India	***	***	***	***	***	***	***
Product 2	U.S.	***	***	***	***	***	***	***
Product 2	India	***	***	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Note: Percent change column is percentage change from the first quarter 2019 to the second quarter of 2022.

Price comparisons

As shown in table V-6, prices for product imported from India were below those for U.S.-produced product in all 21 quarterly instances (12.8 million pounds); margins of underselling ranged from 6.8 to 64.1 percent, for an average of 31.8 percent. There were no instances of overselling.

Table V-6
Barium chloride: Instances of underselling and overselling and the range and average of margins, by product

Quantity in 1,000 pounds; margin in percent

Product	Type	Number of quarters	Quantity	Average margin	Min margin	Max margin
Product 1	Underselling	***	***	***	***	***
Product 2	Underselling	***	***	***	***	***
Total, all products	Underselling	21	12,750	31.8	6.8	64.1
Product 1	Overselling	---	---	---	---	---
Product 2	Overselling	---	---	---	---	---
Total, all products	Overselling	---	---	---	---	---

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Note: These data include only quarters in which there is a comparison between the U.S. and subject product.

Lost sales and lost revenue

In the preliminary phase of the investigations, the Commission requested that U.S. producers of barium chloride report purchasers with which they experienced instances of lost sales or revenue due to competition from imports of barium chloride from India during January 2018-September 2021. CPC included six specific lost sales and lost revenue allegations in its petitions, and in those allegations identified five firms with which it lost sales, ***. CPC identified one firm with which it lost revenue: ***. In the final phase of the investigation, CPC reported again that it had to reduce prices, roll back announced price increases, and had lost sales.

Staff attempted to contact 22 purchasers and received responses from 13 purchasers.[10] [11] Responding purchasers reported purchasing and importing 33.1 million pounds of barium chloride during January 2019-June 2022 (table V-7).

Of the 13 responding purchasers, four reported that since 2019 they have purchased imported barium chloride from India instead of U.S.-produced product; nine reported that they

[10] Two firms, ***, submitted responses indicating that they did not purchase any barium chloride from any source since January 1, 2019.

[11] One purchaser, ***, submitted a lost sales lost revenue survey response in the preliminary phase but did not submit a purchaser questionnaire response in the final phase.

had not. Three of four of these responding purchasers reported that subject import prices were lower than U.S.-produced product, and two reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product. *** purchasers estimated the quantity of barium chloride from India purchased instead of domestic product; quantities reported ranged from *** pounds to *** pounds, for a total of *** pounds (table V-8). Purchasers identified availability, small purchase quantities, the need for multiple sources of supply, and customer approvals being limited to Indian product as non-price reasons for purchasing imported rather than U.S.-produced product.

Of the 13 responding purchasers, none reported that U.S. producers had reduced prices in order to compete with lower-priced imports from India, while 4 reported that they had not; 9 reported that they did not know (table V-9). No firm provided numerical estimates of domestic price reductions and no firm elaborated on timing, frequency of reductions, or other market/competitive factors.

Table V-7
Barium chloride: Purchasers' reported purchases and imports, by firm and source, January 2019–June 2022

Quantity in 1,000 pounds, shares in percentage points

Purchaser	Domestic quantity	Subject quantity	All other quantity	Change in domestic share	Change in subject country share
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total	***	***	***	(27.2)	27.5

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

Note: All other includes all other sources and unknown sources. Changes in shares represent the share of the firm's total purchases of domestic and/or subject country imports between first and last years and are presented in percentage points. Quantities shown as zero reflect data greater than zero but less than 500 pounds. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Table V-8
Barium chloride: Purchasers' responses to purchasing subject imports instead of domestic product, by firm

Quantity in 1,000 pounds

Purchaser	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total	Yes--4; No--8	Yes--3; No--1	Yes--2; No--3	***	NA

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

Table V-9
Barium chloride: Purchasers' responses to U.S. producer price reductions, by firm

Count in number of firms reporting; price in reductions in percent

Purchaser	Reported producers lowered prices	Estimated percent of U.S. price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
Total / average	Yes--0; No--4; Don't Know--9	---	NA

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

In additional comments, *** stated the following:

*"***."*

Part VI: Financial experience of the U.S. producer

Background[1]

A single U.S. producer, CPC, reported financial results and related information on its U.S. barium chloride manufacturing operations. CPC's barium chloride operations are conducted as part of its Barium division, which includes the production and sale of other barium-related products.[2] The company's barium chloride financial results are based on information from an accounting system designed to generate/report overall financial results on a U.S. GAAP basis and were reported for calendar-year periods.[3] Staff conducted a verification of CPC's financial results and related information on November 17-18, 2022. ***.[4]

With regard to changes in CPC's barium chloride operations during the period, the company reported that it ***.[5] ***.[6] With regard to how specific aspects of CPC's barium chloride production were affected, ***.[7] ***

[1] The following abbreviations may be used in the tables and/or text of this section: generally accepted accounting principles ("GAAP"), fiscal year ("FY"), net sales ("NS"), cost of goods sold ("COGS"), selling, general, and administrative expenses ("SG&A expenses"), average unit values ("AUVs"), research and development expenses ("R&D expenses"), and return on assets ("ROA").

[2] Conference transcript, p. 45 (McCall). ***. CPC U.S. producer questionnaire response, section III-5.

[3] CPC U.S. producer questionnaire response, section III-2. CPC is a privately held company. Conference transcript, pp. 13-14 (Bourdon).

[4] Verification report, p. 3.

[5] CPC U.S. producer questionnaire response, section II-2a.

[6] Email with attachment from Counsel on behalf of CPC to USITC staff, February 7, 2022.

[7] Ibid.

***.[8] CPC also reported ***.[9] [10]

Operations on Barium chloride

Table VI-1 and table VI-2 present income-and-loss data for the U.S. producer's barium chloride operations and corresponding changes in AUVs, respectively. Table VI-3 presents a variance analysis of the financial results.[11]

[8] CPC U.S. producer questionnaire response, section II-2a. Email with attachment from Counsel of behalf of CPC to USITC staff, February 7, 2022. In the context of evaluating the financial results of a manufacturing firm in general, gains and/or losses on the sale of peripheral assets do not reflect primary operations and are therefore reported below operating income in the income statement. *Financial Reporting and Statement Analysis: A Strategic Perspective*, Clyde P. Stickney, Paul R. Brown, Dryden Press, 1999, pp. 22-23. Gains or losses on the sale of peripheral assets are therefore generally reflected in net income only, as opposed to both operating income and net income. See *Interest expense, other expenses and income, and net income or loss* section below.

[9] CPC U.S. producer questionnaire response, section II-2a. Verification report, p. 4.

[10] With regard to the impact of COVID 19 on its operations and financial results in general, CPC stated ***. CPC U.S. producer questionnaire response, section III-18.

[11] The Commission's variance analysis is calculated in three parts: sales variance, COGS variance, and SG&A expenses variance. Each part consists of a price variance (in the case of the sales variance) or a cost or expense variance (in the case of the COGS and SG&A expenses variance), and a volume variance. The sales or cost/expense variance is calculated as the change in unit price or per-unit cost/expense times the new volume, while the volume variance is calculated as the change in volume times the old unit price or per-unit cost/expense. As summarized at the bottom of the variance analysis, the price variance is from sales, the cost/expense variance is the sum of those items from COGS and SG&A variances, respectively, and the volume variance is the sum of the volume components of the net sales, COGS, and SG&A expenses variances. ***.

Table VI-1
Barium chloride: Results of total market operations of U.S. producer CPC, by item and period

Quantity in 1,000 pounds; value in 1,000 dollars; ratios in percent

Item	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
COGS: Barite ore	Value	***	***	***	***	***
COGS: Hydrochloric acid	Value	***	***	***	***	***
COGS: Hydrogen peroxide	Value	***	***	***	***	***
COGS: Petroleum coke	Value	***	***	***	***	***
COGS: All raw materials	Value	***	***	***	***	***
COGS: Natural gas	Value	***	***	***	***	***
COGS: Direct labor	Value	***	***	***	***	***
COGS: Other factory costs	Value	***	***	***	***	***
COGS: Total	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Estimated cash flow	Value	***	***	***	***	***
COGS: Barite ore	Ratio to NS	***	***	***	***	***
COGS: Hydrochloric acid	Ratio to NS	***	***	***	***	***
COGS: Hydrogen peroxide	Ratio to NS	***	***	***	***	***
COGS: Petroleum coke	Ratio to NS	***	***	***	***	***
COGS: All raw materials	Ratio to NS	***	***	***	***	***
COGS: Natural gas	Ratio to NS	***	***	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***	***	***
COGS: Other factory costs	Ratio to NS	***	***	***	***	***
COGS: Total	Ratio to NS	***	***	***	***	***
Gross profit or (loss)	Ratio to NS	***	***	***	***	***
SG&A expenses	Ratio to NS	***	***	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***	***	***
Net income or (loss)	Ratio to NS	***	***	***	***	***

Table continued.

Table VI-1 continued
Barium chloride: Results of total market operations of the U.S. producer CPC, by item and period

Shares in percent; unit values in dollars per pound; count in number of firms reporting

Item	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
COGS: Barite ore	Share	***	***	***	***	***
COGS: Hydrochloric acid	Share	***	***	***	***	***
COGS: Hydrogen peroxide	Share	***	***	***	***	***
COGS: Petroleum coke	Share	***	***	***	***	***
COGS: All raw materials	Share	***	***	***	***	***
COGS: Natural gas	Share	***	***	***	***	***
COGS: Direct labor	Share	***	***	***	***	***
COGS: Other factory costs	Share	***	***	***	***	***
COGS: Total	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
COGS: Barite ore	Unit value	***	***	***	***	***
COGS: Hydrochloric acid	Unit value	***	***	***	***	***
COGS: Hydrogen peroxide	Unit value	***	***	***	***	***
COGS: Petroleum coke	Unit value	***	***	***	***	***
COGS: All raw materials	Unit value	***	***	***	***	***
COGS: Natural gas	Unit value	***	***	***	***	***
COGS: Direct labor	Unit value	***	***	***	***	***
COGS: Other factory costs	Unit value	***	***	***	***	***
COGS: Total	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

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

Note: Ratios represent the ratio to net sales value and shares represent the share of COGS. Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---”.

Table VI-2
Barium chloride: Changes in U.S. producer CPC's total market AUVs between comparison periods

Changes in percent

Item	2019-21	2019-20	2020-21	Jan-Jun 2021-22
Total net sales	***	***	***	***
COGS: Barite ore	***	***	***	***
COGS: Hydrochloric acid	***	***	***	***
COGS: Hydrogen peroxide	***	***	***	***
COGS: Petroleum coke	***	***	***	***
COGS: All raw materials	***	***	***	***
COGS: Natural gas	***	***	***	***
COGS: Direct labor	***	***	***	***
COGS: Other factory costs	***	***	***	***
COGS: Total	***	***	***	***

Table continued.

Table VI-2 continued
Barium chloride: Changes in U.S. producer CPC's total market AUVs between comparison periods

Changes in dollars per pound

Item	2019-21	2019-20	2020-21	Jan-Jun 2021-22
Total net sales	***	***	***	***
COGS: Barite ore	***	***	***	***
COGS: Hydrochloric acid	***	***	***	***
COGS: Hydrogen peroxide	***	***	***	***
COGS: Petroleum coke	***	***	***	***
COGS: All raw materials	***	***	***	***
COGS: Natural gas	***	***	***	***
COGS: Direct labor	***	***	***	***
COGS: Other factory costs	***	***	***	***
COGS: Total	***	***	***	***
Gross profit or (loss)	***	***	***	***
SG&A expenses	***	***	***	***
Operating income or (loss)	***	***	***	***
Net income or (loss)	***	***	***	***

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

Note: Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

Table VI-3
Barium chloride: Variance analysis of the financial results of the U.S. producer CPC between comparison periods

Value in 1,000 dollars

Item	2019-21	2019-20	2020-21	Jan-Jun 2021-22
Net sales price variance	***	***	***	***
Net sales volume variance	***	***	***	***
Net sales total variance	***	***	***	***
COGS cost variance	***	***	***	***
COGS volume variance	***	***	***	***
COGS total variance	***	***	***	***
Gross profit variance	***	***	***	***
SG&A cost variance	***	***	***	***
SG&A volume variance	***	***	***	***
SG&A total variance	***	***	***	***
Operating income price variance	***	***	***	***
Operating income cost variance	***	***	***	***
Operating income volume variance	***	***	***	***
Operating income total variance	***	***	***	***

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

Net sales

Barium chloride sales *** represent commercial sales (ranging from *** percent of total sales value (***) to *** percent (***)) with internal consumption accounting for the remainder (ranging from *** percent of total sales value (***) to *** percent (***)).[12] ***. ***

[12] CPC's barium chloride internal consumption supports downstream production of ***. CPC U.S. producer questionnaire response, section II-11a (note 1). CPC's average per pound value of internal consumption ranged from *** percent (***) to *** percent (***) of the corresponding average per pound commercial sales value. Regarding the generally *** value assigned to internal consumption for the final-phase, as compared to the preliminary phase, CPC stated ***. Submission with attachments from counsel on behalf of CPC to USITC staff, October 28, 2022.

transfer sales to related firms were reported. Given the *** of commercial sales, a single line item for sales is presented in the relevant tables above.

Quantity

On an overall basis, total barium chloride sales quantity declined throughout the full-year period and then was higher in January-June 2022 compared to January-June 2021. The components of total barium chloride commercial sales (U.S. commercial sales and exports) shared the same directional pattern during most, but not all, of the period: both declining in 2020, diverging in 2021 (U.S. commercial sales quantity continuing to decline, while exports increased), and both higher in January-June 2022 compared to January-June 2021.[13] While internal consumption quantity declined throughout the period, its share of total barium chloride sales increased during the full-year period, in conjunction with declines in commercial sales. At the end of the period, internal consumption's share of total sales declined to its lowest level, reflecting lower internal consumption and higher commercial sales in January-June 2022 compared to January-June 2021.

Value

As shown in the table VI-3 variance analysis, lower total sales value during the full-year period and higher total sales value in January-June 2022 compared to January-June 2021 primarily reflect the impact of sales volume variances (negative during the full-year period and positive during January-June 2021-22). Price variances (positive in 2019-20 and January-June 2021-22, negative in 2020-21) were smaller compared to corresponding volume variances and secondary in terms of explaining changes in total barium chloride sales value.[14]

[13] ***. CPC U.S. producer questionnaire response, section III-9d. ***.

[14] Barium chloride sales do not include a direct (or formulaic) passthrough of primary raw material costs. Conference transcript, p. 49 (McCall). As shown in table VI-2, changes in overall average sales value and total average raw material cost were directionally mixed during the period.

On an overall basis, average per pound barium chloride sales value increased in 2020, declined in 2021, and was higher in January-June 2022 compared to January-June 2021 (see table VI-2).[15]

Cost of goods sold and gross profit or loss

Raw materials

Reflecting changes in production and sales volume during the period, total barium chloride raw material cost, like the other primary components of COGS (natural gas, direct labor, other factory costs), varied during the period in terms of its share of total barium chloride COGS: ranging from *** percent of total COGS (January-June 2021) to *** percent (2020). With regard to raw material purchasing in general, a CPC company official noted that potential supply disruptions during the period were anticipated and the company adjusted its purchasing patterns to account for extended lead times.[16] According to CPC, as described during the preliminary phase of this investigation, ***.[17]

Barite ore, the largest component of total raw material cost, (*** percent of total raw material cost (2019) to *** percent (January-June 2022)), increased on an average per pound basis in 2020, declined in 2021, and then was higher in January-June 2022 compared to

[15] Average per pound export sales values, all of which reflect commercial sales, ranged from *** percent of corresponding average U.S. commercial sales value (***) to *** percent (***). ***. Verification report, p. 5.

[16] Notwithstanding instances of input supply disruption during the period examined, CPC was reportedly able to continue production of barium chloride with on-site raw material. Hearing transcript, p. 64 (Waite, McCall), p. 65 (McCall).

[17] Petitioner's postconference brief, exh. 2, p. 6.

January-June 2021.[18] [19] As shown in table VI-2, barite ore was a primary driver of changes in average per pound total raw material cost during much of the period. (Note: When considering the directional pattern of calculated average per pound costs, it should be kept in mind that average costs, in this context, can reflect both the underlying purchase price of the input, as well as other factors such as changes in yield and product mix.)[20] Like barite ore, the smaller components of total raw material cost also fluctuated on a per pound basis and in terms of their share of total raw material cost: hydrochloric acid (*** percent (January-June 2022) to

[18] ***. Email with attachment from Counsel on behalf of CPC to USITC staff, February 7, 2022. ***. Verification report, p. 4. ***. Ibid. At the Commission's hearing a CPC company official stated that the local supply of barite ore was "significant." Hearing transcript, p. 77.

[19] ***. Petitioner's postconference brief, exh. 3, pp. 2-4. CPC U.S. producer questionnaire response, section III-9c. ***. Ibid.

[20] ***. Petitioner's posthearing brief, Exhibit 4 (Responses to Questions from the Commissioners), pp. 26-27, pp. 29-30. ***. Verification report, p. 6.

*** percent (2019), hydrogen peroxide (*** percent (January-June 2022) to *** percent (2020), and petroleum coke (*** percent (January-June 2022) to *** percent (2019).[21] [22]

On an average per pound basis and with one exception, [23] all of the above-noted components of total raw material cost followed the same directional pattern of increases in 2020, declines in 2021, and higher average costs in January-June 2022 compared to January-June 2021. While the majority of components were directionally uniform throughout the period, they varied in terms of both magnitude of change and when the largest percentage changes (positive or negative) were reported (see table VI-2).

Natural gas

Natural gas, the source of energy to generate heat in various phases of the production process (e.g., kilns and dryers), was the smallest primary component of barium chloride COGS throughout the period, ranging from *** percent of total COGS (January-June 2021) to *** percent (January-June 2022). On an average per pound basis, natural gas cost declined in 2020 and 2021, to the lowest level of the period, and then was higher in January-June 2022 compared to January-June 2021.

Direct labor and other factory costs

Like the other primary components of COGS, direct labor cost (*** percent of total COGS (2019) to *** percent (January-June 2021)) and other factory costs (*** percent (January-June 2022) to *** percent (2019)) also varied in terms of their respective shares of

[21] ***. CPC U.S. producer questionnaire, section III-9c.

[22] Hydrogen sulfide gas is produced when barium sulfide solution is reacted with hydrochloric acid. Conference transcript, p. 15 (Bourdon). ***. Email with attachment from Counsel on behalf of CPC to USITC staff, February 7, 2022. ***. Verification report, p. 4.

[23] ***, which was lower on an average per pound basis in January-June 2022 compared to January-June 2021. In contrast, *** other components of raw material costs were higher in January-June 2022 compared to January-June 2021.

total COGS. Average per pound direct labor cost and other factory costs both increased during the full-year period, reaching their highest levels of the period in 2021, and then were lower in January-June 2022 compared to January-June 2021 (see table VI-2).

As shown in Part III of this report (table III-3), CPC's barium chloride production and corresponding capacity utilization declined during the full-year period, reaching their lowest levels in 2021, and then were somewhat higher in January-June 2022 compared to January-June 2021. While not limited to reflecting solely changes in barium chloride production and capacity utilization, the level of average per pound direct labor and other factory costs is affected by these items; e.g., CPC stated ***.[24] In terms of minimizing average per pound barium chloride COGS in general, the company also noted that capacity utilization is a significant factor.[25]

Gross profit or loss

With the exception of January-June 2021, when the company reported a ***, CPC's barium chloride gross results were ***, throughout most of the period. In conjunction with declining sales volume and contracting gross profit ratios, total gross profit declined during the full-year period: the contraction in 2020 gross profit ratio reflecting a percentage increase in average sales value that was exceeded by the corresponding percentage increase in average COGS; the further contraction in 2021 gross profit ratio reflecting a decline in average sales value and corresponding increase in average COGS (see table VI-2). In January-June 2022, the transition *** reported in January-June 2021, reflects an increase in average sales value, lower average COGS, and higher sales volume. It should be noted that the gross profit ratio in January-June 2022, while positive, was marginally lower compared to the full-year 2021 gross profit ratio, reflecting a somewhat smaller percentage increase in average sales value, between full-year 2021 and January-June 2022, than the corresponding percentage increase in average COGS.

[24] Petitioner's postconference brief, exh. 2, p. 7. ***. Petitioner's posthearing brief, Exhibit 4 (Responses to Questions from the Commissioners), p. 29. ***. Ibid. ***. Verification report, pp. 6-7.

[25] Conference transcript, p. 51 (Bourdon).

SG&A expenses and operating income or loss

Following the same directional pattern as total sales quantity and value, SG&A expenses declined throughout the full-year period, reaching their lowest level in 2021. In conjunction with higher sales quantity and value, SG&A expenses were higher in January-June 2022 compared to January-June 2021. Corresponding SG&A expense ratio (total SG&A expenses divided by total sales) declined throughout the period, reaching its lowest level in January-June 2022.[26]

For the *** part of the period when a gross loss was reported (***), corresponding SG&A expenses were additive to the resulting operating loss. When gross profit was generated, which was *** of the period, SG&A expenses exceeded corresponding gross profit, resulting in operating losses of varying magnitudes. Notwithstanding the positive effect of the somewhat lower SG&A expense ratio in January-June 2022, the gross profit ratio was itself only marginally above breakeven, thus continuing the pattern of operating losses.

Interest expense, other expenses and income, and net income or loss

For most of the period the directional pattern (relative improvement or deterioration) of operating and net results was different: in 2020, while total operating loss declined, total net income also declined; in 2021, total operating loss increased, while total net income also increased; in January-June 2022 compared to January-June 2021, the only part of the period when the directional pattern was the same, total operating loss was higher and net results transitioned to a loss.

As reported in table VI-1, the absolute differences in operating and net results primarily reflect *** included in net results, which offset, by varying magnitudes, corresponding interest expense and other expenses. ***.[27]

[26] ***. Verification report, p. 7.

[27] ***. Email with attachment from Counsel on behalf of CPC to USITC staff, February 7, 2022. Verification report, p. 4. ***.

(*continued*...)

Capital expenditures, R&D expenses, total net assets and return on assets

Table VI-4 presents the U.S. producer's capital expenditures, R&D expenses, total net assets, and ROA, respectively.[28] [29] Table VI-5 presents corresponding narrative descriptions for capital expenditures, R&D expenses, and total net assets.

Table VI-4
Barium chloride: Capital expenditures, R&D expenses, total net assets, and ROA of the U.S. producer CPC, by period

Value in 1,000 dollars; ratios in percent

Item	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Capital expenditures	Value	***	***	***	***	***
R&D expenses	Value	***	***	***	***	***
Total net assets	Value	***	***	***	***	***
Return on assets	Ratio	***	***	***	***	***

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

Note: Ratios represent the ratio to net sales value and shares represent the share of COGS. Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Ibid. ***. Petitioner's posthearing brief, Exhibit 4 (Responses to Questions from the Commissioners), p. 23.

[28] ***. Verification report, p. 8. ***. As shown in table VI-4, CPC's barium chloride total net assets declined irregularly during the full-year period with the lowest amount reported in 2020.

[29] ROA is calculated here as operating income divided by total assets. With respect to a company's overall operations, staff notes that a total asset value (i.e., the bottom line value on the asset side of a company's balance sheet) reflects an aggregation of a number of current and non-current assets, which, in many instances, are not product specific. The ability of a U.S. producer to assign total asset values to discrete product lines affects the meaningfulness of calculated operating return on net assets. Based on the total barium chloride assets and operating results reported by CPC, the company's barium chloride ROA was *** throughout the period with the period's *** ROA reported in 2021.

Table VI-5
Barium chloride: Narrative descriptions of the U.S. producer CPC's capital expenditures, R&D expenses, and total net assets

Item	Narrative
Capital expenditures	***
R&D expenses	***
Total net assets	***

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

Capital and investment

The Commission requested the U.S. producer to describe any actual or potential negative effects of imports of barium chloride from India on its growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table VI-6 presents the effects reported and table VI-7 provides the U.S. producer's narrative descriptions.

Table VI-6
Barium chloride: Count indicating actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2019, by effect

Number of firms reporting

Effect	Category	Count
Cancellation, postponement, or rejection of expansion projects	Investment	***
Denial or rejection of investment proposal	Investment	***
Reduction in the size of capital investments	Investment	***
Return on specific investments negatively impacted	Investment	***
Other investment effects	Investment	***
Any negative effects on investment	Investment	***
Rejection of bank loans	Growth	***
Lowering of credit rating	Growth	***
Problem related to the issue of stocks or bonds	Growth	***
Ability to service debt	Growth	***
Other growth and development effects	Growth	***
Any negative effects on growth and development	Growth	***
Anticipated negative effects of imports	Future	***

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

Table VI-7
Barium chloride: Narratives relating to actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2019

Item	Firm name and accompanying narrative response
***	***
***	***
***	***
***	***
***	***
***	***

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

Part VII: Threat considerations and information on nonsubject countries

Section 771(7)(F)(i) of the Act (19 U.S.C. § 1677(7)(F)(i)) provides that—

> *In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic factors*[1]*--*
>
> *(I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement), and whether imports of the subject merchandise are likely to increase,*
>
> *(II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,*
>
> *(III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,*
>
> *(IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices, and are likely to increase demand for further imports,*
>
> *(V) inventories of the subject merchandise,*

[1] Section 771(7)(F)(ii) of the Act (19 U.S.C. § 1677(7)(F)(ii)) provides that "The Commission shall consider {these factors} . . . as a whole in making a determination of whether further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted under this title. The presence or absence of any factor which the Commission is required to consider . . . shall not necessarily give decisive guidance with respect to the determination. Such a determination may not be made on the basis of mere conjecture or supposition."

(VI) 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,

(VII) in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both),

(VIII) the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and

(IX) any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).[2]

Information on the nature of the subsidies was presented earlier in this report; information on the volume and pricing of imports of the subject merchandise is presented in Parts IV and V; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in Part VI. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries.

[2] Section 771(7)(F)(iii) of the Act (19 U.S.C. § 1677(7)(F)(iii)) further provides that, in antidumping investigations, ". . . the Commission shall consider whether dumping in the markets of foreign countries (as evidenced by dumping findings or antidumping remedies in other WTO member markets against the same class or kind of merchandise manufactured or exported by the same party as under investigation) suggests a threat of material injury to the domestic industry."

The industry in India

The Commission issued foreign producers' or exporters' questionnaires to 27 firms believed to produce and/or export barium chloride from India.[3] Usable responses to the Commission's questionnaire were received from four firms,[4] which accounted for an estimated *** percent of production of barium chloride in India during 2021.[5] [6] Table VII-1 presents summary data for responding producers and exporters in India during 2021.

Table VII-1
Barium chloride: Summary data for producers and exporters in India, 2021

Firm	Production (1,000 pounds)	Share of reported production (percent)	Exports to the United States (1,000 pounds)	Share of reported exports to the United States (percent)	Total shipments (1,000 pounds)	Share of firm's total shipments exported to the United States (percent)
CBI	***	***	***	***	***	***
Chaitanya	***	***	***	***	***	***
RCS	***	***	***	***	***	***
Shri Shanti	***	***	***	***	***	***
All firms	***	***	***	***	***	***

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

Note: Chaitanya, CBI, and RCS are related firms. For more information, see the "Changes in operations" section of Part VII of this report.

Note: RCS reported that ***.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

[3] These firms were identified through the petition, industry research, and previous and related import injury investigations on barium chloride.

[4] The Commission received a response from Chaitanya Chemicals ("Chaitanya"), Chaitanya Barium India ("CBI"), RCS Chemicals ("RCS"), and Shri Shanti Laboratories ("Shri Shanti").

[5] *** estimated that their share of production of subject merchandise to total production of barium chloride in India during 2021 was approximately *** percent, respectively. *** further reported that the remaining production of barium chloride in India during 2021 was primarily accounted for by ***. Correspondence with ***, November 18, 2022, EDIS #785339. Although staff reached out to *** on multiple occasions, it did not submit a questionnaire response.

[6] These firms accounted for approximately *** percent of reported U.S. imports of the subject merchandise during 2021.

Changes in operations

Table VII-2 presents foreign producers'/exporters' reported changes in operations since 2019. Shri Shanti reported ***. Chaitanya, CBI, and RCS are related firms and reported the same changes in operations.[7] They noted ***. Moreover, they reported ***.

Table VII-2
Barium chloride: Reported changes in operations in India since January 1, 2019, by firm

Item	Firm name and accompanying narrative response
Prolonged shutdowns or curtailments	***.
Revised labor agreements	***.

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

[7] Following the preliminary phase investigation, Petitioner identified foreign producers/exporters Chaitanya, CBI, RCS, and two other companies—Barium India and Chaitanya Industries—as related producers/exporters of barium chloride in India. Petitioner's comments on draft questionnaires, May 9, 2022, pp. 3-4 and att. A. Another related firm, Pennar Chemicals, was identified during the course of the final phase.

The Commission sent these firms a foreign producer/exporter questionnaire. Chaitanya, CBI, and RCS each submitted an affirmative response, while Barium India, Chaitanya Industries, and Pennar Chemicals certified that they did not produce or export barium chloride from India during the period of investigation. All six firms ***. Correspondence with ***, November 18, 2022, EDIS. #785339.

Operations on barium chloride

Table VII-3 presents information on the barium chloride operations of the responding subject producers and exporters.

Producers' capacity increased *** percent during 2019-21, from *** pounds in 2019 to *** pounds in 2021, and it is projected to remain at *** pounds in 2022 and 2023. Producers' production also increased by *** percent during 2019-21, from *** pounds in 2019 to *** pounds in 2021; and it is further projected to increase *** percent during 2021-22 and *** percent during 2022-23. Given producers' steady capacity and increasing production, capacity utilization also increased, by *** percentage points, during 2019-21. Utilization is projected to be higher in 2022 and 2023, as compared to 2021.

Barium chloride firms in India are export oriented. During 2019-21, their share of exports to total shipments ranged between *** and *** percent. Their projected share for 2022 is *** percent and for 2023 it is *** percent. The share of producers' exports to the United States to total shipments decreased irregularly during 2019-21; it was *** percent in 2019, *** percent in 2020, and *** percent in 2021.[8] The share is projected to be *** percent in 2022 and *** percent in 2023, similar in trend to the share for interim 2022.

End-of-period inventories for firms in India are small relative to their production and total shipments. During 2019-21, the ratio of inventories to production increased irregularly, from *** percent in 2019 to *** percent in 2020 to *** percent in 2021. The ratio of inventories to total shipments followed a similar trend; the ratio was *** percent in 2019, *** percent in 2020, and *** percent in 2021. In 2022, the ratio of inventories to production and the ratio of inventories to total shipments is projected to be *** percent. In 2023, the ratio of inventories to production and the ratio of inventories to total shipments is projected to be *** percent.

[8] Chaitanya, ***. Respondent Chaitanya's postconference brief, pp. 19 and 27.

Table VII-3
Barium chloride: Data on industry in India, by period

Quantity in 1,000 pounds; ratio and share in percent

Item	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022	Projection 2022	Projection 2023
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to production	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Production by form type

As previously noted in Part I of this report, there are two forms of barium chloride—anhydrous and dihydrate. As a result, foreign producers were asked to report on their production of these two form types. Moreover, they were asked to report on their production of barium chloride dihydrate by two types of grades: (1) high purity/electronic and (2) all other dihydrate. Table VII-4 presents foreign producers' reported production of barium chloride by form type.

The data show that foreign producers are primarily focused on the production of barium chloride ***. Production of barium chloride *** increased irregularly during 2019-21, from *** pounds in 2019 to *** pounds in 2020 to *** pounds in 2021, an increase of *** percent between 2019 and 2021.[9] Inversely, production of *** barium chloride decreased irregularly during 2019-21, from *** pounds in 2019 to *** pounds in 2020 to *** pounds in 2021, a decrease of *** percent between 2019 and 2021. The share of production of barium chloride *** was the highest of all the three form types in both interim 2021 and interim 2022.

Table VII-5
Barium chloride: Producers in India production, by period and form type

Quantity in 1,000 pounds; ratio and share in percent

Production type	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Anhydrous	Quantity	***	***	***	***	***
High purity/electronic dihydrate	Quantity	***	***	***	***	***
Other dihydrate	Quantity	***	***	***	***	***
All production	Quantity	***	***	***	***	***
Anhydrous	Share	***	***	***	***	***
High purity/electronic dihydrate	Share	***	***	***	***	***
Other dihydrate	Share	***	***	***	***	***
All production	Share	***	***	***	***	***

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

[9] Chaitanya, ***. Respondent Chaitanya's postconference brief, pp. 19, 29.

Production of alternative products

As shown in table VII-5, responding firms in India produce other products using the same equipment, machinery, or employees as used to produce barium chloride. The production of alternative products ***. The firm reported that in the production of barium chloride, ***.[10]

Table VII-5
Barium chloride: Producers in India overall capacity and production on the same equipment as subject production, by period

Quantities in 1,000 pounds; shares and ratios in percent

Item	Measure	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Overall capacity	Quantity	***	***	***	***	***
Barium chloride production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
Barium chloride production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

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

Exports

According to Global Trade Atlas ("GTA"), the leading export markets for barium chloride from India, by quantity, are Saudi Arabia, the United Arab Emirates, and Kuwait. In 2021, their share of imports from India were 17.1, 14.2, and 13.1 percent, respectively. In 2021, the United States was the was the seventh-largest export market destination, by quantity, for barium chloride from India (4.0 percent). By value, the United States was the top export market destination for barium chloride from India (38.2 percent). Table VII-6 presents exports from India to its leading markets.

[10] For more information ***, see "The product" section of Part I of this report.

Table VII-6
Barium chloride: Exports from India, by destination market and by period

Quantity in 1,000 pounds; value in 1,000 dollars; unit value in dollars per pound; share in percent

Destination market	Measure	2019	2020	2021
United States	Quantity	5,925	6,789	6,270
Saudi Arabia	Quantity	22,015	21,531	26,852
United Arab Emirates	Quantity	25,138	26,799	22,245
Kuwait	Quantity	14,175	18,468	20,601
Qatar	Quantity	10,916	8,350	12,553
Oman	Quantity	10,104	12,269	10,145
Japan	Quantity	4,652	2,710	6,679
Bahrain	Quantity	8,183	7,924	6,031
Malaysia	Quantity	4,312	6,754	5,696
All other destination markets	Quantity	39,341	37,697	39,843
All destination markets	Quantity	144,761	149,292	156,914
United States	Value	8,017	11,834	22,000
Saudi Arabia	Value	975	1,009	1,141
United Arab Emirates	Value	1,328	1,412	1,272
Kuwait	Value	582	741	642
Qatar	Value	637	456	609
Oman	Value	472	549	361
Japan	Value	1,758	1,077	2,535
Bahrain	Value	522	498	355
Malaysia	Value	288	436	365
All other destination markets	Value	16,089	15,644	28,381
All destination markets	Value	30,667	33,656	57,661
United States	Unit value	1.35	1.74	3.51
Saudi Arabia	Unit value	0.04	0.05	0.04
United Arab Emirates	Unit value	0.05	0.05	0.06
Kuwait	Unit value	0.04	0.04	0.03
Qatar	Unit value	0.06	0.05	0.05
Oman	Unit value	0.05	0.04	0.04
Japan	Unit value	0.38	0.40	0.38
Bahrain	Unit value	0.06	0.06	0.06
Malaysia	Unit value	0.07	0.06	0.06
All other destination markets	Unit value	0.41	0.41	0.71
All destination markets	Unit value	0.21	0.23	0.37

Table continued.

Table VII-6 continued
Barium chloride: Exports from India, by destination market and by period

Quantity in 1,000 pounds; value in 1,000 dollars; unit value in dollars per pound; share in percent

Destination market	Measure	2019	2020	2021
United States	Share of quantity	4.1	4.5	4.0
Saudi Arabia	Share of quantity	15.2	14.4	17.1
United Arab Emirates	Share of quantity	17.4	18.0	14.2
Kuwait	Share of quantity	9.8	12.4	13.1
Qatar	Share of quantity	7.5	5.6	8.0
Oman	Share of quantity	7.0	8.2	6.5
Japan	Share of quantity	3.2	1.8	4.3
Bahrain	Share of quantity	5.7	5.3	3.8
Malaysia	Share of quantity	3.0	4.5	3.6
All other destination markets	Share of quantity	27.2	25.3	25.4
All destination markets	Share of quantity	100.0	100.0	100.0
United States	Share of value	26.1	35.2	38.2
Saudi Arabia	Share of value	3.2	3.0	2.0
United Arab Emirates	Share of value	4.3	4.2	2.2
Kuwait	Share of value	1.9	2.2	1.1
Qatar	Share of value	2.1	1.4	1.1
Oman	Share of value	1.5	1.6	0.6
Japan	Share of value	5.7	3.2	4.4
Bahrain	Share of value	1.7	1.5	0.6
Malaysia	Share of value	0.9	1.3	0.6
All other destination markets	Share of value	52.5	46.5	49.2
All destination markets	Share of value	100.0	100.0	100.0

Source: Official exports statistics under Harmonized System ("HS") subheading 2827.39 as reported by the Indian Ministry of Trade in the Global Trade Atlas database, accessed October 25, 2022. These data may be overstated as HS subheading 2827.39 may contain products outside the scope of this investigation.

U.S. inventories of imported merchandise

Table VII-7 presents data on U.S. importers' reported inventories of barium chloride. U.S. importers' inventories of subject merchandise increased by *** precent during 2019-21, from *** pounds in 2019 to *** pounds in 2021. Consequently, the ratio of these inventories to total shipments of imports also increased, by *** percentage points, during the same time. Inventories, and the ratio of inventories to total shipments of imports, were higher in interim period 2022 as compared to both calendar year and interim period 2021.

Inventories of barium chloride from nonsubject sources did not exceed *** pounds during the POI. Moreover, the ratio of these inventories to total shipments of imports did not exceed *** percent during the POI.

Table VII-7
Barium chloride: U.S. importers' inventories and their ratio to select items, by source and period

Quantity in 1,000 pounds; ratio in percent

Measure	Source	2019	2020	2021	Jan-Jun 2021	Jan-Jun 2022
Inventories quantity	India	***	***	***	***	***
Ratio to imports	India	***	***	***	***	***
Ratio to U.S. shipments of imports	India	***	***	***	***	***
Ratio to total shipments of imports	India	***	***	***	***	***
Inventories quantity	Nonsubject	***	***	***	***	***
Ratio to imports	Nonsubject	***	***	***	***	***
Ratio to U.S. shipments of imports	Nonsubject	***	***	***	***	***
Ratio to total shipments of imports	Nonsubject	***	***	***	***	***
Inventories quantity	All	***	***	***	***	***
Ratio to imports	All	***	***	***	***	***
Ratio to U.S. shipments of imports	All	***	***	***	***	***
Ratio to total shipments of imports	All	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Quantity and value shown as "0" represent values greater than zero but less than 500 pounds. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

U.S. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of barium chloride from India after June 30, 2021. Their reported data is presented in table VII-8. U.S. importer *** share of arranged imports accounts for *** percent of the total.

Table VII-8
Barium chloride: U.S. importers' arranged imports, by source and period

Quantity in 1,000 pounds

Source	Jul-Sep 2022	Oct-Dec 2022	Jan-Mar 2023	Apr-Jun 2023	Total
India	***	***	***	***	***
Nonsubect sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Third-country trade actions

Based on available information, barium chloride from India has not been subject to other antidumping or countervailing duty investigations outside the United States.

Information on nonsubject countries

Table VII-9 presents global export data for chlorides, a category that includes barium chloride and out-of-scope products, for the largest nonsubject countries, in descending order of quantity for 2021.[11]

In the Commission's fifth five-year review of the antidumping duty order on barium chloride from China, no respondent party provided a response. However, the Petitioner provided a list of 14 possible producers of barium chloride in China with an estimated capacity of 188,000 metric tons (414.5 million pounds).

[11] The United States accounted for less than 1.0 percent of global exports reported under HS subheading 2827.39 (Other chlorides (NESOI)) in any year 2019-21.

Table VII-9
Barium chloride: Global exports of other chlorides by exporter and period

Quantity in 1,000 pounds; share in percent

Exporting country	Measure	2019	2020	2021
Germany	Quantity	431,904	413,131	426,926
China	Quantity	267,727	217,011	242,115
France	Quantity	91,107	106,290	186,105
Belgium	Quantity	179,218	181,528	178,786
India	Quantity	144,761	149,292	156,914
Austria	Quantity	146,783	138,913	136,416
Spain	Quantity	85,196	110,098	110,202
Sweden	Quantity	75,570	75,862	76,178
Canada	Quantity	43,994	46,179	65,993
All other exporting countries	Quantity	365,220	332,491	322,994
All exporting countries	Quantity	1,831,479	1,770,795	1,902,628
Germany	Share of quantity	23.6	23.3	22.4
China	Share of quantity	14.6	12.3	12.7
France	Share of quantity	5.0	6.0	9.8
Belgium	Share of quantity	9.8	10.3	9.4
India	Share of quantity	7.9	8.4	8.2
Austria	Share of quantity	8.0	7.8	7.2
Spain	Share of quantity	4.7	6.2	5.8
Sweden	Share of quantity	4.1	4.3	4.0
Canada	Share of quantity	2.4	2.6	3.5
All other exporting countries	Share of quantity	19.9	18.8	17.0
All exporting countries	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2827.39 as reported by UN Comtrade in the Global Trade Atlas database, accessed October 25, 2022. These data may be overstated as HS subheading 2827.39 (Other chlorides (NESOI)) may contain products outside the scope of this investigation.

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
87 FR 2901, January 19, 2022	*Barium Chloride From India; Institution of Countervailing Duty and Antidumping Duty Investigations and Scheduling of Preliminary Phase Investigations*	https://www.govinfo.gov/content/pkg/FR-2022-01-19/pdf/2022-00911.pdf
87 FR 7094, February 8, 2022	*Barium Chloride From India: Initiation of Countervailing Duty Investigation*	https://www.govinfo.gov/content/pkg/FR-2022-02-08/pdf/2022-02559.pdf
87 FR 7100, February 8, 2022	*Barium Chloride From India: Initiation of Less-Than-Fair-Value Investigation*	https://www.govinfo.gov/content/pkg/FR-2022-02-08/pdf/2022-02558.pdf
87 FR 12486, March 4, 2022	*Barium Chloride From India; Determinations*	https://www.govinfo.gov/content/pkg/FR-2022-03-04/pdf/2022-04564.pdf
87 FR 14508, March 15, 2022	*Barium Chloride From India: Postponement of Preliminary Determination in the Countervailing Duty Investigation*	https://www.govinfo.gov/content/pkg/FR-2022-03-15/pdf/2022-05427.pdf
87 FR 30871 May 20, 2022	*Barium Chloride From India: Postponement of Preliminary Determination in the Less-Than-Fair-Value Investigation*	https://www.govinfo.gov/content/pkg/FR-2022-05-20/pdf/2022-10932.pdf

Citation	Title	Link
87 FR 36460 June 17, 2022	*Barium Chloride From India: Preliminary Affirmative Countervailing Duty Determination and Alignment of Final Determination With Final Antidumping Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2022-06-17/pdf/2022-13138.pdf
87 FR 50602 August 17, 2022	*Barium Chloride From India: Preliminary Negative Determination of Sales at Less Than Fair Value, Postponement of Final Determination*	https://www.govinfo.gov/content/pkg/FR-2022-08-17/pdf/2022-17622.pdf
87 FR 54714 September 7, 2022	*Barium Chloride From India; Scheduling of the Final Phase of Countervailing Duty and Antidumping Duty Investigations*	https://www.govinfo.gov/content/pkg/FR-2022-09-07/pdf/2022-19315.pdf
87 FR 58135 September 23, 2022	*Barium Chloride From India; Hearing Update for the Subject Investigations*	https://www.govinfo.gov/content/pkg/FR-2022-09-23/pdf/2022-20611.pdf
88 FR 1044 January 6, 2023	*Barium Chloride From India: Final Affirmative Countervailing Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2023-01-06/pdf/2023-00086.pdf
88 FR 1050 January 6, 2023	*Barium Chloride From India: Final Negative Determination of Sales at Less Than Fair Value*	https://www.govinfo.gov/content/pkg/FR-2023-01-06/pdf/2023-00085.pdf
88 FR 2638 January 17, 2023	*Barium Chloride From India; Termination of Investigation*	https://www.govinfo.gov/content/pkg/FR-2023-01-17/pdf/2023-00731.pdf

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

Those listed below appeared in the United States International Trade Commission's Hearing:

Subject: Barium Chloride from India

Inv. Nos.: 701-TA-678 and 731-TA-1584 (Final)

Date and Time: January 5, 2023 - 9:30 a.m.

OPENING REMARKS:

In Support of Imposition (**Frederick P. Waite**, Vorys, Sater, Seymour and Pease LLP)
In Opposition to Imposition (**Camelia C. Mazard**, Doyle, Barlow & Mazard PLLC)

In Support of the Imposition of the Antidumping and Countervailing Duty Orders:

Vorys, Sater, Seymour and Pease LLP
Washington, DC
on behalf of

Chemical Products Corporation ('CPC')

Joseph L. McCall, Chief Financial Officer, CPC

Janet Ingram, Chief Commercial Officer, CPC

Rebecca Woodings, Economic Consultant

Frederick P. Waite)
) – OF COUNSEL
Kimberly R. Young)

In Opposition to the Imposition of the
Antidumping and Countervailing Duty Orders:

Doyle, Barlow & Mazard PLLC
Washington, DC
on behalf of

BassTech International. ("BassTech")

Alan Chalup, Chief Operating Officer, BassTech

Travis Pope, Consultant, Capital Trade, Inc.

Camelia C. Mazard)
Andre P. Barlow) – OF COUNSEL
Olev Jaakson)

TPM Consultants
Saket, New Delhi
on behalf of

Chaitanya Chemicals ("Chaitanya")

A.K. Gupta (remote witness), Managing Director, TPM Consultants

Divya Nair (remote witness), Joint Partner, TPM Consultants

REBUTTAL/CLOSING REMARKS:

In Support of Imposition
(**Frederick P. Waite** and **Kimberly R. Young**, Vorys, Sater, Seymour and Pease LLP
and **Rebecca Woodings**)
In Opposition to Imposition (**Camelia C. Mazard**, Doyle, Barlow & Mazard PLLC)

-END-

APPENDIX C

SUMMARY DATA

Table C-1
Barium chloride: Summary data concerning the U.S. market, by item and period
Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

	Reported data					Period changes			
	Calendar year			Jan-Jun		Comparison years			Jan-Jun
Item	2019	2020	2021	2021	2022	2019-21	2019-20	2020-21	2021-22
U.S. consumption quantity:									
Amount	***	***	***	***	***	▼***	▼***	▼***	▲***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▼***	▲***
Importers' share (fn1):									
India	***	***	***	***	***	▲***	▲***	▲***	▼***
Nonsubject sources	***	***	***	***	***	▼***	▲***	▼***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. consumption value:									
Amount	***	***	***	***	***	▼***	▼***	▼***	▲***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▼***	▲***
Importers' share (fn1):									
India	***	***	***	***	***	▲***	▲***	▲***	▼***
Nonsubject sources	***	***	***	***	***	▼***	▲***	▼***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. importers' U.S. shipments of imports from:									
India:									
Quantity	***	***	***	***	***	▼***	▼***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value	***	***	***	***	***	▲***	▼***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources:									
Quantity	***	***	***	***	***	▼***	▲***	▼***	▲***
Value	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit value	***	***	***	***	***	▲***	▼***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▲***	▲***
All import sources:									
Quantity	***	***	***	***	***	▼***	▼***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value	***	***	***	***	***	▲***	▼***	▲***	▲***
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 per hour)	***	***	***	***	***	▲***	▲***	▲***	▲***
Productivity (pounds per hour)	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit labor costs	***	***	***	***	***	▲***	▼***	▲***	▼***

Table continued.

Table C-1 Continued
Barium chloride: Summary data concerning the U.S. market, by item and period
Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted

	Reported data					Period changes			
	Calendar year			Jan-Jun		Comparison years			Jan-Jun
Item	2019	2020	2021	2021	2022	2019-21	2019-20	2020-21	2021-22
U.S. producers' Continued:									
Net sales:									
Quantity	***	***	***	***	***	▼***	▼***	▼***	▲***
Value	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value	***	***	***	***	***	▲***	▲***	▼***	▲***
Cost of goods sold (COGS)	***	***	***	***	***	▼***	▼***	▼***	▲***
Gross profit or (loss) (fn2)	***	***	***	***	***	▼***	▼***	▼***	▲***
SG&A expenses	***	***	***	***	***	▼***	▼***	▼***	▲***
Operating income or (loss) (fn2)	***	***	***	***	***	▼***	▲***	▼***	▼***
Net income or (loss) (fn2)	***	***	***	***	***	▲***	▼***	▲***	▼***
Unit COGS	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit SG&A expenses	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit operating income or (loss) (fn2)	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit net income or (loss) (fn2)	***	***	***	***	***	▲***	▼***	▲***	▼***
COGS/sales (fn1)	***	***	***	***	***	▲***	▲***	▲***	▼***
Operating income or (loss)/sales (fn1)	***	***	***	***	***	▼***	▲***	▼***	▲***
Net income or (loss)/sales (fn1)	***	***	***	***	***	▲***	▼***	▲***	▼***
Capital expenditures	***	***	***	***	***	▲***	▼***	▲***	▼***
Research and development expenses	***	***	***	***	***	***	***	***	***
Net assets	***	***	***	***	***	▼***	▼***	▲***	***

Source: Compiled from data submitted in response to Commission questionnaires. 508-compliant tables containing these data are contained in parts III, IV, VI, and VII of this report.

Note.--Shares and ratios shown as “0.0” percent represent non-zero values less than “0.05” percent (if positive) and greater than “(0.05)” percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as “---“. Period changes preceded by a “▲” represent an increase, while period changes preceded by a “▼” represent a decrease. Quantity shown as "0" represent data greater than zero but less than 500 pounds.

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

APPENDIX D

OFFICIAL U.S. IMPORT STATISTICS FOR BARIUM CHLORIDE

Table D-1
Barium chloride: U.S. imports, by source and by month

Quantity in 1,000 pounds

Year	Month	India	Nonsubject sources	All import sources
2019	January	401	9	410
2019	February	53	1	54
2019	March	91	2	93
2019	April	196	---	196
2019	May	132	---	132
2019	June	224	---	224
2019	July	448	---	448
2019	August	44	---	44
2019	September	225	---	225
2019	October	720	3	723
2019	November	721	---	721
2019	December	573	---	573
2020	January	449	---	449
2020	February	473	---	473
2020	March	1,106	---	1,106
2020	April	398	---	398
2020	May	450	---	450
2020	June	311	---	311
2020	July	607	3	609
2020	August	112	---	112
2020	September	178	---	178
2020	October	2	---	2
2020	November	13	3	16
2020	December	---	---	---

Table continued.

Table D-1 continued
Barium chloride: U.S. imports, by source and by month

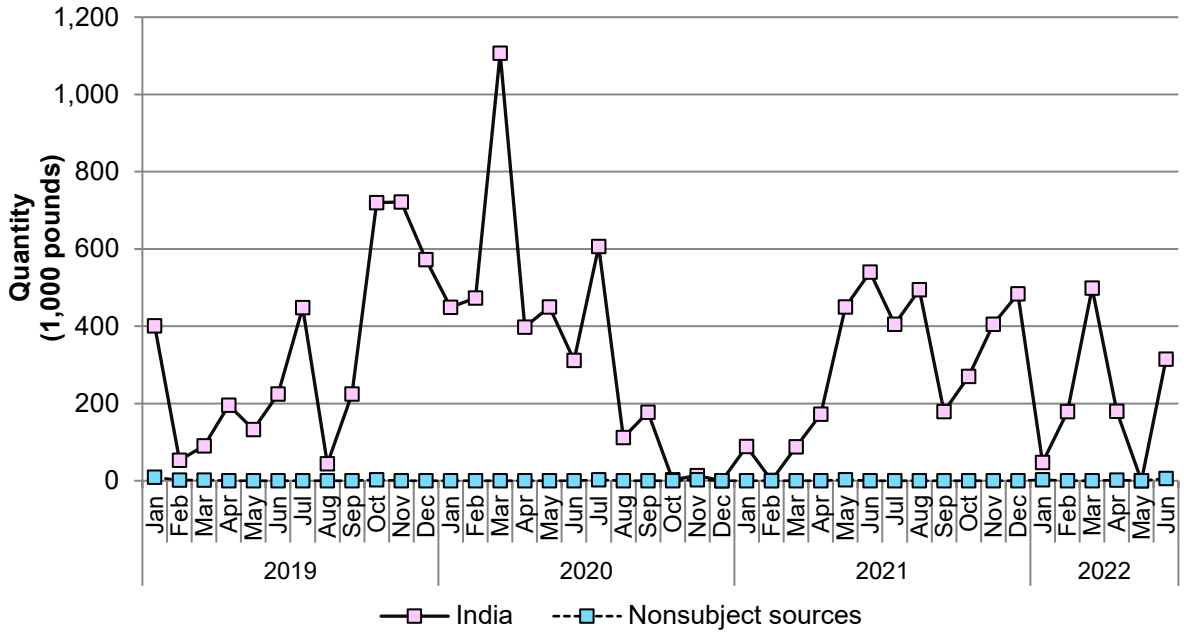
Quantity in 1,000 pounds

Year	Month	India	Nonsubject sources	All import sources
2021	January	89	---	89
2021	February	1	---	1
2021	March	88	---	88
2021	April	173	0	173
2021	May	450	3	453
2021	June	540	---	540
2021	July	405	---	405
2021	August	495	---	495
2021	September	179	---	179
2021	October	270	---	270
2021	November	405	---	405
2021	December	484	---	484
2022	January	47	3	50
2022	February	179	0	179
2022	March	499	---	499
2022	April	180	2	182
2022	May	---	---	---
2022	June	315	6	321

Source: Compiled from official U.S. imports statistics of the U.S. Department of Commerce using HTS statistical reporting numbers 2827.39.4500, accessed August 25, 2022. Imports are based on the imports for consumption data series.

Note: Data shown as “0” represent values greater than zero but less than 500 pounds; Zeroes, null values, and undefined calculations are suppressed and shown as “---“.

Figure D-1
Barium chloride: U.S. imports from subject and nonsubject sources, by month



Source: Compiled from official U.S. imports statistics of the U.S. Department of Commerce using HTS statistical reporting numbers 2827.39.4500, accessed August 25, 2022. Imports are based on the imports for consumption data series.

APPENDIX E

DATA TABLES ACCOMPANYING FIGURES IN PART II

Table E-1
Crude oil and gasoline prices: Cushing, OK crude oil future contract 1-4 (average) price, dollars per barrel, and U.S. regular all formulations retail gasoline prices, dollars per gallon, by month, January 2019–October 2022

Crude oil future contract price in dollars per barrel, retail gasoline price in dollars per gallon

Year	Month	Crude oil future contract price	Retail gasoline price
2019	January	52.05	2.25
2019	February	55.63	2.31
2019	March	58.63	2.52
2019	April	63.90	2.80
2019	May	60.98	2.86
2019	June	54.85	2.72
2019	July	57.60	2.74
2019	August	54.56	2.62
2019	September	56.60	2.59
2019	October	53.94	2.63
2019	November	56.97	2.60
2019	December	59.47	2.56
2020	January	57.39	2.55
2020	February	50.82	2.44
2020	March	32.17	2.23
2020	April	24.36	1.84
2020	May	29.81	1.87
2020	June	38.62	2.08
2020	July	41.03	2.18
2020	August	42.83	2.18
2020	September	40.12	2.18
2020	October	40.03	2.16
2020	November	41.54	2.11
2020	December	47.26	2.20
2021	January	52.01	2.33
2021	February	58.70	2.50
2021	March	62.09	2.81
2021	April	61.54	2.86
2021	May	64.85	2.99
2021	June	70.53	3.06
2021	July	71.33	3.14
2021	August	67.19	3.16
2021	September	71.01	3.18
2021	October	79.93	3.29
2021	November	77.67	3.39
2021	December	71.25	3.31

Table continued.

Table E-1 continued
Crude oil and gasoline prices: Cushing, OK crude oil future contract 1-4 (average) price, dollars per barrel, and U.S. regular all formulations retail gasoline prices, dollars per gallon, by month, January 2019–October 2022

Crude oil future contract price in dollars per barrel, retail gasoline price in dollars per gallon

Year	Month	Crude oil future contract price	Retail gasoline price
2022	January	81.72	3.31
2022	February	89.20	3.52
2022	March	103.96	4.22
2022	April	100.07	4.11
2022	May	105.84	4.44
2022	June	110.53	4.93
2022	July	95.56	4.56
2022	August	90.45	3.98
2022	September	82.87	3.70
2022	October	85.25	3.82

Source: U.S. Energy Information Administration, https://www.eia.gov/petroleum/weekly/, retrieved November 14, 2022.

Table E-2
Industrial drilling production and price indexes: Industrial production: Mining, quarrying, and oil and gas extraction: Drilling oil and gas wells (NAICS = 213111), not seasonally adjusted, and Producer Price Index by industry: Drilling oil and gas wells: Primary services, not seasonally adjusted, Index Jan 2019=100, monthly, January 2019–October 2022

January 2019 = 100; changes in percent

Year	Month	Industrial drilling production index	Oil and gas drilling wells PPI
2019	January	100	100
2019	February	98.5	99.6
2019	March	96.9	99.6
2019	April	96.4	99.5
2019	May	94.6	99.5
2019	June	94.8	99.6
2019	July	94.9	98.8
2019	August	94.3	98.1
2019	September	91.6	98.0
2019	October	89.5	97.7
2019	November	88.0	97.2
2019	December	89.9	97.1
2020	January	90.5	96.5
2020	February	93.3	95.6
2020	March	92.4	94.3
2020	April	68.5	92.6
2020	May	44.9	91.0
2020	June	37.1	90.9
2020	July	35.4	90.4
2020	August	35.5	90.5
2020	September	37.4	90.1
2020	October	40.3	90.8
2020	November	43.8	90.6
2020	December	48.7	90.5
2021	January	53.3	89.4
2021	February	56.6	90.9
2021	March	57.1	90.9
2021	April	59.9	91.6
2021	May	62.6	91.6
2021	June	64.0	93.5
2021	July	67.4	94.1
2021	August	68.6	94.9
2021	September	67.5	95.3
2021	October	73.2	95.6
2021	November	76.7	96.7
2021	December	79.5	99.6

Table continued.

Table E-2 continued
Industrial drilling production and price indexes: Industrial production: Mining, quarrying, and oil and gas extraction: Drilling oil and gas wells (NAICS = 213111), not seasonally adjusted, and Producer Price Index by industry: Drilling oil and gas wells: Primary services, not seasonally adjusted, Index Jan 2019=100, monthly, January 2019–October 2022

January 2019 = 100; changes in percent

Year	Month	Industrial drilling production index	Oil and gas drilling wells PPI
2022	January	83.4	104.5
2022	February	87.0	105.4
2022	March	90.1	107.8
2022	April	94.1	108.0
2022	May	99.5	108.5
2022	June	102.2	108.7
2022	July	104.7	109.0
2022	August	106.3	109.0
2022	September	105.5	116.1
2022	October	105.8	116.5

Source: St. Louis Federal Reserve Economic Data, https://fred.stlouisfed.org/series/IPN213111N# and https://fred.stlouisfed.org/series/PCU213111213111P, retrieved December 1, 2022.

Note: Mining, quarrying and oil and gas extraction industrial drilling data are not seasonally adjusted and based on NAICS code 213111. Producer price index for oil and gas drilling wells are for primary services and not seasonally adjusted.

Table E-3
Construction spending: Total construction spending in the United States, seasonally adjusted annual rate, trillions of dollars, monthly, January 2019–October 2022

Construction spending in trillions of dollars

Year	Month	Construction spending
2019	January	1.29
2019	February	1.31
2019	March	1.32
2019	April	1.36
2019	May	1.37
2019	June	1.39
2019	July	1.41
2019	August	1.42
2019	September	1.43
2019	October	1.44
2019	November	1.46
2019	December	1.46
2020	January	1.49
2020	February	1.50
2020	March	1.51
2020	April	1.47
2020	May	1.46
2020	June	1.46
2020	July	1.47
2020	August	1.49
2020	September	1.51
2020	October	1.53
2020	November	1.54
2020	December	1.57
2021	January	1.58
2021	February	1.57
2021	March	1.60
2021	April	1.61
2021	May	1.62
2021	June	1.63
2021	July	1.64
2021	August	1.64
2021	September	1.63
2021	October	1.64
2021	November	1.67
2021	December	1.68

Table continued.

Table E-3 continued
Construction spending: Total construction spending in the United States, seasonally adjusted annual rate, trillions of dollars, monthly, January 2019–October 2022

Construction spending in trillions of dollars

Year	Month	Construction spending
2022	January	1.73
2022	February	1.75
2022	March	1.77
2022	April	1.78
2022	May	1.79
2022	June	1.80
2022	July	1.82
2022	August	1.80
2022	September	1.80
2022	October	1.79

Source: St. Louis Federal Reserve Economic Data, https://fred.stlouisfed.org/series/TTLCONS, retrieved December 1, 2022.

APPENDIX F

DATA TABLES ACCOMPANYING FIGURES IN PART V

Table F-1a
Baryte ore: Average unit values of imports of ground natural barium sulfate (barytes) from India, China, Morocco, and Mexico, monthly, January 2019–September 2022

Unit values in dollars per ton

Year	Month	India	China	Morocco	Mexico
2019	January	96.06	104.99	98.28	134.78
2019	February	80.04	136.35	208.33	132.88
2019	March	108.08	97.21	95.79	133.53
2019	April	105.72	96.82	96.78	133.43
2019	May	104.59	87.08	95.68	134.51
2019	June	101.80	72.91	95.76	132.34
2019	July	98.57	78.74	99.67	130.79
2019	August	85.36	96.66	89.61	130.47
2019	September	85.16	94.48	91.97	130.04
2019	October	151.88	109.95	88.60	132.12
2019	November	184.43	94.50	93.58	128.77
2019	December	86.01	111.70	98.68	128.28
2020	January	88.17	88.50	98.48	131.12
2020	February	82.14	95.71	97.91	130.24
2020	March	83.58	90.63	97.14	128.59
2020	April	82.60	91.91	99.67	128.13
2020	May	86.17	76.55	101.64	120.55
2020	June	86.79	87.69	103.23	128.11
2020	July	81.09	79.20	104.07	120.29
2020	August	86.02	78.31	100.24	118.46
2020	September	111.27	89.23	83.00	118.24
2020	October	85.05	91.96	84.22	121.60
2020	November	89.18	94.75	84.33	124.06
2020	December	83.64	80.72	84.31	112.09
2021	January	87.89	105.51	80.91	94.29
2021	February	87.24	107.64	77.84	117.84
2021	March	91.00	88.95	80.50	125.31
2021	April	81.74	88.51	79.32	125.05
2021	May	89.17	91.58	75.00	98.47
2021	June	86.24	91.85	78.58	102.32
2021	July	89.35	105.11	74.48	120.81
2021	August	96.75	99.84	74.94	119.95
2021	September	101.49	96.33	75.21	121.89
2021	October	114.46	94.76	75.04	119.76
2021	November	106.42	108.36	79.61	125.20
2021	December	101.86	102.36	77.38	128.16

Table continued.

Table F1a continued
Baryte ore: Average unit values of imports of ground natural barium sulfate (barytes) from India, China, Morocco, and Mexico, monthly, January 2019–September 2022

Unit values in dollars per ton

Year	Month	India	China	Morocco	Mexico
2022	January	98.82	113.84	91.17	131.26
2022	February	107.09	91.90	76.30	130.29
2022	March	101.51	95.62	82.19	130.50
2022	April	112.42	127.99	339.70	127.00
2022	May	101.93	97.30	83.68	134.39
2022	June	102.82	119.52	86.45	134.73
2022	July	114.58	122.57	84.25	136.00
2022	August	98.34	137.70	86.97	138.99
2022	September	103.25	103.50	94.02	131.94

Source: USITC Dataweb, HTS statistical reporting number 2511.10.1000, accessed December 1, 2022.

Table F-1b
Baryte ore: Quantities of imports of ground natural barium sulfate (barytes) from India, China, Morocco, and Mexico, monthly, January 2019–September 2022

Quantity in thousands of tons

Year	Month	India	China	Morocco	Mexico
2019	January	84.7	35.6	36.0	18.6
2019	February	52.2	30.9	29.3	17.5
2019	March	12.8	69.5	27.7	18.9
2019	April	22.5	55.2	32.7	19.1
2019	May	27.9	63.2	26.8	12.9
2019	June	37.9	45.7	18.0	13.7
2019	July	62.3	55.3	16.4	16.4
2019	August	61.2	55.9	14.7	17.0
2019	September	57.9	33.0	27.0	19.7
2019	October	79.4	58.0	20.3	16.5
2019	November	62.1	35.4	14.5	16.5
2019	December	64.7	40.3	17.4	19.4
2020	January	38.8	65.2	21.6	23.0
2020	February	26.8	35.5	22.2	21.4
2020	March	67.8	52.9	24.6	22.1
2020	April	22.3	39.0	11.6	20.4
2020	May	9.6	17.7	7.9	14.6
2020	June	14.9	26.1	4.3	13.2
2020	July	16.7	20.6	7.2	10.4
2020	August	23.3	26.4	2.5	8.1
2020	September	59.0	44.1	1.3	6.9
2020	October	24.0	34.6	1.6	8.0
2020	November	45.7	51.7	1.3	6.7
2020	December	45.1	53.3	4.0	11.4
2021	January	40.4	23.1	4.1	19.0
2021	February	34.1	27.6	6.8	7.9
2021	March	25.1	29.7	21.4	11.4
2021	April	33.4	23.9	6.7	12.6
2021	May	38.0	32.8	6.2	21.6
2021	June	16.9	25.4	18.3	19.3
2021	July	19.7	28.2	45.2	12.4
2021	August	23.0	47.1	40.8	13.5
2021	September	22.5	35.8	33.4	13.8
2021	October	45.2	23.5	30.4	16.6
2021	November	39.4	20.4	33.1	19.0
2021	December	55.3	27.4	20.4	16.9

Table continued.

Table F-1b continued
Baryte ore: Quantities of imports of ground natural barium sulfate (barytes) from India, China, Morocco, and Mexico, monthly, January 2019–September 2022

Quantity in thousands of tons

Year	Month	India	China	Morocco	Mexico
2022	January	50.6	34.5	14.0	13.2
2022	February	61.2	23.5	43.6	13.7
2022	March	78.7	25.0	26.1	21.2
2022	April	72.6	39.7	18.4	20.1
2022	May	50.7	54.0	25.9	16.9
2022	June	57.2	11.6	43.0	20.0
2022	July	57.3	5.7	45.7	18.4
2022	August	81.8	7.4	48.2	15.7
2022	September	69.0	6.6	42.5	16.1

Source: USITC Dataweb, HTS statistical reporting number 2511.10.1000, accessed December 1, 2022.

Table F-2
Inorganic acids and Hydrogen: Producer Price Index by commodity: Chemicals and allied products: Inorganic acids, including hydrochloric acid, sulfuric acid, and others, and Argon and Hydrogen, monthly, not seasonally adjusted, January 2019–October 2022

January 2019 = 100; changes in percent

Year	Month	Inorganic acids including hydrochloric acid PPI	Argon and Hydrogen PPI
2019	January	100.0	100.0
2019	February	101.0	91.5
2019	March	99.3	84.7
2019	April	100.2	81.8
2019	May	98.5	85.1
2019	June	97.5	80.6
2019	July	96.0	78.6
2019	August	94.4	78.4
2019	September	94.7	78.1
2019	October	94.3	76.3
2019	November	92.0	78.5
2019	December	85.7	77.6
2020	January	82.7	78.1
2020	February	82.5	76.4
2020	March	74.3	74.8
2020	April	69.7	77.3
2020	May	68.3	80.2
2020	June	71.0	78.8
2020	July	70.7	77.6
2020	August	68.8	79.8
2020	September	68.4	77.9
2020	October	68.7	79.4
2020	November	68.9	77.8
2020	December	69.6	79.7
2021	January	69.7	77.7
2021	February	71.8	77.5
2021	March	72.8	77.4
2021	April	74.6	76.4
2021	May	88.8	75.8
2021	June	91.4	77.4
2021	July	96.0	76.3
2021	August	95.1	76.9
2021	September	94.7	75.8
2021	October	96.2	75.1
2021	November	96.7	75.1
2021	December	106.3	75.0

Table continued.

Table F-2 continued
Inorganic acids and Hydrogen: Producer Price Index by commodity: Chemicals and allied products: Inorganic acids, including hydrochloric acid, sulfuric acid, and others, and Argon and Hydrogen, monthly, not seasonally adjusted, January 2019–October 2022

January 2019 = 100; changes in percent

Year	Month	Inorganic acids including hydrochloric acid PPI	Argon and Hydrogen PPI
2022	January	108.9	75.4
2022	February	116.1	75.7
2022	March	118.6	74.9
2022	April	123.9	74.9
2022	May	147.2	74.7
2022	June	154.6	75.1
2022	July	149.2	75.1
2022	August	136.2	74.9
2022	September	138.8	75.6
2022	October	139.8	75.5

Source: FRED, https://fred.stlouisfed.org/series/WPU0613020T#0 and https://fred.stlouisfed.org/series/WPU06790309#0, retrieved November 18, 2022 and December 5, 2022.

Table F-3
Petroleum coke: Producer Price Index by commodity: Fuels and related products and power: Other petroleum and coal products, including coke oven products, not elsewhere classified, monthly, not seasonally adjusted, January 2019–October 2022

January 2019 = 100; changes in percent

Year	Month	Pet coke and other products PPI
2019	January	100
2019	February	101.5
2019	March	101.6
2019	April	104.5
2019	May	100.4
2019	June	99.2
2019	July	94.5
2019	August	92.4
2019	September	86.9
2019	October	73.5
2019	November	78.8
2019	December	82.1
2020	January	73.3
2020	February	73.5
2020	March	76.0
2020	April	83.1
2020	May	83.0
2020	June	80.0
2020	July	80.5
2020	August	81.0
2020	September	81.1
2020	October	88.2
2020	November	95.7
2020	December	108.1
2021	January	111.2
2021	February	109.1
2021	March	110.7
2021	April	114.6
2021	May	121.5
2021	June	122.9
2021	July	119.1
2021	August	103.9
2021	September	109.5
2021	October	113.2
2021	November	126.1
2021	December	149.1

Table continued.

Table F-3 continued
Petroleum coke: Producer Price Index by Commodity: Fuels and related products and power: Other petroleum and coal products, including coke oven products, not elsewhere classified, monthly, not seasonally adjusted, January 2019–October 2022

January 2019 = 100; changes in percent

Year	Month	Pet coke and other products PPI
2022	January	147.0
2022	February	157.0
2022	March	166.0
2022	April	177.3
2022	May	188.4
2022	June	181.2
2022	July	158.3
2022	August	160.2
2022	September	157.5
2022	October	156.8

Source: U.S. Energy Information Administration, https://fred.stlouisfed.org/series/WPU058103, retrieved December 1, 2022.

Table F-4
Electricity and natural gas prices: Average retail industrial price of electricity and natural gas in the United States, Monthly, January 2019–September 2022

Electricity price in cents per kilowatt-hour; Natural gas price in dollars per thousand cubic feet

Year	Month	Electricity price	Natural gas price
2019	January	6.58	5.02
2019	February	6.69	4.62
2019	March	6.73	4.31
2019	April	6.51	3.99
2019	May	6.69	3.64
2019	June	6.87	3.55
2019	July	7.14	3.33
2019	August	7.40	3.18
2019	September	7.06	3.35
2019	October	6.84	3.43
2019	November	6.72	3.86
2019	December	6.38	3.84
2020	January	6.37	3.71
2020	February	6.44	3.58
2020	March	6.39	3.39
2020	April	6.39	3.00
2020	May	6.54	2.91
2020	June	6.94	2.72
2020	July	7.16	2.58
2020	August	7.07	2.85
2020	September	7.00	3.30
2020	October	6.72	3.29
2020	November	6.49	3.98
2020	December	6.41	4.11
2021	January	6.32	4.08
2021	February	7.75	9.41
2021	March	6.98	4.43
2021	April	6.70	4.03
2021	May	6.65	4.15
2021	June	7.22	4.21
2021	July	7.42	4.76
2021	August	7.54	5.02
2021	September	7.61	5.48
2021	October	7.44	6.69
2021	November	7.37	6.99
2021	December	7.06	6.77

Table continued.

Table F-4 continued
Electricity and natural gas prices: Average retail industrial price of electricity and natural gas in the United States, Monthly, January 2019–September 2022

Electricity price in cents per kilowatt-hour; Natural gas price in dollars per thousand cubic feet

Year	Month	Electricity price	Natural gas price
2022	January	7.30	6.64
2022	February	7.47	7.53
2022	March	7.50	6.34
2022	April	7.84	6.89
2022	May	8.37	8.37
2022	June	8.96	9.64
2022	July	9.41	8.14
2022	August	9.51	9.76
2022	September	9.34	9.92

Source: Energy Information Administration, https://www.eia.gov/electricity/data/browser/#/topic/7?agg=2, and https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htmr,retrieved December 1 and December 5, 2022.