

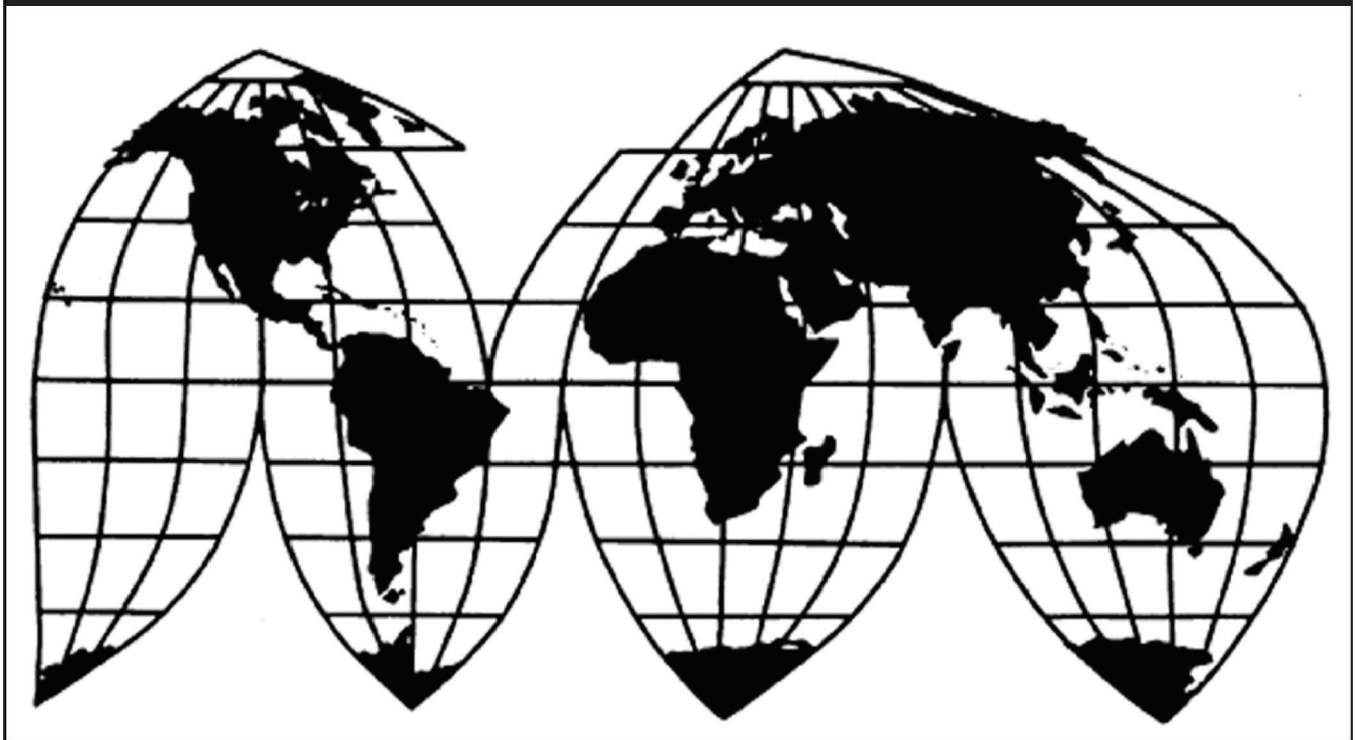
Chlorinated Isocyanurates from China and Spain

Investigation Nos. 731-TA-1082-1083 (Third Review)

Publication 5391

December 2022

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Joanna Lo, Accountant

Conor Hargrove, Statistician

Patrick Gallagher, Attorney

Elizabeth Haines, Supervisory Investigator

Address all communications to
Secretary to the Commission
United States International Trade Commission
Washington, DC 20436

U.S. International Trade Commission

Washington, DC 20436

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Note.—Information that would reveal confidential operations of individual concerns may not be published. Such information is identified by brackets in confidential reports and is deleted and replaced with asterisks (***) in public reports.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 731-TA-1082-1083 (Third Review)

Chlorinated Isocyanurates from China and Spain

DETERMINATIONS

On the basis of the record¹ developed in the subject five-year reviews, the United States International Trade Commission (“Commission”) determines, pursuant to the Tariff Act of 1930 (“the Act”), that revocation of the antidumping duty orders on chlorinated isocyanurates from China and Spain would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.²

BACKGROUND

The Commission instituted these reviews on October 1, 2021 (86 FR 54473) and determined on January 4, 2022 that it would conduct full reviews (87 FR 4290, January 27, 2022). Notice of the scheduling of the Commission’s reviews 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* on June 6, 2022 (87 FR 34298). The Commission conducted its hearing on September 29, 2022. 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 Chairman David S. Johanson dissenting with respect to the order on chlorinated isocyanurates from Spain. Commissioner Jason E. Kearns not participating.

Views of the Commission

Based on the record in these five-year reviews, we determine under section 751(c) of the Tariff Act of 1930, as amended (“the Tariff Act”), that revocation of the antidumping duty orders on chlorinated isocyanurates (“chlorinated isos”) from China and Spain would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.¹

I. Background

A. Original Investigations

In May 2004, Clearon Corporation (“Clearon”) and Occidental Chemical Company (“OxyChem”), domestic producers of chlorinated isos, filed antidumping duty petitions concerning imports of chlorinated isos from China and Spain. In June 2005, the Commission determined that an industry in the United States was materially injured by reason of imports of chlorinated isos from China and Spain.² Subsequently, the Department of Commerce (“Commerce”) issued antidumping duty orders covering these imports.³

¹ Chairman David S. Johanson finds that the revocation of the antidumping duty order on chlorinated isos from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time. He finds, however, that the revocation of the antidumping duty order on chlorinated isos from Spain would not be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time. Except as otherwise noted, he joins the discussion and analysis in sections I, II, III.A-C, IV.A-B, and the findings with respect to China, and provides the remainder of his analysis in separate and dissenting views. See Separate and Dissenting Views of Chairman David S. Johanson.

² *Chlorinated Isocyanurates from China and Spain*, Inv. Nos. 731-TA-1082-1083 (Final), USITC Pub. 3782 (June 2005) (“Original Investigations”).

³ *Chlorinated Isocyanurates from China*, 70 Fed. Reg. 36561 (June 24, 2005) (notice of antidumping duty order); *Chlorinated Isocyanurates from Spain*, 70 Fed. Reg. 36562 (June 24, 2005) (notice of antidumping duty order).

B. The First Five-Year Reviews

In May 2010, the Commission instituted its first five-year reviews. The Commission received a joint response to the notice of institution from Clearon and OxyChem, but no responses from respondent interested parties. The Commission conducted expedited reviews and determined that revocation of the orders on chlorinated isos from China and Spain would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.⁴ Commerce published its notice of continuation of the antidumping duty orders in October 2010.⁵

C. The Second Five-Year Reviews

In September 2015, the Commission instituted its second five-year reviews.⁶ Clearon, OxyChem, and Bio-Lab, Inc. (“Bio-Lab”), a domestic producer of chlorinated isos, filed a joint response to the notice of institution containing company-specific information. Although no respondent interested party responded to the notice of institution, the Commission determined that other circumstances warranted conducting full reviews.⁷ In November 2016, after conducting full reviews, the Commission determined that revocation of the orders on chlorinated isos from China and Spain would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.⁸

⁴ *Chlorinated Isocyanurates from China and Spain*, Inv. Nos. 731-TA-1082-1083 (Review), USITC Pub. 4184 (September 2010) (“First Five-Year Reviews”).

⁵ *Chlorinated Isocyanurates from Spain and China*, 75 Fed. Reg. 62764 (Oct. 13, 2010) (continuation of antidumping duty orders).

⁶ *Chlorinated Isocyanurates from China and Spain*, 80 Fed. Reg. 52789 (Sept. 1, 2015).

⁷ *Chlorinated Isocyanurates from China and Spain*, 81 Fed. Reg. 23328 (Apr. 20, 2016).

⁸ *Chlorinated Isocyanurates from China and Spain*, Inv. Nos. 731-TA-1082-1083 (Second Review), USITC Pub. 4646 at 35 (Nov. 2016) (“Second Five-Year Reviews”).

Commerce published its notice of continuation of the antidumping duty orders in November 2016.⁹

D. The Current Reviews

On October 1, 2021, the Commission instituted these third five-year reviews.¹⁰ The Commission received responses to its notice of institution from domestic interested parties Bio-Lab, Clearon, and OxyChem, jointly, and respondent interested party Ercros S.A. ("Ercros"), a producer and exporter of subject merchandise in Spain. The Commission did not receive any responses from foreign producers or exporters with respect to the order on chlorinated isos from China.

On January 4, 2022, the Commission determined to conduct full reviews pursuant to section 751(c)(5) of the Act.¹¹ The Commission found the domestic interested party group response to its notice of institution was adequate and that the respondent interested party group response was adequate with respect to Spain, but that the respondent interested party group response with respect to China was inadequate. The Commission, however, determined to conduct full reviews of the order on chlorinated isos from China in order to promote administrative efficiency in light of the Commission's determination to conduct a full review of the order on chlorinated isos from Spain.¹²

⁹ *Chlorinated Isocyanurates from Spain and the People's Republic of China; Continuation of the Antidumping Duty Orders*, 81 Fed. Reg. 85927 (Nov. 29, 2016).

¹⁰ *Chlorinated Isocyanurates from China and Spain*, 86 Fed. Reg. 54473 (Oct. 1, 2021).

¹¹ *Chlorinated Isocyanurates from China and Spain*, 87 Fed. Reg. 4290 (Jan. 27, 2022).

¹² 87 Fed. Reg. at 4290; Notice of Commission Determination on Adequacy, EDIS Doc. 763803.

The Commission received joint prehearing and posthearing briefs and final comments from Clearon, OxyChem, and Bio-Lab (collectively “Domestic Producers”). Domestic Producers appeared at the Commission’s hearing accompanied by counsel.

The Commission also received prehearing and posthearing submissions from two respondent interested parties. The Commission received prehearing and posthearing briefs from Ercros. The Commission also received prehearing and posthearing submissions from Brushby, LLC. (“Brushby”), an importer of subject merchandise from Spain. Ercros and Brushby appeared separately at the Commission’s hearing accompanied by counsel. No producer, exporter, or importer of the subject merchandise from China participated in these reviews.

Data/Response Coverage. U.S. industry data are based on the questionnaire responses of three U.S. integrated producers (Bio-Lab, Clearon, and OxyChem) that accounted for all domestic production of granular chlorinated isos in 2021.¹³ U.S. import data and related information are based on the questionnaire responses of 10 U.S. importers of chlorinated isos that accounted for the vast majority of total imports of chlorinated isos during January 2019-March 2022.¹⁴ Foreign industry data and related information are based on the questionnaire responses of two integrated producers of chlorinated isos in Spain accounting for all known

¹³ Confidential Report (“CR”) Memorandum INV-UU-106, as supplemented in Memorandum INV-UU-111/*Chlorinated Isocyanurates from China and Spain*, Inv. Nos. 731-TA-1082-1083 (Third Review), USITC Pub. 5391 (Dec. 2022) (“PR”) at I-10 and III-1. The Commission also collected data from six U.S. tableters of purchased/imported granular chlorinated isos. *Id.* Two of the six tableters are also integrated producers. *Id.* “Integrated producers” produce granular chlorinated isos and also may convert the granular chlorinated isos into tablets or contract with tollers which tablet the product. “Tableters” do not producer the granular product, but rather obtain it from various sources and convert it into tablets, either independently or as tollers. CR/PR at I-10 n.19.

¹⁴ CR/PR at IV-1.

chlorinated isos production in 2021, and one tableter of purchased granular chlorinated isos in Spain.¹⁵ The Commission did not receive any questionnaire responses from producers or exporters in China.¹⁶

II. Domestic Like Product and Industry

A. Domestic Like Product

In making its determination under section 751(c) of the Tariff Act, the Commission defines the “domestic like product” and the “industry.”¹⁷ The Tariff Act defines “domestic like product” as “a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation under this subtitle.”¹⁸ The Commission’s practice in five-year reviews is to examine the domestic like product definition from the original investigations and consider whether the record indicates any reason to revisit the prior findings.¹⁹

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

Chlorinated isos, which are derivatives of cyanuric acid, described as chlorinated s-triazine triones. There are three primary chemical compositions of chlorinated isos: (1) Trichloroisocyanuric acid

¹⁵ CR/PR at I-10.

¹⁶ CR/PR at I-10 to I-11.

¹⁷ 19 U.S.C. § 1677(4)(A).

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

¹⁹ *See, e.g., Internal Combustion Industrial Forklift Trucks from Japan*, Inv. No. 731-TA-377 (Second Review), USITC Pub. 3831 at 8-9 (Dec. 2005); *Crawfish Tail Meat from China*, Inv. No. 731-TA-752 (Review), USITC Pub. 3614 at 4 (July 2003); *Steel Concrete Reinforcing Bar from Turkey*, Inv. No. 731-TA-745 (Review), USITC Pub. 3577 at 4 (Feb. 2003).

($\text{Cl}_3(\text{NCO})_3$), (2) sodium dichloroisocyanurate (dihydrate) ($\text{NaCl}_2(\text{NCO})_3(2\text{H}_2\text{O})$), and (3) sodium dichloroisocyanurate (anhydrous) ($\text{NaCl}_2(\text{NCO})_3$). The AD orders cover all chlorinated isos.²⁰

The scope definition has not changed substantively since the original investigations.²¹

Chlorinated isos are chemical compounds used primarily as sanitizing agents for swimming pools, spas, and industrial water, and as disinfecting and bleaching agents for detergents, bleaches, and cleansers. These products are sold to consumers as a solid, usually in granular, tablet, or stick form. The active ingredient for sanitizing purposes is chlorine, which acts as a biocide, killing algae and other microbes.²²

Commerce's scope includes the three primary chemical compositions of chlorinated isos: (1) trichloroisocyanuric acid ("trichlor"), which has 90 percent available chlorine; (2) sodium dichloroisocyanurate ("dichlor") in anhydrous form, which has 63 percent available chlorine; and (3) dichlor in dihydrate form, which has 56 percent available chlorine. Trichlor and dichlor differ mainly in the percentage of chlorine each has available for sanitizing and the rate of release of chlorine in water.²³

Trichlor has the highest chlorine content, but the chlorine is released relatively slowly in water. The slow-release rate is appropriate for maintaining swimming pool chlorine levels within safety guidelines (less than four parts per million) with weekly tablet applications and for

²⁰ *Chlorinated Isocyanurates from Spain and China*, 87 Fed. Reg. 4841, 4842 (Jan. 31, 2022) (final results of the expedited sunset reviews of the antidumping duty orders).

²¹ *See Chlorinated Isocyanurates from Spain and China*, 87 Fed. Reg. 4841, 4842 (Jan. 31, 2022) (final results of the expedited sunset reviews of the antidumping duty orders).

²² CR/PR at I-17.

²³ CR/PR at I-17.

other water treatment applications. Dihydrate and anhydrous dichlor contain less available chlorine, but the chlorine is released relatively quickly. Dichlor's rapid release rate is appropriate for "shock" swimming pool treatments to instill chlorine in swimming pools quickly and temporarily as well as uses in detergents, bleaches, and cleansers. Swimming pool and spa applications account for the bulk of the U.S. chlorinated isos market. Industrial applications, *e.g.*, industrial water treatment, and use in cleansers and detergents, account for most of the remaining 10-15 percent of the market. Non-pool applications, particularly disinfection of hard surfaces, increased during the COVID epidemic, reportedly in the range of two percent of the total market.²⁴

Some of the trichlor tablets produced in the United States and China are blended tablets that contain active ingredients other than chlorine that provide functions other than sanitizing. The ingredients in these tablets include copper sulfate, which acts as an algicide, and aluminum sulfate, which acts as a water clarifier.²⁵

In the United States, sanitizing agents such as trichlor and dichlor are statutorily controlled pesticides and must be approved by the U.S. Environmental Protection Agency ("EPA") for public use. Accordingly, any chlorinated isos destined for use in the pool and spa market must be tested and approved prior to sale. The EPA testing and approval process, known as registration, is generally maintained by the producer, whether U.S. or foreign.²⁶

²⁴ CR/PR at I-17; Hearing Tr. at 103-104 (Martineau, Pan, and Lawrence).

²⁵ CR/PR at I-18.

²⁶ CR/PR at I-18; *see also* Second Five-Year Reviews, USITC Pub. 4646 at I-10 to I-11.

1. The Original Investigations and Prior Five-Year Reviews

In the original investigations, the Commission rejected arguments that it should find multiple like products consisting of different forms of chlorinated isos. Instead, the Commission found a single domestic like product that was coextensive with Commerce's scope and consisting of all chlorinated isos.²⁷

In the expedited first five-year reviews, the Commission found that the record provided no basis to call into question the Commission's prior definition of the domestic like product, and the domestic industry concurred with that definition. The Commission therefore again defined the domestic like product as all chlorinated isos, coextensive with Commerce's scope.²⁸

In the second five-year reviews, the domestic industry argued for the same definition of the domestic like product as in the original investigations and first five-year reviews. The Commission found that there had been no material changes in the pertinent product characteristics and thus continued to define the domestic like product as all chlorinated isos, coextensive with Commerce's scope.²⁹

2. The Current Reviews

Domestic Producers and Respondent Ercros have stated that they agree with the Commission's prior definition of the domestic like product, and no party has objected to the

²⁷ Original Investigations, USITC Pub. 3782 at 5-12. The Commission found that dichlor and trichlor were not distinct products due to their similar chemical compositions and uses and their common channels of distribution and production facilities and processes. *Id.* at 7. It found that blended tablets were not a separate domestic like product because they were very similar to regular trichlor tablets. *Id.* at 8. It found that powdered (granular) chlorinated isos was not a separate domestic like product because of similarities in chemistry, use, and production processes. *Id.* at 9-10.

²⁸ First Five-Year Reviews, USITC Pub. 4184 at 4.

²⁹ Second Five-Year Reviews, USITC Pub. 4646 at 6-7.

definition.³⁰ There is no new information on the record of these reviews indicating that there has been any change in the characteristics and uses of chlorinated isos that would warrant the Commission's reconsideration of its definition of the domestic like product from the prior proceedings.³¹ Therefore, we continue to define a single domestic like product consisting of all domestically produced chlorinated isos, coextensive with the scope.

B. Domestic Industry

Section 771(4)(A) of the Tariff Act defines the relevant industry as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."³² 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.

There are two domestic industry issues in these reviews. The first concerns whether tableters engage in sufficient production-related activities to be considered members of the domestic industry. The second concerns whether appropriate circumstances exist to exclude any producer from the domestic industry pursuant to the statutory related parties provision.

1. Sufficient Production-Related Activities

In deciding whether a firm qualifies as a domestic producer, the Commission generally

³⁰ See CR/PR at I-19; Domestic Producers Prehearing Brief at 11 and Ercros Prehearing brief at 5.

³¹ See CR/PR at I-17 to I-18.

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

has analyzed the overall nature of a firm's production-related activities in the United States, although production-related activity at minimum levels could be insufficient to constitute domestic production. The Commission generally considers six factors in this analysis: (1) source and extent of the firm's capital investment; (2) technical expertise involved in U.S. production activities; (3) value added to the product in the United States; (4) employment levels; (5) quantity and type of parts sourced in the United States; and (6) any other costs and activities in the United States directly leading to production of the like product.³³

a. The Original Investigations and Prior Five-Year Reviews

In the original investigations, the Commission was evenly split with respect to whether tableters engaged in sufficient production-related activities to be considered domestic producers.³⁴ Chairman Koplan and Commissioners Miller and Hillman found that although there was variability in the reported capital investment necessary for tableting and the value added by tableting, the capital investment necessary for tableting was significant and the value added was reported to be in the range of 15 to 35 percent; a moderate level of technical expertise was required for tableting due to the heavy machinery and hazardous material involved; and a significant number of personnel were involved in tableting operations.³⁵ On balance, they found that tableters engaged in sufficient production-related activities to qualify as domestic producers and included them in the domestic industry.³⁶ Vice Chairman Okun and

³³ *Diamond Sawblades and Parts Thereof from China and Korea*, Inv. Nos. 731-TA-1092-1093 (Final), USITC Pub. 3862 at 8-11 (July 2006).

³⁴ Original Investigations, USITC Pub. 3782 at 10-14.

³⁵ Original Investigations, USITC Pub. 3782 at 12.

³⁶ Original Investigations, USITC Pub. 3782 at 12.

Commissioners Lane and Pearson found that the general capital investment necessary for tableting was not significant in comparison to that necessary to establish an integrated chlorinated isos operation, the level of technical expertise for tableting was not comparable to that necessary in the upstream process, a wage differential existed between workers that produced granular chlorinated isos and those that tableted the granular product, and tableters employed fewer workers than integrated producers of chlorinated isos. They found that, on balance, tableters did not engage in sufficient production-related activities to qualify as domestic producers and therefore did not include them in the domestic industry.³⁷

In the expedited first five-year reviews, the Commission defined the domestic industry as all domestic integrated producers of chlorinated isos. It did not include tableters in the domestic industry.³⁸ Based on the record, the Commission found that although the capital investment necessary for tableting was not insubstantial, it was much less than that required for production of granular chlorinated isos and that the value added by the tableting and repackaging process reported by most producers during the original investigations was in the range of *** percent to *** percent.³⁹ Additionally, the Commission found that only a moderate degree of technical expertise was necessary to conduct tableting and repackaging operations, which did not compare with that required by the upstream process; that producers

³⁷ Original Investigations, USITC Pub. 3782 at 14.

³⁸ First Five-Year Reviews, USITC Pub. 4184 at 7. Commissioners Williamson and Pinkert found that tableters engaged in sufficient production-related activities to be included in the domestic industry. First Five-Year Reviews, USITC Pub. 4184 at 6 n.26.

³⁹ First Five-Year Reviews, USITC Pub. 4184 at 5-6; Confidential First Five-Year Reviews (EDIS Doc. 568446) at 5. No tableters responded to the Commission's notice of institution and no new evidence was placed on the record regarding the issue of whether tableters should be included in the domestic industry definition. First Five-Year Reviews, USITC Pub. 4184 at 5.

of granular chlorinated isos employed *** times as many personnel as tableters; and that tableters reported significant employment of personnel who were not directly involved in tableting production, but instead were involved in support or prepacking positions.⁴⁰ The Commission, therefore, concluded that tableters did not engage in sufficient production-related activities to qualify as domestic producers.⁴¹

In the full second five-year reviews, the Commission defined the domestic industry as all domestic integrated producers of chlorinated isos and, unlike in the first five year reviews, it also included tableters.⁴² Although the Commission found the determination to include tableters as part of the domestic industry to be a close one, it concluded that tableters were engaged in sufficient production-related activities to qualify as domestic producers.⁴³ The Commission found that tableting operations involved some technical expertise involving hazardous materials and that tableters employed a substantial number of production and related workers (“PRWs”) in their U.S. operations.⁴⁴ The Commission found the value added by the tableting process to the finished product, including selling, general, and administrative expenses, ranged from *** percent to *** percent during the period of review, which it found to be not insubstantial.⁴⁵ The Commission also noted that U.S. tableters sourced granular

⁴⁰ First Five-Year Reviews, USITC Pub. 4184 at 6; Confidential First Five-Year Reviews (EDIS Doc. 568446) at 5.

⁴¹ First Five-Year Reviews, USITC Pub. 4184 at 5-6.

⁴² Vice Chairman Johanson found that tableters did not engage in sufficient production-related activities to be included in the domestic industry. Second Five-Year Reviews, USITC Pub. 4646 at 9 n.35.

⁴³ Second Five-Year Reviews, USITC Pub. 4646 at 10.

⁴⁴ Second Five-Year Reviews, USITC Pub. 4646 at 10-11.

⁴⁵ Second Five-Year Reviews, USITC Pub. 4646 at 11; Confidential Second Five-Year Reviews (EDIS Doc. 595320) at 15.

chlorinated isos from domestic as well as subject and nonsubject import sources, and that they incurred other significant costs as part of their tableting operations, including training, marketing, machinery repair, and licensing costs. The Commission concluded that tableters engaged in sufficient production-related activities to qualify as domestic producers.⁴⁶

b. The Current Five-Year Reviews

Domestic Producers and Respondent Ercros both contend that tableters should not qualify as domestic producers because they do not engage in sufficient production-related activities to qualify as domestic producers of chlorinated isos.⁴⁷

There is limited information on the record of these reviews regarding the production operations of the independent tableters during the period of review. Only *** independent tableters (*i.e.*, firms that only tablet procured granular chlorinated isos) submitted data in questionnaire responses, and two of those firms (*** and ***) provided trade data without providing useable financial data.⁴⁸

Based on the following analysis, we find that tableters do not engage in sufficient production-related activities to be considered producers of the domestic like product.

Source and Extent of the Firm's Capital Investment. The capital investment and capital expenditures necessary for tableting operations are considerably lower than the investment necessary to produce granular chlorinated isos. Although the tableters that provided financial data did not report their total assets, the three integrated domestic producers reported ***

⁴⁶ Second Five-Year Reviews, USITC Pub. 4446 at 11.

⁴⁷ See Domestic Producers Prehearing Brief at 11-24 and Hearing Tr. at 7, 40, and 82 (Alves); Ercros Prehearing Brief at 5-8.

⁴⁸ CR/PR at I-20 and III-25 n.18.

total net assets of \$*** in 2019, \$*** in 2020, and \$*** in 2021.⁴⁹ The tableters reported far lower capital investments, at \$*** in 2019, \$*** in 2020, and \$*** in 2021, than integrated producers, which reported capital investments of \$*** in 2019, \$*** in 2020, and \$*** in 2021.⁵⁰

Technical Expertise Involved in U.S. Production Activities. The production of granular chlorinated isos involves a succession of chemical processes, whereas the tableting process is a physical process using an industrial press that forms the product into a tablet or stick, typically with 1-inch or 3-inch diameters.⁵¹ Tableting operations typically require less worker training than granular chlorinated isos production, reflecting a lower degree of technical expertise.⁵² Integrated producers also reported *** higher research and development (“R&D”) expenditures, ranging from \$*** to \$*** over the period of review, than tableters, which reported R&D expenditures ranging from \$*** to \$*** during the period.⁵³

⁴⁹ CR/PR at Table III-34.

⁵⁰ Calculated from CR/PR at Tables III-29 and III-30. Capital investments are the aggregate range of capital expenditures reported from 2019 to 2021. See CR/PR at Table III-7 note. The record indicates there has been consolidation of independent tableting operations in the U.S. industry. CR/PR at III-1 and n.3; Hearing Tr. at 78-79 (Lawrence) (largest distributor of chlorinated isos now also tableter and retailer) and 77 (Cannon) (stating the number of independent tableters reduced from over 20+ firms to half or less presently). Bio-Lab did not produce granular chlorinated isos in 2021 due to the destruction of its facility by a fire in August 2020. The majority of its reported capital investments during the period of review were for the rebuilding of its granular chlorinated isos production facility. CR/PR at III-47 and n.35.

⁵¹ CR/PR at I-18 and Appendix E; see also Domestic Producers Prehearing Brief at 13-16 and Figures 9-14.

⁵² See CR/PR at Tables II-6, E-11, and E-13. For example, compare CR/PR at Table E-9 (tableter N. Jonas reporting that “****”) with CR/PR at Table E-11 (integrated producer OxyChem reporting the “***”).

⁵³ CR/PR at Table III-7.

Value Added to the Product in the United States. During 2019-2021, the value added through U.S. tableting operations of tableters ranged from *** percent to *** percent. By contrast, the value added in the production of granular chlorinated isos was much higher, ranging from *** percent to *** percent during the period of review.⁵⁴

Employment Levels. Tableters reported average annual employment ranging from *** PRWs during 2019-2021, while integrated producers of granular chlorinated isos reported average annual employment ranging from *** to *** PRWs during the same period.⁵⁵ These ranges reflect Bio-Lab's temporary transition from being an integrated producer at the beginning of the POR to a tableter following a fire in August 2020 that destroyed its granular chlorinated isos production facility.⁵⁶ In 2019 and 2020, prior to this transition, tableters employed *** PRWs and integrated producers employed *** PRWs.⁵⁷ Although tableters employed a significant number of PRWs, their average wages were far lower than those of the PRWs employed by integrated producers, reflecting the lower degree of technical expertise required of such workers.⁵⁸

Quantity and Type of Parts Sourced in the United States. The record indicates that U.S. tableters source the granular chlorinated isos used in their tableting operations from domestic

⁵⁴ CR/PR at Table III-7.

⁵⁵ CR/PR at Table III-7.

⁵⁶ See CR/PR at III-2 and III-23. As discussed further below, Bio-Lab has invested *** in a new granular chlorinated isos production facility, which is scheduled to be operational in the fall of 2022. *Id.* at Table III-2.

⁵⁷ CR/PR at Tables III-23 and III-24.

⁵⁸ CR/PR at Tables III-23 and III-24. During 2019-2021, hourly wages for PRWs of U.S. integrated producers ranged from \$*** to \$*** per hour; hourly wages for PRWs of U.S. tableters ranged from \$*** to \$*** per hour. *Id.*

sources, as well as from subject and nonsubject sources.⁵⁹ The value of inputs sourced in the United States by integrated domestic producers was far higher, ranging from \$*** to \$*** over the period of review, than the value of inputs sourced in the United States by tableters, which ranged from \$*** to \$*** during the period.⁶⁰

Other Costs and Activities in the United States Leading to Production of the Like Product.

Integrated domestic producers report maintaining portfolios of registration to comply with regulatory standards.⁶¹

Conclusion. The capital investment needed to perform tableting operations appears to be modest and much smaller than the capital investment required for the domestic production of granular chlorinated isos in integrated production facilities. The tableting process also appears to be considerably less complex than the manufacturing process involved in the production of granular chlorinated isos, requiring far less technical expertise and significantly less extensive and sophisticated employee training. The relatively simple manufacturing process for tableting also results in lower value added to the product than the value added in the integrated production process. Although tableters employ a significant number of PRWs in their operations, their employment levels were below those for granular chlorinated isos producers during the period of review and their wages were lower, reflecting the lower degree of technical expertise required of such employees. Although tableters source some of their raw material inputs from the United States, the value of raw material inputs sourced from the

⁵⁹ CR/PR at Table III-7.

⁶⁰ CR/PR at Table III-7.

⁶¹ See Domestic Producers Prehearing Brief at 21.

United States was far higher for integrated producers than for tableters. Based on the preceding factors, we find that tableters do not engage in sufficient production-related activities to qualify as domestic producers.

2. Related Parties

We must determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to section 771(4)(B) of the Tariff Act. This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise or which are themselves importers.⁶² Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.⁶³

a. The Original Investigations and Prior Five-Year Reviews

In the original investigations, the Commission found that one domestic integrated producer and certain tableters were related parties. It determined, however, that appropriate

⁶² See *Torrington Co v. United States*, 790 F. Supp. 1161, 1168 (Ct. Int'l Trade 1992), *aff'd without opinion*, 991 F.2d 809 (Fed. Cir. 1993); *Sandvik AB v. United States*, 721 F. Supp. 1322, 1331-32 (Ct. Int'l Trade 1989), *aff'd mem.*, 904 F.2d 46 (Fed. Cir. 1990); *Empire Plow Co. v. United States*, 675 F. Supp. 1348, 1352 (Ct. Int'l Trade 1987).

⁶³ The primary factors the Commission has examined in deciding whether appropriate circumstances exist to exclude a related party include the following:

- (1) the percentage of domestic production attributable to the importing producer;
- (2) the reason the U.S. producer has decided to import the product subject to investigation (whether the firm benefits from the LTFV sales or subsidies or whether the firm must import in order to enable it to continue production and compete in the U.S. market);
- (3) whether inclusion or exclusion of the related party will skew the data for the rest of the industry;
- (4) the ratio of import shipments to U.S. production for the imported product; and
- (5) whether the primary interest of the importing producer lies in domestic production or importation. *Changzhou Trina Solar Energy Co. v. USITC*, 100 F. Supp.3d 1314, 1326-31 (Ct. Int'l Trade 2015); see also *Torrington Co. v. United States*, 790 F. Supp. at 1168.

circumstances did not exist to exclude any integrated producer or tableter from the domestic industry as a related party under 19 U.S.C. § 1677(4)(B).⁶⁴

In the expedited first five-year reviews, the Commission included all domestic integrated producers in the domestic industry. There were no related parties issues.⁶⁵

In the full second five-year reviews, the Commission found that no domestic integrated producer qualified as a related party, but that one tableter purchased subject merchandise from China during the period of review. As noted above, the Commission determined that tableters qualified as domestic producers, although the Commission also determined that appropriate circumstances did not exist to exclude the tableter from the domestic industry as a related party because the record indicated that its principal interest was in domestic production operations.⁶⁶

b. The Current Reviews

In these reviews, two integrated domestic producers – *** and *** – qualify for possible exclusion under the related parties provision because they imported subject merchandise from *** during the period of review. Based on the following analysis, we find that appropriate circumstances do not exist to exclude either domestic producer from the domestic industry.

⁶⁴ Original Investigations, USITC Pub. 3782 at 15-17. In the original investigations, the Commission identified Bio-Lab, a domestic integrated producer, and tableters Alden Leeds and Cadillac, as related parties by virtue of their importation of subject merchandise. *See id.* Regarding Bio-Lab, the Commission found that subject import quantities were small when compared to its domestic production and that the financial data did not show that its production operations derived a substantial benefit from such imports during the period of investigation. *See id.* at 16-17. Regarding Alden Leeds and Cadillac, the Commission found that the companies used subject imports of granular chlorinated isos to produce tablets, which competed against imports of subject tablets, and that the companies were not shielded from the effects of injury caused by subject imports. *See id.* at 15-17.

⁶⁵ First Five-Year Reviews, USITC Pub. 4184 at 6.

⁶⁶ Second Five-Year Reviews, USITC Pub. 4646 at 12 and n.59.

***. *** directly imported subject merchandise from *** during the period of review, and was the ***.⁶⁷ *** imported *** short tons of subject merchandise in 2019, *** short tons in 2020 and *** short tons in 2021; it imported *** short tons in January-March 2021 (“interim 2021”) and *** short tons in January-March 2022 (“interim 2022”).⁶⁸ The ratio of *** subject imports to its domestic production was *** percent in 2019, *** percent in 2020, and *** percent in 2021; it was *** percent in interim 2022 compared to *** percent in interim 2021.⁶⁹ *** supports continuation of the orders⁷⁰ and asserts that it resorted to importation because the ***.⁷¹ It asserts that *** and notes that it has invested *** in a new granular chlorinated isos production facility, demonstrating that its interest is principally in domestic production of granular chlorinated isos.⁷²

Although *** ratio of imports of subject merchandise to domestic production increased over the period of review, this occurred because ***. Given this, and ***, ***’s principal interest appears to be in domestic production. Accordingly, we find that appropriate circumstances do not exist to exclude it from the domestic industry.

***. *** directly imported subject merchandise from *** only in 2021, and it was the *** domestic producer in 2019 and 2020, prior to the loss of Bio-Lab’s facility.⁷³ *** imported

⁶⁷ CR/PR at Table III-8.

⁶⁸ CR/PR at Table III-16. *** imported *** short tons of subject merchandise from *** in 2019, *** short tons in 2020, *** short tons in 2021, *** short tons in interim 2021, and *** short tons in interim 2022. It imported *** short tons of subject merchandise from *** in 2019 and 2020, *** short tons in 2021, *** short tons in interim 2021, and *** short tons in interim 2022. *Id.*

⁶⁹ CR/PR at Table III-16.

⁷⁰ CR/PR at Table I-9.

⁷¹ CR/PR at Table III-20.

⁷² CR/PR at Table III-20 and Domestic producers Prehearing Brief at 24.

⁷³ CR/PR at Table III-8.

*** short tons of subject merchandise in 2021, and the ratio of its subject imports to domestic production was *** percent in 2021.⁷⁴ It was a petitioner in the original investigations and ***.⁷⁵ *** asserts that it resorted to importation because the ***.⁷⁶ It asserts that demand exceeded its production capacity due to the shortage in domestic production capacity caused by the ***, which forced it to import chlorinated isos to continue to supply its U.S. customers.⁷⁷

Because *** only imported subject merchandise in one year of the period of review and its domestic production far exceeded its volume of subject imports that year, *** primary interest appears to be in domestic production. Accordingly, we find that appropriate circumstances do not exist to exclude it from the domestic industry.

In sum, consistent with our definition of the domestic like product, we define the domestic industry as all U.S. integrated producers of chlorinated isos, and do not include tableters.

III. Cumulation

A. Legal Standard

With respect to five-year reviews, section 752(a) of the Tariff Act provides as follows:

the Commission may cumulatively assess the volume and effect of imports of the subject merchandise from all countries with respect to which reviews under section 1675(b) or (c) of this title were initiated on the same day, if such imports would be likely to compete with each other and with domestic like products in the United States market. The Commission shall not cumulatively assess the volume and effects of imports of the subject merchandise in a case in which it determines

⁷⁴ CR/PR at Table III-17. *** imported *** short tons of subject merchandise from *** in 2021, and *** short tons in interim 2022. It imported *** short tons of subject merchandise from *** in 2021, and *** short tons in interim 2022. *Id.*

⁷⁵ CR/PR at Table I-9.

⁷⁶ CR/PR at Table III-2.

⁷⁷ CR/PR at Table III-20.

that such imports are likely to have no discernible adverse impact on the domestic industry.⁷⁸

Cumulation therefore is discretionary in five-year reviews, unlike original investigations, which are governed by section 771(7)(G)(i) of the Tariff Act.⁷⁹ The Commission may exercise its discretion to cumulate, however, only if the reviews are initiated on the same day, the Commission determines that the subject imports are likely to compete with each other and the domestic like product in the U.S. market, and imports from each such subject country are not likely to have no discernible adverse impact on the domestic industry in the event of revocation. Our focus in five-year reviews is not only on present conditions of competition, but also on likely conditions of competition in the reasonably foreseeable future.

B. Likelihood of No Discernible Adverse Impact

The statute precludes cumulation if the Commission finds that subject imports from a country are likely to have no discernible adverse impact on the domestic industry.⁸⁰ Neither the statute nor the Uruguay Round Agreements Act (“URAA”) Statement of Administrative Action (“SAA”) provides specific guidance on what factors the Commission is to consider in determining that imports “are likely to have no discernible adverse impact” on the domestic industry.⁸¹ With respect to this provision, the Commission generally considers the likely volume

⁷⁸ 19 U.S.C. § 1675a(a)(7).

⁷⁹ 19 U.S.C. § 1677(7)(G)(i); *see also, e.g., Nucor Corp. v. United States*, 601 F.3d 1291, 1293 (Fed. Cir. 2010) (Commission may reasonably consider likely differing conditions of competition in deciding whether to cumulate subject imports in five-year reviews); *Allegheny Ludlum Corp. v. United States*, 475 F. Supp. 2d 1370, 1378 (Ct. Int’l Trade 2006) (recognizing the wide latitude the Commission has in selecting the types of factors it considers relevant in deciding whether to exercise discretion to cumulate subject imports in five-year reviews); *Nucor Corp. v. United States*, 569 F. Supp. 2d 1328, 1337-38 (Ct. Int’l Trade 2008).

⁸⁰ 19 U.S.C. § 1675a(a)(7).

⁸¹ SAA, H.R. Rep. No. 103-316, vol. I at 887 (1994).

of subject imports and the likely impact of those imports on the domestic industry within a reasonably foreseeable time if the orders are revoked. Our analysis for each subject country takes into account, among other things, the nature of the product and the behavior of subject imports in the original investigations.

Based on the record in these reviews, we do not find that imports from either subject country would likely have no discernible adverse impact on the domestic industry in the event of revocation, for the reasons discussed below.

China. In the original investigations, Chinese producers exported substantial volumes of chlorinated isos to the United States.⁸² The volume of subject imports from China increased from *** short tons in 2002 to *** short tons in 2003 and *** short tons in 2004. Subject imports' share of apparent U.S. consumption grew from *** percent in 2002 to *** percent in 2003 and *** percent in 2004.⁸³ The record showed prevalent underselling of the domestic like product by these subject imports.⁸⁴

In the expedited first five-year reviews, the Commission observed that official U.S. import statistics indicated that subject imports from China had a continued presence in the U.S. market; in 2009, their share of apparent U.S. consumption was *** percent.⁸⁵ Based on the quantities of subject imports from China during the original investigations, the volume of

⁸² First Five-Year Reviews, USITC Pub. 4184 at 9.

⁸³ First Five-Year Reviews, USITC Pub. 4184 at 9; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 9-10.

⁸⁴ First Five-Year Reviews, USITC Pub. 4184 at 10; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 10.

⁸⁵ First Five-Year Reviews, USITC Pub. 4184 at 9; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 10.

subject imports during the first reviews, the export orientation of the Chinese industry, the Chinese producers' significant production capacity and excess capacity, the substitutability of subject imports and the domestic like product, the importance of price in purchasing decisions, and the underselling by subject imports from China during the original investigations, the Commission did not find that subject imports from China would likely have no discernible adverse impact on the domestic industry if the orders were revoked.⁸⁶

In the second five-year reviews, the volume of subject imports from China was *** short tons in 2013, *** short tons in 2014, and *** short tons in 2015.⁸⁷ Global exports of chlorinated isos from China fluctuated from 111,691 short tons in 2013 to 121,619 short tons in 2014 and 111,449 short tons in 2015. The record showed that producers in China had constructed two manufacturing facilities that added a combined capacity of 100,000 short tons to their existing capacity of 141,500 short tons. Additionally, the record showed that firms in China increased production of cyanuric acid, a raw material for chlorinated isos, and that there was a commensurate increase in Chinese production of downstream products including chlorinated isos. Based on these factors, the Commission did not find that chlorinated isos imports from China would likely have no discernible adverse impact on the domestic industry if the antidumping duty order on these imports were revoked.⁸⁸

⁸⁶ First Five-Year Reviews, USITC Pub. 4184 at 10.

⁸⁷ Second Five-Year Reviews, USITC Pub. 4646 at 14; Confidential Second Five-Year Reviews (EDIS Doc. 595320) at 21.

⁸⁸ Second Five-Year Reviews, USITC Pub. 4646 at 15; Confidential Second Five-Year Reviews (EDIS Doc. 595320) at 21.

In the current five-year reviews, the Commission did not receive questionnaire responses from any producer or exporter of chlorinated isos from China.⁸⁹ Based on importer questionnaire responses, the volume of subject imports from China increased from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021, and were *** short tons in interim 2022 compared to *** short tons in interim 2021.⁹⁰ Domestic Producers contend that Chinese chlorinated isos capacity has grown significantly during the period of review, identifying over 1.0 million short tons of known capacity and several subject producers for which capacity data remain unavailable.⁹¹ According to Global Trade Atlas (“GTA”) data, global exports from China of heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structure, a category that includes chlorinated isos as well as out-of-scope products, increased steadily from 464,338 short tons in 2019 to 506,583 short tons in 2020 and 633,802 short tons in 2021.⁹² GTA data also indicate that the largest export destinations for such merchandise from China in 2021 were the United States, Brazil, and Spain and the average unit values (“AUVs”) of Chinese shipments to the U.S. market generally exceeded the AUVs of Chinese shipments to other major markets.⁹³

⁸⁹ CR/PR at IV-15.

⁹⁰ CR/PR at Table IV-1.

⁹¹ See Domestic Producers Prehearing Brief at 27 and Table 2.

⁹² CR/PR at IV-15 and Table IV-7.

⁹³ CR/PR at Table IV-7. Data presenting the leading export markets from China includes chlorinated isos and out-of-scope products. CR/PR at IV-15.

In the original investigations, subject imports from China undersold the domestic like product in the majority of quarterly comparisons.⁹⁴ In the full second five-year reviews, subject imports from China undersold the domestic like product in 12 of 16 quarterly comparisons.⁹⁵ In these reviews, pricing data show that subject imports from China undersold the domestic like product in 1 of 9 quarterly price comparisons by a margin of *** percent.⁹⁶

In light of the foregoing, including the continued presence of subject imports from China in the U.S. market while under the disciplining effect of the orders, the large size and volume of exports of the Chinese industry, the attractiveness of the U.S. market, and the underselling by subject imports from China during the original investigations, we find that chlorinated isos imports from China are not likely to have no discernible adverse impact on the domestic industry if the antidumping duty order on these imports were revoked.

Spain. In the original investigations, two firms produced chlorinated isos in Spain: Aragonesas Delsa S.A. (“Aragonesas”) and Inquide Flix, S.A. (“Inquide”). Only Aragonesas exported product to the United States. Aragonesas produced and exported significant volumes

⁹⁴ Original Investigations, USITC Pub. 3782 at 27 and V-7-8; Confidential Original Investigations Report, EDIS Doc. 256336 at V-10-11 and Tables V-1 to V-18. In the original investigations, the Commission stated that it considered both sales price data and purchaser price data, and noted that the purchaser price data were “more comprehensive with respect to the coverage of subject import prices” than the sales price data. Original Investigations, USITC Pub. 3782 at 26 n.215. In the sales price data in the original investigations, subject imports from China were priced lower than the domestic product in 28 of 32 quarterly comparisons. Original Investigations, USITC Pub. 3782 at 27 and V-7-8. In the purchase price data in the original investigations, subject imports from China undersold the domestic product in 34 of 40 quarterly comparisons. *Id.* at 27 and V-8.

⁹⁵ Second Five-Year Reviews, USITC Pub. 4646 at 31.

⁹⁶ CR/PR at V-8 to V-9, and Table V-13. Purchase-cost data show that landed duty-paid costs for subject imports from China were higher than the U.S. price in *** of *** quarters at cost-differentials ranging from *** percent to *** percent. CR/PR at V-15.

of granular chlorinated isos to the United States.⁹⁷ The volume of subject imports from Spain increased from *** short tons in 2002 to *** short tons in 2003, before declining to *** short tons in 2004. Subject imports' share of apparent U.S. consumption was *** percent in 2002, *** percent in 2003, and *** percent in 2004.⁹⁸ These subject imports mostly undersold the domestic like product.⁹⁹

In the expedited first five-year reviews, the Commission observed that official U.S. import statistics indicated that subject imports from Spain had a continued presence in the U.S. market; in 2009, their share of apparent U.S. consumption was *** percent.¹⁰⁰ In light of the volume of subject imports from Spain during the original investigations and during the first review period, the export orientation of the Spanish industry, the substitutability of subject imports and the domestic like product, the importance of price in purchasing decisions, and evidence of underselling by subject imports from Spain during the original investigations, the Commission did not find that subject imports from Spain would likely have no discernible adverse impact on the domestic industry if the orders were revoked.¹⁰¹

In the full second five-year reviews, the volume of subject imports from Spain was *** short tons in 2013, *** short tons in 2014, and *** short tons in 2015. Global exports of

⁹⁷ First Five-Year Reviews, USITC Pub. 4184 at 10; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 12.

⁹⁸ First Five-Year Reviews, USITC Pub. 4184 at 10; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 11.

⁹⁹ First Five-Year Reviews, USITC Pub. 4184 at 11; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 12.

¹⁰⁰ First Five-Year Reviews, USITC Pub. 4184 at 10; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 11.

¹⁰¹ First Five-Year Reviews, USITC Pub. 4184 at 11.

chlorinated isos from Spain based on GTA data increased from 14,225 short tons in 2013 to 17,502 short tons in 2014 and 19,895 short tons in 2015. The record showed that Aragonesas, now known as Ercros, had expanded its capacity from 16,000 metric tons to 21,000 metric tons in 2013, with plans for further expansion to 28,000 metric tons. In addition, another Spanish company, which produced numerous chlorine-based chemicals obtained government funding to install capacity to produce chlorinated isos. Based on these factors, the Commission did not find that subject imports from Spain would likely have no discernible adverse impact on the domestic industry if the orders were revoked.¹⁰²

In the current five-year reviews, the Commission received questionnaire responses from two integrated producers of chlorinated isos in Spain, Ercros and Hernani, and one tableter, Tamar, accounting for virtually all reported U.S. imports of chlorinated isos from Spain in 2021.¹⁰³ Ercros and Hernani accounted for all known production of granular chlorinated isos in Spain in 2021.¹⁰⁴ Based on questionnaire data, the volume of subject imports from Spain was *** short tons in 2019, *** short tons in 2020, and *** short tons in 2021, and were *** short tons in interim 2022, compared to *** short tons in interim 2021.¹⁰⁵

¹⁰² Second Five-Year Reviews, USITC Pub. 4646 at 16.

¹⁰³ CR/PR at IV-18.

¹⁰⁴ CR/PR at IV-18. *See also* Hearing Tr. at 113 (Morgan) and Ercros Posthearing Brief at 9.

¹⁰⁵ CR/PR at Table IV-1. Respondents argue that the increase in subject imports from Spain in 2021 was entirely due to *** following the August 2020 fire that destroyed Bio-Lab's production facility. Ercros Prehearing Brief at 3. However, subject imports from Spain began entering the U.S. market in February 2020, well before August 2020, and *** did not import from Spain in 2020. CR/PR at Tables III-16, III-17, and IV-4. While *** did import chlorinated isos from Spain in 2021, these imports amounted to *** short tons, compared to total subject imports from Spain in 2021 of *** short tons. CR/PR at Tables III-16, III-17, and IV-1. Subject imports from Spain increased by *** short tons between 2020 and 2021. *Id.* at Table IV-1. Thus, imports of chlorinated isos from Spain by *** did not account for all of the volume or increase in volume of subject imports from Spain during the POR.

During the period of review, one subject producer in Spain reported the opening of a new plant and two subject producers reported expansions at existing plants.¹⁰⁶ Reported annual production capacity for the integrated subject producers increased from *** short tons in 2019 to *** short tons in 2020 and 2021; it was *** short tons in interim 2022 compared to *** short tons in interim 2021.¹⁰⁷ The integrated producers' capacity utilization was *** percent in 2019, *** percent in 2020 and *** percent in 2021; it was *** percent in interim 2022 compared to *** percent in interim 2021.¹⁰⁸ The integrated producers' exports as a share of total shipments was *** percent in 2019, *** percent in 2020, and *** percent in 2021; it was *** percent in interim 2022, compared to *** percent in interim 2021.¹⁰⁹ The integrated producers' exports to the United States as a share of total exports was *** percent in 2019, *** percent in 2020, and *** percent in 2021; it was *** percent in interim 2022, compared to *** percent in interim 2021.¹¹⁰ According to GTA data, Spain's largest export destinations in 2021 for heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structure, a category that includes chlorinated isos as well as out-of-scope products, were France, the United States and Portugal.¹¹¹ Further, the AUVs of the Spanish industry's shipments to the U.S. market generally exceeded those of its home market shipments and exports to the EU, its primary destination market.¹¹²

¹⁰⁶ CR/PR at Table IV-10.

¹⁰⁷ CR/PR at Table IV-11.

¹⁰⁸ CR/PR at Table IV-11.

¹⁰⁹ CR/PR at Table IV-11.

¹¹⁰ Calculated from CR/PR at Table IV-11.

¹¹¹ CR/PR at Table IV-13.

¹¹² CR/PR at Table IV-11.

In the original investigations, subject imports from Spain mostly were lower-priced than the domestic like product.¹¹³ In the full second reviews, subject imports from Spain undersold the domestic like product in 9 of 13 quarterly sales price comparisons; however, as these data provided limited coverage, the Commission focused its analysis on the available purchase-cost data and observed that these data showed ***.¹¹⁴ In these reviews, pricing data show that subject imports from Spain undersold the domestic like product in 3 of 9 quarterly price comparisons by a margins ranging from *** percent to *** percent.¹¹⁵

In light of the foregoing, including the continued presence of subject imports from Spain in the U.S. market while under the disciplining effect of the orders, the large size and volume of exports of the Spanish industry, the attractiveness of the U.S. market, and the underselling by subject imports from Spain in the current and prior proceedings, we find that chlorinated isos imports from Spain are not likely have no discernible adverse impact on the domestic industry if the antidumping duty order on these imports were revoked.

¹¹³ Original Investigations, USITC Pub. 3782 at 26-27 and V-7 to V-8; Confidential Original Investigations Report, EDIS Doc. 256336 at V-10 and Tables V-1 to V-18. In the sales pricing data in the original investigations, subject imports from Spain undersold the domestic product in 2 of 7 quarterly comparisons; in the purchase price data, subject imports from Spain undersold the domestic product in 23 of 24 quarterly comparisons. *Id.* The quantity of subject imports from Spain in the sales price data was *** pounds, with *** pounds (*** percent) in the quarters associated with underselling. *Id.* at Table V-6. In contrast, the quantity of subject imports from Spain in the purchase price data was *** pounds, with *** pounds (*** percent) in the quarters associated with underselling. *Id.* at Tables V-11 and V-13. Thus, the substantial majority of subject imports from Spain in the pricing data in the original investigations were in the purchase price data and were priced lower than the domestic like product.

¹¹⁴ Second Five-Year Reviews, USITC Pub. 4646 at 31.

¹¹⁵ CR/PR at V-8 to V-9, and Table V-13. Purchase-cost data show that landed duty-paid costs for subject imports from Spain were lower than the U.S. price in *** of *** quarters at cost-differentials ranging from *** percent to *** percent. Purchase-cost data show that landed duty-paid costs for subject imports from Spain were higher than the U.S. price in *** of *** quarters at cost-differentials ranging from *** percent to *** percent. CR/PR at V-15.

C. Likelihood of a Reasonable Overlap of Competition

The Commission generally has considered four factors intended to provide a framework for determining whether subject imports compete with each other and with the domestic like product.¹¹⁶ Only a “reasonable overlap” of competition is required.¹¹⁷ In five-year reviews, the relevant inquiry is whether there likely would be competition even if none currently exists because the subject imports are absent from the U.S. market.¹¹⁸

In the original investigations, the Commission found a reasonable overlap of competition between subject imports from China and Spain and between imports from each subject source and the domestic like product.¹¹⁹ In the first and second five-year reviews, the Commission again found a likely reasonable overlap in competition between imports from the

¹¹⁶ The four factors generally considered by the Commission in assessing whether imports compete with each other and with the domestic like product are as follows: (1) the degree of fungibility between subject imports from different countries and between subject imports and the domestic like product, including consideration of specific customer requirements and other quality-related questions; (2) the presence of sales or offers to sell in the same geographical markets of imports from different countries and the domestic like product; (3) the existence of common or similar channels of distribution for subject imports from different countries and the domestic like product; and (4) whether subject imports are simultaneously present in the market with one another and the domestic like product. *See, e.g., Wieland Werke, AG v. United States*, 718 F. Supp. 50 (Ct. Int’l Trade 1989).

¹¹⁷ *See Mukand Ltd. v. United States*, 937 F. Supp. 910, 916 (Ct. Int’l Trade 1996); *Wieland Werke*, 718 F. Supp. at 52 (“Completely overlapping markets are not required.”); *United States Steel Group v. United States*, 873 F. Supp. 673, 685 (Ct. Int’l Trade 1994), *aff’d*, 96 F.3d 1352 (Fed. Cir. 1996). We note, however, that there have been investigations where the Commission has found an insufficient overlap in competition and has declined to cumulate subject imports. *See, e.g., Live Cattle from Canada and Mexico*, Inv. Nos. 701-TA-386 and 731-TA-812-13 (Preliminary), USITC Pub. 3155 at 15 (Feb. 1999), *aff’d sub nom, Ranchers-Cattlemen Action Legal Foundation v. United States*, 74 F. Supp. 2d 1353 (Ct. Int’l Trade 1999); *Static Random Access Memory Semiconductors from the Republic of Korea and Taiwan*, Inv. Nos. 731-TA-761-62 (Final), USITC Pub. 3098 at 13-15 (Apr. 1998).

¹¹⁸ *See generally, Cheflene Corp. v. United States*, 219 F. Supp. 2d 1313, 1314 (Ct. Int’l Trade 2002).

¹¹⁹ Original Investigations, USITC Pub. 3782 at 19-20.

subject countries and between the domestic like product and subject imports from China and Spain.¹²⁰

As discussed below, the record in these current reviews with respect to the four factors the Commission generally considers in assessing whether imports compete with each other and with the domestic like product indicates a likely reasonable overlap in competition.

Fungibility. In the original investigations, the Commission found that a majority of producers, importers, and purchasers reported that chlorinated isos from China and Spain were always or frequently interchangeable with the domestic like product, although some importers and purchasers reported that subject imports from China were of a lower quality.¹²¹

In the expedited first five-year reviews, the Commission observed that the record did not contain any new information concerning likely reasonable overlap of competition that would contradict the Commission's findings in the original investigations. It, therefore, found that the conclusions reached by the Commission in the original investigations concerning fungibility were applicable.¹²²

In the second five-year reviews, the Commission found that domestically produced chlorinated isos and subject imports from China and Spain continued to be fungible. While recognizing that there may have been some quality differences between the products, the Commission noted that responding market participants indicated that any perceived quality

¹²⁰ First Five-Year Reviews, USITC Pub. 4184 at 8-13; Second Five-Year Reviews, USITC Pub. 4646 at 17-20.

¹²¹ Original Investigations, USITC Pub. 3782 at 19-20.

¹²² First Five-Year Reviews, USITC Pub. 4184 at 12.

differences between subject imports from China and Spain did not significantly affect the fungibility of the products.¹²³

The record in these current reviews indicates that domestically produced chlorinated isos and subject imports from China and Spain continue to be fungible. The vast majority of U.S. shipments from each source in 2021 consisted of granular chlorinated isos, including *** percent of integrated producers' U.S. shipments, *** percent of U.S. shipments of subject imports from China, and *** percent of U.S. shipments of subject imports from Spain.¹²⁴ In comparing subject imports of chlorinated isos from China and Spain, and the domestic like product, a majority of responding U.S. producers, importers, and purchasers reported that chlorinated isos from these sources was either always or frequently interchangeable.¹²⁵ A majority of responding U.S. producers and importers also reported that differences other than price between chlorinated isos from each of the three sources were only sometimes or never significant,¹²⁶ although responding purchasers were divided on whether differences other than price were significant.¹²⁷

Channels of Distribution. In the original investigations and expedited first five-year reviews, the Commission found that, although there were some differences, the channels of distribution between subject imports from China, subject imports from Spain, and the domestic like product overlapped.¹²⁸

¹²³ Second Five-Year Reviews, USITC Pub. 4646 at 18.

¹²⁴ CR/PR at IV-5.

¹²⁵ CR/PR at Tables II-12, II-13, and II-14.

¹²⁶ CR/PR at Tables II-15 and II-16.

¹²⁷ CR/PR at Table II-17.

¹²⁸ Original Investigations, USITC Pub. 3782 at 20; First Five-Year Reviews, USITC Pub. 4184 at 12.

In the second five-year reviews, the Commission found that U.S. producers, which included domestic integrated producers and tableters, and importers of chlorinated isos from China and Spain shared similar channels of distribution for their shipments of tableted chlorinated isos, directing the majority of their commercial shipments of tableted chlorinated isos to retailers and distributors. With respect to granular chlorinated isos, the Commission found that a majority of the domestic like product was sold to retailers, while a majority of subject imports from China was sold to distributors and all subject imports from Spain were sold to ***.¹²⁹

In the current reviews, integrated domestic producers made around half of their U.S. shipments to retailers, with most of the remainder of their U.S. shipments divided between distributors and repackers/tableters and a small share of their U.S. shipments going to the industrial market.¹³⁰ U.S. shipments of subject imports from both China and Spain were principally made to repackers/tableters, with some U.S. shipments made to distributors and a

¹²⁹ Second Five-Year Reviews, USITC Pub. 4646 at 18-19; Confidential Second Five-Year Reviews (EDIS Doc. 595320) at 27.

¹³⁰ CR/PR at Table II-1. Integrated U.S. producers' U.S. shipments of granular chlorinated isos to retailers were *** percent of their total shipments in 2019, *** percent in 2020, and *** percent in 2021, and were *** percent in interim 2022; shipments to distributors were *** percent in 2019, *** percent in 2020, and *** percent in 2021, and were *** percent in interim 2022; shipments to repackers/tableters were *** percent in 2019, *** percent in 2020, and *** percent in 2021, and were *** percent in interim 2022; shipments to the industrial market were *** percent in 2019, *** percent in 2020, and *** percent in 2021, and were *** percent in interim 2022. *Id.*

small volume of U.S. shipments made to the industrial market.¹³¹ A substantial share of U.S. shipments of subject imports from China were also made to retailers, particularly ***.¹³²

Geographic Overlap. In the original investigations, the Commission found that domestic integrated producers, several tableters, and several large importers reported that they sold their products to national markets.¹³³ In the expedited first five-year reviews, the Commission found that the conclusions it reached in the original investigations concerning geographic overlap were applicable.¹³⁴ In the full second five-year review, the Commission found that domestic producers and importers of subject merchandise from China and Spain reported selling chlorinated isos to all regions in the contiguous United States.¹³⁵

In the current reviews, U.S. producers and importers of subject merchandise from China and Spain reported selling chlorinated isos to all regions of the United States.¹³⁶

¹³¹ CR/PR at Table II-1. No subject imports from China or Spain were reported during 2019. U.S. importers' U.S. shipments of chlorinated isos from China to retailers were *** percent of their total shipments in 2020 and *** percent in 2021, and were *** percent in interim 2022; shipments to distributors were *** percent in 2020 and *** percent in 2021, and were *** percent in interim 2022; shipments to repackers/tableters were *** percent in 2020 and *** percent in 2021, and were *** percent in interim 2022; shipments to the industrial market were *** percent in 2020 and *** percent in 2021, and were *** percent in interim 2022. *Id.*

U.S. importers' U.S. shipments of chlorinated isos from Spain to distributors were *** percent of their total shipments in 2020 and *** percent in 2021, and were *** percent in interim 2022; shipments to repackers/tableters were *** percent in 2020 and *** percent in 2021, and were *** percent in interim 2022; shipments to the industrial market were *** percent in 2020 and *** percent in 2021, and were *** percent in interim 2022. U.S. importers did not report any U.S. shipments of chlorinated isos from Spain to retailers during the period. *Id.*

¹³² CR/PR at Table II-1.

¹³³ Original Investigations, USITC Pub. 3782 at 20.

¹³⁴ First Five-Year Reviews, USITC Pub. 4184 at 12.

¹³⁵ Second Five-Year Reviews, USITC Pub. 4646 at 19.

¹³⁶ CR/PR at II-3.

Simultaneous Presence in Market. In the original investigations and expedited first five-year reviews, the Commission found that subject imports from China and Spain and the domestic like product were simultaneously present in the U.S. market throughout the periods examined.¹³⁷ In the second five-year reviews, based on official import statistics, imports of chlorinated isos from China were present in 33 out of 36 months between January 2013 and December 2015, and imports of chlorinated isos from Spain were present in 18 out of 36 months during this same time period.¹³⁸

In the current reviews, during the January 2019-April 2022 period, domestically produced chlorinated isos was present in the U.S. market throughout the period for which data were collected.¹³⁹ Subject imports of chlorinated isos from China were present in 20 of 40 months, while subject imports from Spain were present in 27 of 40 months.¹⁴⁰

Conclusion. The record of these reviews indicates that there has been no change in the considerations that led the Commission to find a likely reasonable overlap of competition between and among subject imports from China and Spain and the domestic like product in the prior proceedings. The record continues to show that both U.S.-produced chlorinated isos and subject imports from China and Spain are fungible, would likely substantially overlap geographically and in channels of distribution, and would be simultaneously present in the U.S. market after revocation of the orders, as they were during the original investigations. Consequently, we find that there would likely be a reasonable overlap of competition between

¹³⁷ Original Investigations, USITC Pub. 3782 at 20; First Five-Year Reviews, USITC Pub. 4184 at 12.

¹³⁸ Second Five-Year Reviews, USITC Pub. 4646 at 19.

¹³⁹ CR/PR at IV-9 and Table IV-4.

¹⁴⁰ CR/PR at Table IV-4, and Figures IV-3 and IV-4.

and among subject imports from China and Spain and the domestic like product if the orders were revoked.

D. Likely Conditions of Competition

We next consider whether subject imports from any source are likely to compete under different conditions of competition in the U.S. market than other subject imports.

In the prior five-year reviews, the Commission did not find that subject imports from either subject country were likely to compete under different conditions of competition in the U.S. market in the event of revocation.¹⁴¹

Domestic producers argue that the Commission should not decline to cumulate subject imports from China and Spain based on likely conditions of competition.¹⁴² Ercros and Brushby argue that cumulation of subject imports from Spain with subject imports from China is not appropriate in these reviews due to differences in the likely conditions of competition.¹⁴³

The record of the current reviews indicates that subject imports from China and Spain would likely face similar conditions of competition in the U.S. market if the orders were revoked. Specifically, the record indicates that there is a likely reasonable overlap of competition between subject imports from China and Spain, and that chlorinated isos produced in China and Spain are generally substitutable with one another and the domestic like product, with no significant differences between the chlorinated isos imported from China and Spain.¹⁴⁴

¹⁴¹ First Five-Year Reviews, USITC Pub. 4184 at 13; Second Five-Year Reviews, USITC Pub. 4646 at 20.

¹⁴² See Domestic Producers Prehearing Brief at 39; Posthearing Brief at I-4 to I-14.

¹⁴³ See Ercros Prehearing Brief at 9-16; Brushby Prehearing Brief at 8-16.

¹⁴⁴ See CR/PR at II-11 and II-16. The record indicates that most responding purchasers reported that chlorinated isos from China and Spain, and the domestic like product, are comparable with respect (Continued...)

Price is an important factor in purchasing decisions for chlorinated isos, and subject producers in China and Spain both generally priced their product below prices for the domestic like product when the orders were not in place. Furthermore, as discussed elsewhere, the record indicates that subject producers in each subject country have substantial capacity to produce chlorinated isos and are export oriented, that they produce and export to the United States similar types of chlorinated isos that are fungible with each other and the domestic like product, and that subject imports from each country increased during the period of review.¹⁴⁵

We are unpersuaded by the respondents' argument that subject imports from China and Spain exhibited differences in underselling during the original investigations that, in their view, reflect differences in likely conditions of competition.¹⁴⁶ Specifically, they cite pricing data from the original investigations showing that subject imports from Spain oversold the domestic like product in 5 of 7 quarterly comparisons, while subject imports from China undersold the domestic like product in most quarterly comparisons.¹⁴⁷ The Commission considered both sales price data and purchaser-cost data in the original investigations, however, and observed that the purchaser-cost data were more comprehensive with respect to the coverage of subject

to most purchasing factors. CR/PR at II-11, n.18, and Table II-11. Moreover, most responding domestic producers, importers, and purchasers reported that subject imports from each source and the domestic like product were always or frequently interchangeable. CR/PR at Tables II-12, II-13, and II-14.

¹⁴⁵ CR/PR at Tables IV-1, IV-2, IV-7, IV-10, IV-11, V-9 and V-10; *see also* Domestic Producers Prehearing Brief at 27 and Table 2. Moreover, as discussed below, the industry in Spain exported more than *** of its chlorinated isos production in each year of the period of review, its AUVs for exports to the United States were higher throughout the period than its AUVs for exports to the EU or shipments to their home market, and its exports to the United States began long before the supply disruptions in the U.S. market beginning in August 2020. CR/PR at Tables IV-4 and IV-11; Ercros Posthearing Brief at 3 and Exhibits 1-2; Domestic Producers Final Comments at 6.

¹⁴⁶ *See* Ercros Prehearing Brief at 9-10; Brushby Prehearing Brief at 10-12.

¹⁴⁷ *See* Ercros Prehearing Brief at 9-10; Brushby Prehearing Brief at 10-12.

imports from China and Spain.¹⁴⁸ The Commission found that the purchase prices for subject imports from China and Spain were *** than sales prices for the domestic like product with respect to all pricing products except for product 5.¹⁴⁹ Thus, the more comprehensive purchase-cost data from the original investigation show that the pricing behavior of subject imports from China and Spain were similar, with the purchase-cost of imports whether from China and Spain generally lower than the prices for the domestic like product. Therefore, we find that the pricing and purchase-cost data from the original investigations do not indicate that there would likely be differences in the pricing behavior of subject imports from China and Spain if the orders were revoked.

We are also unpersuaded by the respondents' argument that the zero antidumping duty cash deposit rate that Commerce has assigned to Ercros since 2013 indicates that subject imports from Spain are likely to compete under different conditions of competition than subject imports from China, to which Commerce has assigned much higher cash deposit rates.¹⁵⁰ As an initial matter, we note that Ercros is not the only subject producer in Spain and that all other

¹⁴⁸ Original Investigations, USITC Pub. 3782 at 26 n.215 and Tables V-1 to V-18.

¹⁴⁹ Original Investigations, USITC Pub. 3782 at 27. Subject imports from Spain in the sales price data were reported only for product 5, with underselling in 2 of 7 quarterly comparisons and *** of *** pounds (***) percent) of subject imports in the quarters associated with underselling. On the other hand, subject imports from Spain in the purchase price data were reported for products 1 and 2, with the cost of imports lower than domestic prices in 23 of 24 quarterly comparisons and *** of *** pounds (***) percent) of subject imports in the quarters associated with lower-cost subject imports from Spain. Original Investigations, USITC Pub. 3782 at V-7 to V-8; Confidential Original Investigations Report, EDIS Doc. 256336 at Tables V-6, V-8, V-9, and V-11. Both the pricing and purchase-cost data showed that large volumes of subject imports from China undersold the domestic like product with respect to pricing products 1 and 2. Original Investigations, USITC Pub. 3782 at 29 n.230 and V-7-8. While recognizing that subject imports from both China and Spain oversold the domestic like product with respect to pricing product 5, the Commission found that cumulated subject imports significantly undersold the domestic like product. Original Investigations, USITC Pub. 3782 at 27 n.220.

¹⁵⁰ See Ercros Prehearing Brief at 12; Brushby Prehearing Brief at 2-4.

subject producers and exporters have been subject to a cash deposit rate of 24.83 percent since the imposition of the antidumping duty order.¹⁵¹ Furthermore, although the cash deposit rate of zero established in Commerce’s administrative review of the order in 2019 may have reflected Ercros’s pricing behavior during the period examined in that proceeding (June 2017 to May 2018), it does not necessarily reflect Ercros’s subsequent pricing behavior or its likely pricing behavior if the order were revoked.¹⁵² Notably, Commerce determined in its expedited sunset review of the antidumping duty order on chlorinated isos from Spain that revocation would likely lead to dumping of up to 24.83 percent for all producers and exporters of subject merchandise from Spain.¹⁵³

In addition, respondents argue that producers in Spain have smaller production capacity than producers in China, are focused on the EU market with limited production available to ship to the United States, and that subject imports from Spain have maintained a limited and steady presence in the U.S. market, with the increase in volume during the period of review occurring only in response to supply shortages following the fire at Bio-Lab’s production facility.¹⁵⁴ We do not find that these factors indicate that subject imports from China and Spain would likely compete under different conditions of competition after revocation. The subject industries in

¹⁵¹ See CR/PR at Table I-8; 70 Fed. Reg. 36562 (June 24, 2005); Original Investigations, USITC Pub. 3782 at I-3.

¹⁵² See CR/PR at Table I-6; 84 Fed. Reg. 66155 (Dec. 3, 2019). Indeed, a witness for Ercros testified that the company has made “very diligent efforts over the last decade to assess and adjust its pricing behaviors so it would not be found to be dumping its chlorinated isos in the U.S. market.” Hearing Tr. at 106 (Cros). This confirms that Ercros’s recent pricing behavior was influenced by the antidumping duty order.

¹⁵³ CR/PR at Table I-8; 87 Fed. Reg. 4841 (Jan. 31, 2022).

¹⁵⁴ Ercros Prehearing Brief at 11-15; Brushby Prehearing Brief at 12-16.

China and Spain both have substantial capacity to produce chlorinated isos, are export oriented, and generally undersold the domestic like product before the orders were in place. The record in these reviews reflects that subject imports from China and Spain are highly comparable and that price is an important factor in purchasing decisions. We note that regardless of any differences in capacity or export market concentrations, imports from both subject countries have maintained a presence in the U.S. market¹⁵⁵ and producers in both subject countries were able to increase exports to the United States during the current period of review. Importantly, with respect to Spain, the increase in subject import volume started months before the supply shortage in the U.S. market, with imports increasing in February 2020 and the fire not occurring until August 2020.¹⁵⁶

For all of these reasons, the record in these reviews does not indicate that there would likely be a significant difference in the conditions of competition between subject imports from China and Spain if the orders were revoked.

E. Conclusion

We determine that the no discernible adverse impact exception to cumulation does not apply with respect to subject imports from China or Spain. We also find that there would likely be a reasonable overlap of competition between imports from each of these countries and between imports from each subject country and the domestic like product. Finally, we find that subject imports from China and Spain would be likely to compete under similar conditions of competition in the U.S. market after revocation of the orders. Accordingly, for the reasons

¹⁵⁵ See, e.g., CR/PR at Table I-3.

¹⁵⁶ CR/PR at Tables III-1 and IV-4.

discussed above, we exercise our discretion to cumulate subject imports from China and Spain for purposes of our analysis in these reviews.

IV. Revocation of the Antidumping Duty Orders Would Likely Lead to Continuation or Recurrence of Material Injury Within a Reasonably Foreseeable Time

A. Legal Standards

In a five-year review conducted under section 751(c) of the Tariff Act, Commerce will revoke an antidumping or countervailing duty order unless: (1) it makes a determination that dumping or subsidization is likely to continue or recur and (2) the Commission makes a determination that revocation of the antidumping or countervailing duty order “would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time.”¹⁵⁷ The SAA states that “under the likelihood standard, the Commission will engage in a counterfactual analysis; it must decide the likely impact in the reasonably foreseeable future of an important change in the status quo – the revocation or termination of a proceeding and the elimination of its restraining effects on volumes and prices of imports.”¹⁵⁸ Thus, the likelihood standard is prospective in nature.¹⁵⁹ The U.S. Court of International Trade has found that

¹⁵⁷ 19 U.S.C. § 1675a(a).

¹⁵⁸ SAA at 883-84. The SAA states that “[t]he likelihood of injury standard applies regardless of the nature of the Commission’s original determination (material injury, threat of material injury, or material retardation of an industry). Likewise, the standard applies to suspended investigations that were never completed.” *Id.* at 883.

¹⁵⁹ While the SAA states that “a separate determination regarding current material injury is not necessary,” it indicates that “the Commission may consider relevant factors such as current and likely continued depressed shipment levels and current and likely continued {sic} prices for the domestic like product in the U.S. market in making its determination of the likelihood of continuation or recurrence of material injury if the order is revoked.” SAA at 884.

“likely,” as used in the five-year review provisions of the Act, means “probable,” and the Commission applies that standard in five-year reviews.¹⁶⁰

The statute states that “the Commission shall consider that the effects of revocation or termination may not be imminent, but may manifest themselves only over a longer period of time.”¹⁶¹ According to the SAA, a “‘reasonably foreseeable time’ will vary from case-to-case, but normally will exceed the ‘imminent’ timeframe applicable in a threat of injury analysis in original investigations.”¹⁶²

Although the standard in a five-year review is not the same as the standard applied in an original investigation, it contains some of the same fundamental elements. The statute provides that the Commission is to “consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the orders are revoked or the suspended investigation is terminated.”¹⁶³ It directs the Commission to take into account its prior injury determination, whether any improvement in the state of the industry is related to the order or

¹⁶⁰ See *NMB Singapore Ltd. v. United States*, 288 F. Supp. 2d 1306, 1352 (Ct. Int’l Trade 2003) (“‘likely’ means probable within the context of 19 U.S.C. § 1675(c) and 19 U.S.C. § 1675a(a)”), *aff’d mem.*, 140 Fed. Appx. 268 (Fed. Cir. 2005); *Nippon Steel Corp. v. United States*, 26 CIT 1416, 1419 (2002) (same); *Usinor Industeel, S.A. v. United States*, 26 CIT 1402, 1404 nn.3, 6 (2002) (“more likely than not” standard is “consistent with the court’s opinion;” “the court has not interpreted ‘likely’ to imply any particular degree of ‘certainty’”); *Indorama Chemicals (Thailand) Ltd. v. United States*, 26 CIT 1059, 1070 (2002) (“standard is based on a likelihood of continuation or recurrence of injury, not a certainty”); *Usinor v. United States*, 26 CIT 767, 794 (2002) (“‘likely’ is tantamount to ‘probable,’ not merely ‘possible’”).

¹⁶¹ 19 U.S.C. § 1675a(a)(5).

¹⁶² SAA at 887. Among the factors that the Commission should consider in this regard are “the fungibility or differentiation within the product in question, the level of substitutability between the imported and domestic products, the channels of distribution used, the methods of contracting (such as spot sales or long-term contracts), and lead times for delivery of goods, as well as other factors that may only manifest themselves in the longer term, such as planned investment and the shifting of production facilities.” *Id.*

¹⁶³ 19 U.S.C. § 1675a(a)(1).

the suspension agreement under review, whether the industry is vulnerable to material injury if an order is revoked or a suspension agreement is terminated, and any findings by Commerce regarding duty absorption pursuant to 19 U.S.C. § 1675(a)(4).¹⁶⁴ The statute further provides that the presence or absence of any factor that the Commission is required to consider shall not necessarily give decisive guidance with respect to the Commission's determination.¹⁶⁵

In evaluating the likely volume of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether the likely volume of imports would be significant either in absolute terms or relative to production or consumption in the United States.¹⁶⁶ In doing so, the Commission must consider "all relevant economic factors," including four enumerated factors: (1) any likely increase in production capacity or existing unused production capacity in the exporting country; (2) existing inventories of the subject merchandise, or likely increases in inventories; (3) the existence of barriers to the importation of the subject merchandise into countries other than the United States; and (4) the potential for product shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products.¹⁶⁷

In evaluating the likely price effects of subject imports if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to

¹⁶⁴ 19 U.S.C. § 1675a(a)(1). Commerce has not made any duty absorption findings concerning chlorinated isos from China and Spain. CR/PR at I-11 n.20

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

¹⁶⁶ 19 U.S.C. § 1675a(a)(2).

¹⁶⁷ 19 U.S.C. § 1675a(a)(2)(A-D).

consider whether there is likely to be significant underselling by the subject imports as compared to the domestic like product and whether the subject imports are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of the domestic like product.¹⁶⁸

In evaluating the likely impact of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider all relevant economic factors that are likely to have a bearing on the state of the industry in the United States, including but not limited to the following: (1) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity; (2) likely negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment; and (3) likely negative effects on the existing development and production efforts of the industry, including efforts to develop a derivative or more advanced version of the domestic like product.¹⁶⁹ All relevant economic factors are to be considered within the context of the business cycle and the conditions of competition that are distinctive to the industry. As instructed by the statute, we have considered the extent to which any improvement in the state of the domestic industry is related to the orders under review and whether the industry is vulnerable to material injury upon revocation.¹⁷⁰

¹⁶⁸ See 19 U.S.C. § 1675a(a)(3). The SAA states that “{c}onsistent with its practice in investigations, in considering the likely price effects of imports in the event of revocation and termination, the Commission may rely on circumstantial, as well as direct, evidence of the adverse effects of unfairly traded imports on domestic prices.” SAA at 886.

¹⁶⁹ 19 U.S.C. § 1675a(a)(4).

¹⁷⁰ The SAA states that in assessing whether the domestic industry is vulnerable to injury if the order is revoked, the Commission “considers, in addition to imports, other factors that may be (Continued...)

B. Conditions of Competition and the Business Cycle

In evaluating the likely impact of the subject imports on the domestic industry if an order is revoked, the statute directs the Commission to consider all relevant economic factors “within the context of the business cycle and conditions of competition that are distinctive to the affected industry.”¹⁷¹ The following conditions of competition inform our determinations.

Demand Conditions. In the original investigations, the Commission found that demand for chlorinated isos increased. Specifically, apparent U.S. consumption increased from 125,166 short tons in 2002 to 127,912 short tons in 2003 and 148,251 short tons in 2004.¹⁷² The Commission observed that chlorinated isos were used for pool sanitization and industrial water treatments and in the production of cleansers, and that demand for the product was seasonal, peaking in the spring and summer months.¹⁷³ The Commission further observed that although U.S. demand for chlorinated isos generally tracked overall economic activity, market participants reported that demand was dependent on new home construction, installation of new pools, and weather conditions.¹⁷⁴

In the expedited first five-year reviews, Clearon and OxyChem reported that there was slow growth in demand in the U.S. market due to the decline in the U.S. housing market and

contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they may also demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports.” SAA at 885.

¹⁷¹ 19 U.S.C. § 1675a(a)(4).

¹⁷² Original Investigations, USITC Pub. 3782 at 21.

¹⁷³ Original Investigations, USITC Pub. 3782 at 22.

¹⁷⁴ Original Investigations, USITC Pub. 3782 at 22.

the weak economy.¹⁷⁵ The Commission observed that apparent U.S. consumption in 2009, at *** short tons, was lower than at any time during the original investigations.¹⁷⁶

In the full second five-year reviews, the Commission found that most domestic producers reported that demand for chlorinated isos had declined since 2013, due in part to poor weather and competition from saltwater chlorination systems, and that a majority of other market participants indicated that demand had either decreased or remained the same. The Commission also noted that market participants anticipated that future demand for chlorinated isos would either decrease or remain the same.¹⁷⁷ It found that apparent U.S. consumption decreased from *** short tons in 2013 to *** short tons in 2014 and *** short tons in 2015, for an overall decline of *** percent from 2013 to 2015.¹⁷⁸

In the current reviews, the record indicates that demand for chlorinated isos continues to be tied to the downstream end uses in which it is used, which include sanitizing pools and spas and being used in industrial water treatment applications.¹⁷⁹ Demand for chlorinated isos continues to be seasonally driven by warm weather and swimming pool usage, which increases in the spring and summer months.¹⁸⁰ Swimming pool and spa applications accounted for the

¹⁷⁵ First Five-Year Reviews, USITC Pub. 4184 at 16.

¹⁷⁶ First Five-Year Reviews, USITC Pub. 4184 at 16; Confidential First Five-Year Reviews (EDIS Doc. 568446) at 19.

¹⁷⁷ Second Five-Year Reviews, USITC Pub. 4646 at 23-24.

¹⁷⁸ Second Five-Year Reviews, USITC Pub. 4646 at 24; Confidential Second Five-Year Reviews (EDIS Doc. 595320) at 37.

¹⁷⁹ CR/PR at I-17, II-1, and II-8.

¹⁸⁰ CR/PR at II-8 and n.12, and II-9; *see also* Original Investigations, USITC Pub. 4728 at 32; First Five-Year Reviews, USITC Pub. 4184 at 19; Second Five-Year Reviews, USITC Pub. 4646 at 36.

bulk of the U.S. chlorinated isos market, followed by industrial applications (*e.g.*, industrial water treatment, and in cleansers and detergents), and non-pool applications.¹⁸¹

All responding domestic producers and most purchasers reported that demand for chlorinated isos increased since January 1, 2016.¹⁸² Most responding domestic producers and purchasers also reported anticipating that future demand for chlorinated isos would either increase or fluctuate.¹⁸³ Responding importers provided more mixed responses when asked about demand trends for chlorinated isos since January 2016, with half indicating that demand increased during the period of review and most indicating that future demand for chlorinated isos would either fluctuate or experience no change.¹⁸⁴

Apparent U.S. consumption of chlorinated isos increased from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021, a level *** percent higher than in 2019. Apparent U.S. consumption was *** short tons in interim 2021 and *** short tons in interim 2022.¹⁸⁵

Supply Conditions. In the original investigations, the Commission found that the market was supplied by three large domestic integrated producers, several tableters, and imports from subject and nonsubject sources.¹⁸⁶ The Commission observed that these market participants often had dual roles and overlapping customers.¹⁸⁷ Specifically, the Commission observed that

¹⁸¹ CR/PR at I-17; Hearing Tr. at 103 to 104 (Martineau, Pan, and Lawrence).

¹⁸² CR/PR at Table II-4.

¹⁸³ CR/PR at Table II-5.

¹⁸⁴ CR/PR at Tables II-4 and II-5.

¹⁸⁵ CR/PR at Table C-2.

¹⁸⁶ Original Investigations, USITC Pub. 3782 at 22.

¹⁸⁷ Original Investigations, USITC Pub. 3782 at 22.

the domestic integrated producers either sold their granular chlorinated isos to tableters or directly to retailers and that they had some of the same distributor, retail, and mass market customers as tableters, thereby competing downstream with companies that they supplied with granular product.¹⁸⁸ The Commission further observed that several tableters relied primarily on subject imports for their raw materials, although some also purchased nonsubject imports or domestically produced chlorinated isos.¹⁸⁹

In the expedited first five-year reviews, the Commission found that since the original investigations, the volume of nonsubject imports from Japan and Vietnam had increased, particularly in 2008 and 2009.¹⁹⁰

In the full second five-year reviews, the Commission found that the U.S. market was supplied by three domestic integrated producers (OxyChem, Bio-Lab, and Clearon), several tableters, and imports from subject and nonsubject sources.¹⁹¹ It found that the domestic industry was the largest source of chlorinated isos in the U.S. market during the period of review, accounting for *** percent of apparent U.S. consumption in 2015. It found that cumulated subject imports had decreased their presence in the U.S. market during the period of review, with their share of apparent U.S. consumption decreasing from *** percent in 2013 to *** percent in 2015.¹⁹² Finally, it found that nonsubject imports had also decreased their

¹⁸⁸ Original Investigations, USITC Pub. 3782 at 22-23.

¹⁸⁹ Original Investigations, USITC Pub. 3782 at 23.

¹⁹⁰ First Five-Year Reviews, USITC Pub. 4184 at 17.

¹⁹¹ Second Five-Year Reviews, USITC Pub. 4646 at 25.

¹⁹² Second Five-Year Reviews, USITC Pub. 4646 at 25-26; Confidential Second Five-Year Reviews (EDIS Doc. 595320) at 38-39. In the 2014 investigations, the Commission made an affirmative threat determination on a non-cumulated basis with respect to subsidized chlorinated isos imports from China. (Continued...)

presence in the U.S. market, with their share of apparent U.S. consumption decreasing from *** percent in 2013 to *** percent in 2015.¹⁹³ The Commission found that the largest nonsubject sources of chlorinated isos imports in 2015 were Japan, Italy, and Mexico.¹⁹⁴

In the current reviews, the U.S. market has continued to be supplied by three domestic integrated producers (Bio-Lab, Clearon, and OxyChem), and imports from subject and nonsubject sources.

The domestic industry was the largest source of chlorinated isos in the U.S. market during the period of review. The industry's share of apparent U.S. consumption decreased from *** percent in 2019 to *** percent in 2020 to *** percent in 2021; it was *** percent in interim 2022.¹⁹⁵

Domestic producers reported supply disruptions caused by weather events and other factors during the period of review. *** reported production stoppages and delays caused by weather events during the August-October 2020 period (multiple hurricanes) and in February 2021 (deep freeze).¹⁹⁶ Bio-Lab reported the total loss of its plant producing granular chlorinated isos caused by a fire during Hurricane Laura in August 2020.¹⁹⁷ Bio-Lab has invested *** in the construction of a new granular chlorinated isos production facility, which is expected

Chlorinated Isocyanurates from China and Japan, Inv. Nos. 701-TA-501 and 731-TA-1226 (Final), USITC Pub. 4494 at 3 (Nov. 2014) ("2014 Investigations"). Chlorinated isos from China have been subject to countervailing duties since November 13, 2014. *Chlorinated Isocyanurates from China*, 79 Fed. Reg. 67424 (Nov. 13, 2014) (countervailing duty order).

¹⁹³ Second Five-Year Reviews, USITC Pub. 4646 at 26; Confidential Second Five-Year Reviews (EDIS Doc. 595320) at 39.

¹⁹⁴ Second Five-Year Reviews, USITC Pub. 4646 at 26.

¹⁹⁵ CR/PR at Tables I-4 and C-2.

¹⁹⁶ CR/PR at Table III-2.

¹⁹⁷ CR/PR at II-5.

to be operational for the 2023 purchasing season.¹⁹⁸ In addition, *** reported that its production of granular chlorinated isos was interrupted during the period of review by shortages of primary raw materials (chlorine and caustic soda) and the COVID-19 pandemic.¹⁹⁹

Cumulated subject imports increased their presence in the U.S. market substantially during the period of review to become the second-largest source of chlorinated isos in 2021. Their share of apparent U.S. consumption increased from *** percent in 2019 to *** percent in 2020 to *** percent in 2021; it was *** percent in interim 2022, compared to *** percent in interim 2021.²⁰⁰

Nonsubject imports were the third-largest source of chlorinated isos in 2021, having modestly increased their presence in the U.S. market over the period of review. Their share of apparent U.S. consumption increased 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 2021.²⁰¹ The largest nonsubject sources of chlorinated isos imports were Japan and Mexico.²⁰²

Substitutability and Other Conditions. In the original investigations, the Commission observed that a majority of producers, importers, and purchasers reported that domestically produced chlorinated isos and subject imports from China and Spain were always or frequently

¹⁹⁸ CR/PR at II-7 n.11 and Table III-2; Hearing Tr. at 63-64 (Bentley).

¹⁹⁹ CR/PR at II-7.

²⁰⁰ CR/PR at Tables I-4 and C-2.

²⁰¹ CR/PR at Table I-4 and C-2.

²⁰² CR/PR at IV-1.

interchangeable and that purchasers reported price to be an important consideration in purchasing decisions.²⁰³

In the expedited first five-year reviews, the Commission found nothing on the record that indicated it should reconsider its finding regarding substitutability or the importance of price in purchasing decisions since the time of the original investigations.²⁰⁴

In the full second five-year reviews, the Commission found that there was at least a moderate degree of substitutability between domestically produced chlorinated isos and chlorinated isos from both subject sources. A majority of market participants had reported that chlorinated isos from the United States, China, and Spain were always or frequently interchangeable, despite some quality differences between products from the different sources.²⁰⁵ The Commission also found that price played an important role in purchasing decisions because most responding purchasers reported that chlorinated isos from the United States and each subject country always or usually met minimum quality specifications.²⁰⁶

Based on the record of the current reviews, we find that there is a moderate-to-high degree of substitutability between domestically produced chlorinated isos and subject imports.²⁰⁷ The majority of responding domestic producers, importers, and purchasers reported that chlorinated isos from the United States, China, and Spain was always or

²⁰³ Original Investigations, USITC Pub. 3782 at 24.

²⁰⁴ First Five-Year Reviews, USITC Pub. 4184 at 17.

²⁰⁵ Second Five-Year Reviews, USITC Pub. 4646 at 26.

²⁰⁶ Second Five-Year Reviews, USITC Pub. 4646 at 26.

²⁰⁷ CR/PR at II-11. Among the factors reducing substitutability, some purchasers expressed a preference for domestically produced chlorinated isos. *Id.*

frequently interchangeable.²⁰⁸ Most responding domestic producers and importers reported that factors other than price are only sometimes or never significant in purchasing decisions, although responding purchasers were more evenly divided on the significance of factors other than price.²⁰⁹ As already noted, most responding purchasers rated subject imports and the domestic like product as comparable with respect to most purchasing factors.²¹⁰ The vast majority of responding purchasers also reported that chlorinated isos from the United States and each subject country always or usually met minimum quality specifications.²¹¹

We also find that price is an important factor in purchasing decisions. All responding purchasers reported that price is a very important factor in purchasing decisions, along with availability, product consistency, and reliability of supply.²¹² More responding purchasers cited price as among the top three factors considered in purchasing decisions than any other factor, followed by availability and quality.²¹³

Chlorinated isos produced in China and entering under HTS statistical reporting number 3808.94.5000 became subject to a 25.0 percent *ad valorem* duty under Section 301 of the Trade Act of 1974, effective May 19, 2019, and subject imports from China entering under HTS subheading 2933.69.60 became subject to an additional 7.5 percent *ad valorem* duty, effective

²⁰⁸ CR/PR at Tables II-12 to II-14.

²⁰⁹ CR/PR at Tables II-15 to II-17. Most purchasers reported that that differences other than price were sometimes or never significant when comparing subject imports from Spain with the domestic like product or comparing subject imports between subject country sources. They were evenly divided when comparing subject imports from China and the domestic like product. CR/PR at Table II-14.

²¹⁰ CR/PR at Table II-11.

²¹¹ CR/PR at Table II-9.

²¹² CR/PR at Table II-8.

²¹³ CR/PR at Table II-7.

February 14, 2020.²¹⁴ A substantial minority of responding domestic producers, importers, and purchasers reported that these duties had an impact on the chlorinated isos market in the United States during the period of review.²¹⁵

C. Likely Volume of Cumulated Subject Imports

1. The Original Investigations and Prior Five-Year Reviews

In the original investigations, the Commission found that the volume of cumulated subject imports was significant, both in absolute terms and relative to consumption. The volume of cumulated subject imports increased from *** short tons in 2002 to *** short tons in 2003 and *** short tons in 2004.²¹⁶ Additionally, cumulated subject imports increased their market share by *** percentage points from 2002 to 2004, while the domestic producers' market share declined steadily and significantly by *** percentage points during that time period.²¹⁷ The Commission found that the significant increase in subject import volume prevented the domestic industry from benefitting from the large increase in apparent U.S. consumption over the period examined.²¹⁸

In the expedited first five-year reviews, the Commission observed that despite the discipline of the orders, cumulated subject imports had a substantial and continuing presence in the U.S. market, increasing overall from 2005 to 2009, and that the market share of

²¹⁴ CR/PR at I-16.

²¹⁵ CR/PR at II-2.

²¹⁶ Original Investigations, USITC Pub. 3782 at 25; Confidential Original investigations (EDIS Doc. 428831) at 36.

²¹⁷ Original Investigations, USITC Pub. 3782 at 25; Confidential Original investigations (EDIS Doc. 428831) at 35.

²¹⁸ Original Investigations, USITC Pub. 3782 at 25.

cumulated subject imports in 2009 at *** percent was *** to that in 2004 at *** percent.²¹⁹

The Commission further observed that there was no evidence that the production capacities of subject producers from China and Spain declined since the original investigations.²²⁰ Based on the increase in volume and market share of subject imports during the original investigations, the substantial production capacity of subject producers in China and Spain, the export orientation of the industries in China and Spain, as well as the continued presence and increase in volume of imports from China and Spain after imposition of the orders, the Commission found that subject producers had the ability and the incentive to increase exports significantly to the United States if the antidumping duty orders were revoked.²²¹ The Commission concluded that subject import volume would likely be significant both in absolute terms and relative to production and consumption in the United States if the orders were revoked.²²²

In the second five-year reviews, the Commission found that subject imports maintained a presence in the U.S. market during the period of review, although the volume of cumulated subject imports decreased from *** short tons in 2013 to *** short tons in 2014 and *** short tons in 2015. It observed that cumulated subject imports accounted for *** percent of apparent U.S. consumption in 2013, *** percent in 2014, and *** percent in 2015.²²³

²¹⁹ First Five-Year Reviews, USITC Pub. 4184 at 19; Confidential First Five-Year Reviews (EDIS Doc. 583670) at 24. According to official U.S. import statistics, cumulated subject imports increased overall from 1,197 short tons in 2005 to 12,947 short tons in 2009. *See id.*

²²⁰ First Five-Year Reviews, USITC Pub. 4184 at 19.

²²¹ First Five-Year Reviews, USITC Pub. 4184 at 19.

²²² First Five-Year Reviews, USITC Pub. 4184 at 19.

²²³ Second Five-Year Reviews, USITC Pub. 4646 at 27; Confidential Second Five-Year Reviews (EDIS Doc. 595319) at 42.

Noting that there was no data from producers of chlorinated isos in China and Spain because they did not respond to the Commission's questionnaire, the Commission found that information provided by the domestic producers indicated that there was substantial and growing production capacity in both subject countries. Given this, and evidence that subject producers in China and Spain were highly export-oriented, the Commission found that subject producers had the ability to increase exports of subject merchandise to the United States rapidly, as they did during the original investigations.²²⁴

The Commission found that the United States, as the largest market in the world for chlorinated isos products, was likely to be an attractive market for the subject producers. It also found that U.S. market prices were, on average, higher than prices in other world markets, including other markets to which subject producers exported chlorinated isos. In addition, it observed that several responding purchasers reported anticipating that subject import volume would increase and that they would shift purchases from domestic producers to subject imports in the event of revocation.²²⁵

Accordingly, the Commission found that the likely volume of cumulated subject imports, in absolute terms and relative to both U.S. production and consumption, would be significant in the event of revocation.²²⁶

²²⁴ Second Five-Year Reviews, USITC Pub. 4646 at 28.

²²⁵ Second Five-Year Reviews, USITC Pub. 4646 at 29 (citing purchaser questionnaire responses).

²²⁶ Second Five-Year Reviews, USITC Pub. 4646 at 29; Confidential Second Five-Year Reviews (EDIS Doc. 595319) at 43. The Commission also considered the other factors enumerated in the statute regarding analysis of likely subject import volume. Due to the subject producers' failure to respond to the questionnaire, it found there is no information available with respect to the potential for product shifting by the chlorinated isos industries in China and Spain or of existing inventories held in those (Continued...)

2. The Current Five-Year Reviews

In the current reviews, subject imports rapidly increased their presence in the U.S. market in the latter part of the period of review. The volume of cumulated subject imports increased from *** short tons in 2019 to *** short tons in 2020 to *** short tons in 2021, and were *** short tons in interim 2022 compared to *** short tons in interim 2021.²²⁷ Cumulated subject imports as a share of apparent U.S. consumption increased from *** percent of in 2019 to *** percent in 2020 and *** percent in 2021, and was *** percent in interim 2022 compared to *** percent in interim 2021.²²⁸

The record of these reviews indicates that the subject industries in China and Spain have the means and incentive to increase exports to the United States to significant levels upon revocation of the orders. Although no subject Chinese producer responded to the Commission's questionnaire,²²⁹ the information available on the record, including information provided by Domestic Producers, indicates that the chlorinated isos industry in China is large and export-oriented. Domestic Producers report that subject producers in China possess more than 1.0 million short tons of capacity, equivalent to approximately *** the entire U.S. market

countries. Regarding trade barriers in third-country markets, the Commission noted that the European Union imposed antidumping duties on imports of trichlor from China in 2005 and continued the order in December 2011. Second Five-Year Reviews, USITC Pub. 4646 at 29 n.175.

²²⁷ CR/PR at Table IV-1.

²²⁸ CR/PR at Table C-2.

²²⁹ The Commission issued questionnaires to 24 chlorinated isos producers or exporters in China. No producers in China responded. CR/PR at IV-15. The Commission issued questionnaires to five chlorinated isos producers or exporters in Spain and received useable responses from two producers (Ercros and Hernani) and one tableter (***). CR/PR at IV-18. In the absence of any foreign producer questionnaire responses from China, we have used the facts available including public data sources and un rebutted information about the chlorinated isos industry in China provided by Domestic Producers to assess the subject industry.

for chlorinated isos in 2021.²³⁰ GTA data show that Chinese exports of heterocyclic compounds (excluding melamine), a category of chemicals that includes chlorinated isos and out-of-scope products, increased steadily from 464,338 short tons in 2019 to 506,583 short tons in 2020 and 633,802 short tons in 2021.²³¹ GTA data also show that China was the world's largest exporter of heterocyclic compounds (excluding melamine) and that the United States was the largest destination market for such exports from China in 2021.²³²

Similarly, the record indicates that subject producers in Spain possessed large and increasing production capacity, and exported *** of their total shipments throughout the period of review. Spanish producer *** reported that it expanded its production capacity by 6,000 short tons in November 2019, and Spanish producer *** reported the opening of a new production facility in March 2018.²³³ From 2019 to 2021, the Spanish integrated producers' capacity increased by *** percent, and their production increased by *** percent.²³⁴ The Spanish integrated producers' capacity utilization increased over the period, from *** percent in 2019 to *** percent in 2021, largely due to increased exports to the United States in 2020

²³⁰ Domestic Producers Prehearing Brief at 50, Table 2, and Exhibit 4; Domestic Producers response at Exhibit 2.

²³¹ CR/PR at Table IV-14.

²³² CR/PR at Tables IV-7 and IV-14.

²³³ CR/PR at Table IV-10.

²³⁴ CR/PR at Table IV-11. The Spanish integrated producers' capacity increased from *** short tons in 2019 to *** short tons in 2020 and 2021; it was higher in interim 2022 at *** short tons than in interim 2021 at *** short tons. The industry's production increased from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021; it was higher in interim 2022 at *** short tons than in interim 2021 at *** short tons. *Id.*

The responding Spanish tableter, Tamar, which tablets granular chlorinated isos purchased from ***, increased capacity from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021; it was higher in interim 2022 at *** short tons than in interim 2021 at *** short tons. CR/PR at IV-23 and Table IV-12.

and 2021.²³⁵ In 2021, subject integrated producers in Spain possessed excess capacity of *** short tons, equivalent to *** percent of apparent U.S. consumption that year.²³⁶

In addition to having substantial and growing production capacity, subject producers in Spain are export-oriented. The Spanish integrated producers reported that their exports of chlorinated isos increased steadily from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021; they were *** short tons in interim 2022 compared to *** short tons in interim 2021.²³⁷ The Spanish integrated producers' exports accounted for *** to *** percent of their total shipments from 2019 to 2021, and *** percent in interim 2022 compared to *** percent in interim 2021.²³⁸ The Spanish integrated producers' exports to the United States as a share of total shipments increased from *** percent in 2019 to *** percent in 2020 and *** percent in 2021; it was *** percent in interim 2022 compared to *** percent in interim 2021.²³⁹

The record also indicates that the United States remains an attractive export market for subject producers in China and Spain. The Commission previously has found that the United States is the largest market in the world for chlorinated isos product, and there is no indication

²³⁵ CR/PR at Table IV-11. The Spanish integrated producers' capacity utilization rate increased from *** percent in 2019 to *** percent in 2020 and *** percent in 2021; it was higher in interim 2022 at *** percent than in interim 2021 at *** percent. The Spanish integrated producers' exports to the United States increased from *** short tons in 2019 to *** short tons in 2020 and *** short ton in 2021; they were *** short tons in interim 2022. *Id.*

²³⁶ Calculated from CR/PR at IV-11.

²³⁷ CR/PR at Table IV-11.

²³⁸ CR/PR at Table IV-11. The Spanish tableter's exports accounted for *** to *** percent of total shipments from 2019 to 2021 and was *** percent in interim 2022 compared to *** percent in interim 2021. *Id.* at Table IV-12.

²³⁹ CR/PR at IV-11. The Spanish tableter's exports to the United States as a share of total shipments was *** percent in 2019 and 2020 and *** percent in 2021; it was *** percent in interim 2022 compared to *** percent in interim 2021. *Id.* at Table IV-12.

in this record to suggest that this changed.²⁴⁰ The United States remains a large market for chlorinated isos products.²⁴¹ The record shows that U.S. prices for chlorinated isos are relatively high compared to prices in some of the other markets served by the subject industries, creating an incentive for subject producers to increase their exports to the United States after revocation.²⁴² Further increasing the attractiveness of the U.S. market for subject Chinese producers, the European Union has imposed an antidumping duty order on imports of trichlor from China since 2005.²⁴³ Indeed, while under the disciplining effect of the orders, subject producers in China and Spain capitalized on the loss of Bio-Lab's production facility in 2020 by rapidly increasing their exports to the U.S. market, resulting in a *** increase in cumulated subject imports from 2020 to 2021.²⁴⁴ In addition, several responding purchasers have

²⁴⁰ See Original Investigations, USITC Pub. 3782 at 22.

²⁴¹ CR/PR at Tables I-4 and C-2.

²⁴² See CR/PR at Tables IV-7 and IV-11. For example, the AUVs of Spanish integrated producers' exports to the United States were higher than the AUVs for their exports to the EU and for their total exports in each period. See CR/PR at Table IV-11. Ercros confirmed that prices are generally higher in the U.S. market than in other markets and described the U.S. as having a large and healthy market. See Ercros Posthearing Brief, Attachment at 11; Hearing Transcript 153-154 (Cros).

²⁴³ CR/PR at IV-26. A review of the order concluded by the European Union in December 2017 resulted in duties ranging from 3.2 percent to 42.6 percent. CR/PR at IV-26 and n.26.

²⁴⁴ CR/PR at Table IV-I. The United States was the largest destination market for exports from China in the HS category that includes chlorinated isos and out-of-scope products, and the second-largest destination market for chlorinated isos exports from Spain in 2021. CR/PR at Tables IV-7 and IV-11.

We are unpersuaded by Ercros's argument that the Spanish industry's alleged focus on contracts with long-term customers and the EU market would preclude a significant volume of subject imports from Spain after revocation. See Ercros Prehearing Brief at 20-21; Ercros Posthearing Brief at 3-4; Hearing Tr. at 59, 151, and 157. Neither long-term contracts with existing customers nor any traditional focus on the EU market prevented subject producers in Spain from increasing their exports to the United States by *** percent from 2020 to 2021, nearly *** U.S. exports as a share of their total shipments from *** percent in 2020 to *** percent in 2021. CR/PR at Table IV-11. Thus, subject producers in Spain have demonstrated the ability to rapidly increase shipments to the United States despite any long-term contracts or primary focus on other markets. In addition, although Ercros ***, this does not explain the entire increase in subject import volume from Spain during the period of review, which (Continued...)

indicated that if the orders were revoked, the volume of subject imports from China and Spain would increase and they would consider shifting purchases from the domestic like product to subject imports.²⁴⁵

Given the foregoing, including the significant volume of cumulated subject imports during the original investigations, the subject industries' substantial capacity and exports, and the continuing attractiveness of the U.S. market to subject producers, we find that the volume of cumulated subject imports would likely be significant, both in absolute terms and relative to consumption in the United States, if the orders were revoked.²⁴⁶

started increasing in February 2020, ***. See Ercros Posthearing Brief, Attachment at 3, 8-9; CR/PR at Table IV-4.

²⁴⁵ CR/PR at Appendix D-7 to D-8. For instance, *** stated that it would *** in the event of revocation; *** stated that it would ***; *** stated that ***; *** stated that revocation ***. *Id.*

²⁴⁶ We have also considered product shifting and inventories of subject merchandise. Because no Chinese producers responded to the Commission's questionnaire, there is no information available with respect to the potential for product shifting by the chlorinated isos industry in China. Spanish producers reported that no other products were produced using the same equipment and machinery used to produce chlorinated isos. CR/PR at IV-24; *see, e.g.*, Ercros Prehearing Brief at 21. There is likewise no information available with respect to the existing inventories of subject merchandise held by subject producers in China. Subject producers in Spain reported end-of-period inventories of *** short tons in 2019, *** short tons in 2020, and *** short tons in 2021; they were *** short tons in interim 2022 compared to *** short tons in interim 2021. CR/PR at Table IV-11. The evidence in the record with respect to inventories of subject merchandise held by importers in the United States shows that end-of-period inventories of chlorinated isos from China increased from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021, and were *** short tons in interim 2022 compared to *** short tons in interim 2021. CR/PR at Table IV-5. U.S. importers end-of-period inventories from Spain increased from *** short tons in 2019 and 2020 to *** short tons in 2021, and were *** short tons in interim 2022 compared to *** short tons in interim 2021. *Id.* Notably, U.S. importers' end-of-period inventories of subject merchandise were higher in interim 2022 than in any full year of the period of review. CR/PR at Table IV-5.

D. Likely Price Effects

1. The Original Investigations and Prior Five-Year Reviews

In the original investigations, the Commission found that subject imports had undersold the domestic like product in 78.6 percent of the available comparisons in the sales and purchaser-cost data.²⁴⁷ The Commission concluded that the underselling by subject imports was significant, particularly in light of the large influx of subject imports beginning in 2003 and the high degree of interchangeability between subject imports and the domestic like product.²⁴⁸ The Commission also found that prices for the domestic like product declined due to lower-priced subject imports and that the domestic industry experienced a cost/price squeeze as downward pressure on prices exerted by increasing volumes of lower-priced subject imports prevented domestic producers from raising prices as demand and raw material costs increased.²⁴⁹ The Commission concluded that subject imports depressed and suppressed prices for the domestic like product to a significant degree.²⁵⁰

In the expedited first five-year reviews, the Commission observed that there was no evidence on the record indicating that price would not continue to be an important factor for purchasers.²⁵¹ The Commission consequently found that subject imports would likely undersell the domestic like product in order to gain market share as they successfully had done during the original investigations.²⁵² It concluded that revocation of the antidumping duty orders

²⁴⁷ Original Investigations, USITC Pub. 3782 at 27.

²⁴⁸ Original Investigations, USITC Pub. 3782 at 28.

²⁴⁹ Original Investigations, USITC Pub. 3782 at 29-30.

²⁵⁰ Original Investigations, USITC Pub. 3782 at 29-30.

²⁵¹ First Five-Year Reviews, USITC Pub. 4184 at 20.

²⁵² First Five-Year Reviews, USITC Pub. 4184 at 20.

would likely lead to a significant increase in subject imports from China and Spain at prices that would significantly undersell the domestic industry and that those imports would likely enter the United States at prices that would have a depressing effect on prices for the domestic like product.²⁵³

In the full second five-year reviews, the Commission noted that there was at least a moderate degree of substitutability between imports from the subject countries and the domestic like product and that price played an important role in purchasing decisions.²⁵⁴

The Commission observed that the record contained limited pricing comparisons of the domestic like product and subject imports from China and Spain. These data indicated that subject imports from China undersold the domestic like product in 12 of 16 quarterly price comparisons by margins ranging from 0.3 percent to 20.0 percent and that subject imports from Spain undersold the domestic like product in nine of 13 quarterly price comparisons by margins ranging from 2.3 percent to 15.5 percent.²⁵⁵

The Commission concluded that subject producers would likely significantly undersell the domestic like product to gain market share in the event of revocation as had occurred in the original investigation period. It found that this underselling would likely result in significant price effects, as domestic producers would be forced either to cut prices or risk losing sales to subject import competition. It observed that several responding purchasers indicated that if

²⁵³ First Five-Year Reviews, USITC Pub. 4184 at 20.

²⁵⁴ Second Five-Year Reviews, USITC Pub. 4646 at 31; Confidential Second Five-Year Reviews (EDIS Doc. 595319) at 47.

²⁵⁵ Second Five-Year Reviews, USITC Pub. 4646 at 31-32; Confidential Second Five-Year Reviews (EDIS Doc. 595319) at 47-48.

the orders were revoked, low-priced subject imports would enter the U.S. market creating significant downward pricing pressure on the domestic like product.²⁵⁶ Thus the Commission concluded that that, absent the disciplining effects of the orders, significant volumes of subject imports from China and Spain would likely significantly undersell the domestic like product to gain market share and likely would have significant depressing and/or suppressing effects on prices of the domestic like product.²⁵⁷

2. The Current Five-Year Reviews

As discussed in section IV.B above, we find a moderate-to-high degree of substitutability between subject imports and the domestic like product and that price is an important factor in purchasing decisions.

The limited pricing data on the record of these reviews shows a mix of over- and underselling by cumulated subject imports. The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of four pricing products sold to unrelated U.S. customers during the first quarter of 2019 through the first quarter of 2022.²⁵⁸ Three U.S. producers and five importers reported usable pricing data, which

²⁵⁶ Second Five-Year Reviews, USITC Pub. 4646 at 31 (citing various questionnaire responses).

²⁵⁷ Second Five-Year Reviews, USITC Pub. 4646 at 32; Confidential Second Five-Year Reviews (EDIS Doc. 595319) at 48.

²⁵⁸ The Commission collected pricing data on the following four products:

Product 1 -- Granular trichloroicocyanuric with approximately 90 percent available chlorine content, sold in bulk packages equal to or greater than 1,000 pounds and less than or equal to 2,205 pounds;

Product 2 -- Granular sodium dichloroicocyanuric (dihydrate) with approximately 56 percent available chlorine content, sold in bulk packages equal to or greater than 1,000 pounds and less than or equal to 2,205 pounds, sold for repackaging for pool treatment use;

(Continued...)

accounted for *** percent of the U.S. producers' commercial shipments of chlorinated isos over the period of review,²⁵⁹ *** percent of the U.S. commercial shipments of subject imports from China, and *** percent of the U.S. commercial shipments of subject imports from Spain.²⁶⁰

The pricing data indicate that cumulated subject imports undersold the domestic like product in three of 14 quarterly comparisons, at margins averaging *** percent, corresponding to reported sales volumes of *** short tons of subject imports.²⁶¹ These data indicate that cumulated subject imports oversold the domestic like product in the remaining 11 quarterly comparisons, at margins averaging *** percent, corresponding to reported sales volumes of *** short tons.²⁶²

Firms that imported subject merchandise for their own use, repacking, and/or retail sale were requested to provide import purchase cost data. Two importers reported useable import purchase cost data for products 1 and 3.²⁶³ Purchase-cost data reported by these firms accounted for *** percent of total imports from China in 2021 and *** percent of total imports from Spain in that year.²⁶⁴

Product 3 -- 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with U.S.-produced granular/powder chlorinated isos; and

Product 4 -- Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers. CR/PR at V-8.

²⁵⁹ Derived from Tables V-5, V-6, H-1, and H-2, and Responses to Domestic Producer Questionnaire, Question II-4a.

²⁶⁰ Derived from Tables V-5 to V-8 and Responses to Importer Questionnaire, questions II-7a and II-8a.

²⁶¹ CR/PR at Table H-4.

²⁶² CR/PR at Table H-4.

²⁶³ CR/PR at V-16. The importers were *** which are also ***. *Id.* Both of these responding importers reported that they needed to import to supplement insufficient domestic supply. *Id.*

²⁶⁴ CR/PR at V-16.

According to these purchase-cost data, landed duty-paid costs for cumulated subject imports were below the sales prices of the domestic like product in *** of *** quarterly comparisons involving *** short tons of subject imports, with the differential between the domestic industry's prices and the lower import purchase-cost averaging *** percent.²⁶⁵ Landed duty-paid costs for cumulated subject imports were above the sales prices of the domestic like product in the remaining *** quarterly comparisons involving *** short tons at price-cost differentials averaging *** percent.²⁶⁶

We recognize that the import purchase-cost data may not reflect the total cost of importing and therefore requested that importers provide additional information regarding the costs and benefits of importing chlorinated isos themselves. One responding importer, ***, reported incurring additional costs beyond the landed duty-paid costs associated with importing chlorinated isos, including inland freight, and estimated that its additional costs were equivalent to *** percent of the landed duty-paid value of its imports.²⁶⁷ *** reported that prices of imported chlorinated isos were not lower than domestic prices, and *** reported that they were lower when the additional costs of importing were excluded.²⁶⁸

We have also considered price trends during the period of review. Quarterly sales prices for the domestic like product increased throughout the period of review.²⁶⁹ Cumulated

²⁶⁵ CR/PR at Table H-6.

²⁶⁶ CR/PR at Table H-6.

²⁶⁷ CR/PR at V-16. The other responding importer reported no additional costs. *Id.*

²⁶⁸ CR/PR at V-16.

²⁶⁹ See CR/PR at Tables V-5-6, H-1-2. The increase of domestic prices for chlorinated isos ranged from 67.4 percent to 121.4 percent over the period of review. *Id.* at Tables V-11, H-1.

subject import prices and import purchase costs generally increased in 2021 and in interim 2022, compared to interim 2021.²⁷⁰

Based on the foregoing, including the significant subject import underselling during the original investigations, the moderate-to-high degree of substitutability between subject imports and the domestic like product, and the importance of price in purchasing decisions, we find that underselling by cumulated subject imports would likely be significant in the event of revocation of the orders, as in the original investigations. Absent the discipline of the orders, the significant volumes of low-priced cumulated subject imports would likely force the domestic industry either to lower prices, restrain price increases necessary to cover increasing costs, or else lose sales and market share to subject imports, as they did in the original investigations. Indeed, several responding purchasers reported anticipating that that if the orders were revoked, low-priced subject imports would likely exert significant downward pressure on prices for the domestic like product.²⁷¹ We consequently find that, if the orders were revoked, cumulated subject imports would likely have significant price effects within a reasonably foreseeable time.

E. Likely Impact

1. The Original Investigations and Prior Five-Year Reviews

In the original investigations, the Commission examined the relevant economic factors bearing on the industry in the United States and found that despite a substantial increase in

²⁷⁰ CR/PR at V-21 and Table V-11, and H-1 to H-3.

²⁷¹ CR/PR at Appendix D-7 to D-8. For instance, *** stated that the ***; *** stated that revocation would ***; *** stated that would ***. *Id.*

demand, the domestic industry's production was relatively level, the industry's capacity increased slightly, and the industry's capacity utilization fell slightly.²⁷² Additionally, the domestic industry's share of the U.S. market fell steadily from 2002 to 2004, its employment indicators deteriorated, and it lost revenue as its prices and sales values declined.²⁷³ As a result of the trends in costs and prices, the Commission found that the domestic industry's financial indicators eroded substantially between 2002 and 2004.²⁷⁴ It attributed the deterioration in the domestic industry's condition to significant increases in subject import volume that took market share from the domestic industry and forced the domestic industry to cut prices despite increasing costs.²⁷⁵ The Commission concluded that subject imports had a significant adverse impact on the domestic industry.²⁷⁶

In the expedited first five-year reviews, the Commission found that revocation of the antidumping duty orders would likely lead to a significant increase in the volume of subject imports and that the subject imports would likely significantly undersell the domestic like product, resulting in significant price depression and/or suppression.²⁷⁷ The Commission determined that the intensified subject import competition that would likely occur upon revocation of the antidumping duty orders would likely have a significant adverse impact on the domestic industry.²⁷⁸ Specifically, the Commission found that the domestic industry would

²⁷² Original Investigations, USITC Pub. 3782 at 32.

²⁷³ Original Investigations, USITC Pub. 3782 at 32-33.

²⁷⁴ Original Investigations, USITC Pub. 3782 at 34.

²⁷⁵ Original Investigations, USITC Pub. 3782 at 34.

²⁷⁶ Original Investigations, USITC Pub. 3782 at 35.

²⁷⁷ First Five-Year Reviews, USITC Pub. 4184 at 23.

²⁷⁸ First Five-Year Reviews, USITC Pub. 4184 at 23.

likely lose market share to low-priced subject imports and would likely obtain lower prices due to competition from subject imports, which would adversely affect its production, shipments, sales, and revenue.²⁷⁹ Accordingly, the Commission concluded that if the antidumping duty orders were revoked, subject imports from China and Spain would likely have a significant adverse impact on the domestic industry within a reasonably foreseeable time.²⁸⁰

In the full second five-year reviews, the Commission found that the condition of the domestic industry had generally improved over the period of review, based on an examination of the industry's granular and tableting operations. The Commission did not find that the domestic industry was in a vulnerable condition due to the domestic industry's improvements in market share, production, U.S. shipments, capacity utilization, and profitability. The Commission concluded, however, that revocation of the antidumping duty orders would likely lead to a significant increase in the cumulated volume of subject imports that would likely undersell the domestic like product and significantly suppress or depress prices for the domestic like product. Thus, it found that the likely volume and price effects of cumulated subject imports would likely have a significant impact on the domestic industry.²⁸¹

In considering the likely role of nonsubject imports in the U.S. market, the Commission found that there was no indication or argument that the presence of nonsubject imports, which decreased in volume during the period of review, would prevent subject imports from re-

²⁷⁹ First Five-Year Reviews, USITC Pub. 4184 at 23.

²⁸⁰ First Five-Year Reviews, USITC Pub. 4184 at 23. Due to the limited evidence on the record of the expedited first five-year reviews, the Commission did not make a determination whether the domestic industry was vulnerable. See USITC Pub. 4184 at 22.

²⁸¹ Second Five-Year Review, USITC Pub. 4646 at 34.

entering the U.S. market in significant quantities after revocation, given the large amount of capacity in the subject countries and the relative attractiveness of the U.S. market.²⁸²

2. The Current Five-Year Reviews

The domestic industry's performance declined over the period of review by most measures, as domestic producers experienced supply disruptions and *** production facility was destroyed. The domestic industry's capacity, production, and capacity utilization decreased.²⁸³ The industry's U.S. shipments and market share also declined, while inventories declined steadily during this same time period.²⁸⁴ Although productivity increased irregularly, the industry's number of production and related workers ("PRWs"), hours worked, and wages paid declined over the period of review.²⁸⁵

²⁸² Second Five-Year Review, USITC Pub. 4646 at 34-35.

²⁸³ The domestic industry's capacity decreased from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021, and was *** short tons in interim 2022 compared to *** short tons in interim 2021. Production decreased from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021, and was *** short tons in interim 2022 compared to *** short tons in interim 2021. Capacity utilization increased from *** percent in 2019 to *** percent in 2020 and *** percent in 2021, and was *** percent in interim 2022 compared to *** percent in interim 2021. CR/PR at Table III-8.

²⁸⁴ The domestic industry's U.S. shipments decreased from *** short tons in 2019 to *** short tons in 2020, and *** short tons in 2021, and were *** short tons in interim 2022 compared to *** short tons in interim 2021. CR/PR at Table III-10. End-of-period inventory quantities decreased from *** short tons in 2019 to *** short tons in 2020 and *** short tons in 2021, and were *** short tons in interim 2022 compared to *** short tons in interim 2021. CR/PR at Table III-14.

²⁸⁵ The number of PRWs during the period of review decreased from *** in 2019 to *** in 2020 and *** in 2021, and were *** in interim 2022 compared to *** in interim 2021. Worker productivity (short tons per 1,000 hours) decreased from *** in 2019 to *** in 2020, before increasing to *** in 2021, and was *** in interim 2022 compared to *** in interim 2021. Total hours worked were *** in 2019, *** in 2020 and *** in 2021, and were *** in interim 2022 compared to *** in interim 2021. Wages paid increased from \$*** in 2019 to \$*** in 2020, before declining to \$*** in 2021, and were \$*** in interim 2022 compared to \$*** in interim 2021. Hourly wages (dollars per hour) increased from \$*** in 2019 to \$*** in 2020 and \$*** in 2021, and were \$*** in interim 2022 compared to \$*** in interim 2021. Unit labor costs (dollars per short ton) increased from \$*** in 2019 to \$*** in 2020, before decreasing to \$*** in 2021, and were \$*** in interim 2022 compared to \$*** in interim 2021. CR/PR at Table III-23.

The domestic industry's financial performance also declined irregularly from 2019 to 2021, before improving in interim 2022 compared to interim 2021.²⁸⁶ The industry's sales revenue declined irregularly from 2019 to 2021,²⁸⁷ as did its operating income, operating income as a ratio to net sales, and return on assets.²⁸⁸ Although the domestic industry's capital expenditures increased irregularly from 2019 to 2021, the industry's research and development expenses declined irregularly during the period.²⁸⁹

As noted above, Bio-Lab's granular chlorinated isos production facility was destroyed in August 2020, resulting in a reduction in the domestic industry's granular capacity of *** short tons or a projected loss of *** percent in total domestic capacity for 2021.²⁹⁰ Bio-Lab's new facility is expected to begin production in late 2022 or early 2023, in time for the 2023 sales season.²⁹¹ Given the increasing presence of subject imports during the period of review, their rapid response to the significant loss of domestic industry production capacity after August 2020, and Bio-Lab's substantial investment in this new facility, the domestic industry's

²⁸⁶ Due to a single quarter of data available for 2022, we attach greater weight to the domestic industry's financial performance during the 2019-2021 period than to the interim periods, consisting of the first quarters of 2021 and 2022.

²⁸⁷ The domestic industry's net sales revenues decreased from \$*** in 2019 to \$*** in 2020 and \$*** in 2021, and were \$*** in interim 2022 compared to \$*** in interim 2021. CR/PR at Table III-28.

²⁸⁸ The domestic industry's operating income increased from \$*** in 2019 to \$*** in 2020 but declined to \$*** in 2021, and was \$*** in interim 2022 compared to \$*** in interim 2021. As a ratio to net sales, operating income increased from *** percent in 2019 to *** percent in 2020 before declining to *** percent in 2021, and was *** percent in interim 2022 compared to *** in interim 2021. CR/PR at Table C-2. The domestic industry's return on assets increased from *** percent in 2019 to *** percent in 2020 before declining to *** percent in 2021. CR/PR at Table III-35.

²⁸⁹ The domestic industry's total capital expenditures totaled \$*** in 2019, \$*** in 2020, and \$*** in 2021, and was \$*** in interim 2022 compared to \$*** in interim 2021. Calculated from CR/PR at Table III-29. Research and development expenses totaled \$*** in 2019, \$*** in 2020, and \$*** in 2021, and were \$*** in interim 2022 compared to \$*** in interim 2021. CR/PR at Table III-31.

²⁹⁰ Calculated from CR/PR at Table III-8.

²⁹¹ CR/PR at II-5 to II-6, II-7 n.11, and Table III-20; *see also* Hearing Tr. at 63-64 (Bentley).

performance in the reasonably foreseeable future will depend in large part on Bio-Lab's ability to regain sales from subject imports after its new facility becomes operational.

Because the domestic industry's performance declined during the period of review by most measures, including capacity, production, employment, U.S. shipments, market share, and profitability, with the loss of the Bio-Lab facility being responsible for a significant portion of the decline, and given the importance of Bio-Lab's rebuilt facility being able to make sales of domestic product as it comes online, we find that the industry is in a vulnerable condition.²⁹²

Based on the record of these reviews, we find that revocation of the orders would likely have a significant adverse impact on the domestic industry. Revocation of the orders would likely result in a significant volume of cumulated subject imports that would undersell the domestic like product to a significant degree. Given the moderate-to-high degree of substitutability between subject imports and the domestic like product and the importance of price to purchasers, the likely significant volume of low-priced subject imports would likely force domestic producers to either cut prices or forgo necessary price increases to retain sales, or relinquish sales and market share to cumulated subject imports. Consequently, the likely significant volume of low-priced subject imports and their significant price effects would likely have a significant adverse impact on the production, shipments, sales, market share, and revenues of the domestic industry, which, in turn, would have a direct adverse impact on the industry's profitability and employment, as well as its ability to raise capital and make and

²⁹² As noted above, given the single quarter of data available for 2022, we attach greater weight to the domestic industry's financial performance during the 2019-2021 period for our analysis of the domestic industry's vulnerability than to the data available for the interim periods. See CR/PR at II-8 and Table C-2.

maintain necessary capital investments. We conclude that, if the orders were revoked, subject imports of chlorinated isos from China and Spain would be likely to have a significant impact on the domestic industry within a reasonably foreseeable time.

We have also considered the likely role of nonsubject imports in the U.S. market. There is no indication or argument on this record that the presence of nonsubject imports, which increased modestly in terms of volume and market share during the period of review, would prevent cumulated subject imports from increasing significantly in the event of revocation of the orders, given the large capacity and export orientation of the subject industries and the attractiveness of the U.S. market. Furthermore, given the moderate-to-high degree of substitutability between subject imports and the domestic like product and the importance of price in purchasing decisions, the presence of nonsubject imports in the U.S. market would not prevent the significant volumes of low-priced cumulated subject imports that are likely after revocation from taking market share, at least in part, from the domestic industry, or forcing domestic producers to either lower prices or forgo price increases to retain market share. Consequently, we find that cumulated subject imports would likely cause adverse effects on the domestic industry that are distinct from any impact of nonsubject imports in the event of revocation.

Accordingly, we conclude that, if the antidumping duty orders on chlorinated isos from China and Spain were revoked, cumulated subject imports would likely have a significant impact on the domestic industry within a reasonably foreseeable time.

V. Conclusion

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

SEPARATE AND DISSENTING VIEWS OF CHAIRMAN DAVID S. JOHANSON

I. INTRODUCTION

Based on the record in these five-year reviews, I concur with my colleagues in determining that material injury is likely to continue or recur within a reasonably foreseeable time if the antidumping duty order on subject imports of chlorinated isos (“chlorinated isos”) from China is revoked. I write separately from my colleagues, however, as I find that material injury is not likely to continue or recur within a reasonably foreseeable time if the antidumping duty order on subject imports of chlorinated isos from Spain is revoked. I join the discussion of the Commission majority regarding background (Section I), domestic like product and domestic industry (Section II), cumulation (only Sections III(A)–(C)), legal standards (Section IV(A)), conditions of competition in the U.S. market (Section IV(B)), and the finding that revocation of the order with respect to China is likely to lead to a continuation or recurrence of material injury, with exceptions as noted. I write separately to discuss my analysis of the statutory factors regarding imports from Spain.

II. CUMULATION

A. Likelihood of No Discernible Adverse Impact

I concur with my colleagues (Section III(B) of majority views) in not finding that subject imports of chlorinated isos from China and Spain would likely have no discernible adverse impact on the domestic industry if those orders were revoked.

B. Likelihood of a Reasonable Overlap of Competition

I concur with my colleagues (Section III(C) of majority views) in concluding that there would likely be a reasonable overlap of competition between the domestic like product and subject imports from China and Spain.

C. Likely Conditions of Competition

I write separately because, based on the evidence, I exercise my discretion to not cumulate subject imports from China and Spain.

I base my cumulation decision on my analysis of the likely conditions of competition of subject imports that might enter the U.S. market in the event of revocation from the distinct industries in China and Spain. I find that the industry in Spain differs from the industry in China because it combines both (1) high capacity utilization (and, concomitantly, low excess capacity) and (2) low average export orientation—especially when considering Spain within the ambit of its neighbors in the European Union (EU)—over the period of these third reviews. I consider this important as both characteristics make the Spanish industry less likely to export to the U.S. market in the event of revocation.¹

(i.) Capacity utilization by the Spanish industry

Capacity utilization by the Spanish industry was consistently high and steadily increasing over the period of these third reviews, ranging from *** percent in 2019 to *** percent in 2021, and was *** percent in January–March (“interim”) 2021 and *** percent in interim

¹ As will be detailed in Section III(A) of these Separate and Dissenting Views, the combination of the two characteristics leads me to conclude that a significant increase in subject imports from Spain is not likely if the antidumping duty order on chlorinated isos from Spain were revoked.

2022.² Over the period of these reviews, excess capacity in Spain was *** short tons in 2019, *** short tons in 2020, and *** short tons in 2021; there were *** short tons of excess capacity in interim 2021 and *** short tons of excess capacity in interim 2022.³ Even at its highest level of the period, excess capacity in the Spanish industry would have accounted for less than *** percent of apparent U.S. consumption in 2021.⁴ The Spanish industry's high capacity utilization was also observed during the original investigations,⁵ indicating that this is a durable characteristic of the Spanish industry. Spanish capacity increased by approximately *** from the last year of the original investigations (*** short tons in 2004) to the last year of the period of these reviews (*** short tons in 2021).⁶ Spanish capacity growth was, nevertheless, far less prolific than the growth in global consumption of chlorinated isos, which grew from an estimated 220,500 short tons in 2002⁷ to potentially 984,054 short tons in 2021, the quantity of

² CR/PR at Table IV-11. These data are for the integrated producers in Spain. While the capacity utilization data for the tableter show *** capacity utilization in that segment, ranging from *** percent to *** percent during 2019-21, a *** of the chlorinated isos used by the Spanish tableter, Tamar, is sourced from the integrated producers of Spanish chlorinated isos, and so taking into account the tableter's capacity would largely be an exercise in double-counting. CR/PR at Table IV-12 and p. IV-23 n.16.

³ CR/PR at Table IV-11. Production capacity in Spain increased by *** percent between 2019 and 2020 and remained steady in 2021; at the same time, Spanish production increased steadily from 2019 to 2021, for a total increase of *** percent. *Id.*

⁴ CR/PR at Tables IV-11 & C-2.

⁵ Over the period of the original investigations, the questionnaire response for Aragonesas Delsa S.A., accounting for about *** percent of Spanish production capacity (using *** short tons of capacity for both trichlor and dichlor) and *** exports to the U.S. market, showed the Spanish industry with *** percent capacity utilization in 2002, declining steadily to *** percent in 2004. Complete data was not available for a second Spanish firm that began production in 2001 (the year before the beginning of the period of investigation) and did not export to the U.S. market; staff estimated its production capacity via public information. Original Conf. Staff Report at VII-10 & n.2 and Table VII-3 (revised by memo INV-CC-080 of June 2, 2005).

⁶ CR/PR at Table IV-11; Original Conf. Staff Report at Table VII-3.

⁷ Original Conf. Staff Report at II-10 (citing a petitioner-provided figure of 200,000 metric tons).

global exports covered by six-digit HS subheading HS 2933.69, a category that includes chlorinated isos and out-of-scope products (a proxy for consumption).⁸

(ii.) Export orientation of the Spanish industry

On the record of these reviews, total exports of chlorinated isos from Spain, as a share of total shipments, increased steadily and ranged from *** percent in 2019 to *** percent in 2021, and was *** percent in interim 2021 and *** percent in interim 2022.⁹ While these shares would typically be considered high, when exports to the European Union are considered together with home market shipments, a different picture of export orientation emerges, with *** percent of the Spanish industry's shipments in 2019 being directed to either Spain's home market or to Spain's neighbors in the EU; in 2020, that figure was *** percent and in 2021 it was *** percent.¹⁰ In each year of the period of these reviews, Spain's top 5 leading export destinations for products covered by HS 2933.69, a category that includes chlorinated isos and out-of-scope products, other than the U.S. market, were all EU countries.¹¹ Neighboring France was Spain's leading export destination in each year of the period 2019-2021, accounting for about a third of Spain's export shipments over the period of these reviews.¹²

⁸ CR/PR at Table IV-14.

⁹ CR/PR at Table IV-11.

¹⁰ CR/PR at Table IV-11. In interim 2021, the share of total Spanish industry shipments going to the home market or to the EU market was *** percent and in interim 2022, that share was *** percent. *Id.*

¹¹ CR/PR at Table IV-13.

¹² CR/PR at Table IV-13 (questionnaire responses are believed to account for all known production of granular chlorinated isos in Spain). In 2019, Spain was the eighth-ranked global exporter of products covered by six-digit HS subheading HS 2933.69, a category that includes chlorinated isos and out-of-scope products; Spain rose to sixth place in 2020 and to fourth place in 2021. CR/PR at Table IV-14. It appears that there was an increase in Spanish exports of out-of-scope products within that six-digit HS subheading in 2021. In 2019, Spanish exports reported in questionnaire responses accounted for *** percent of the exports recorded in HS 2933.69; in 2020, that figure was *** percent; in 2021,

As noted above, even with EU export shipments considered as an extension of the Spanish home market, the combined share of home market shipments and EU shipments declined steadily from *** percent of the Spanish industry's total shipments in 2019 to *** percent in 2020 and *** percent in 2021.¹³ Most of that decline, especially in 2021, was caused by increased export shipments to the U.S. market¹⁴ in the wake of the catastrophic destruction of Bio-Lab's Lake Charles, Louisiana, production facility in August 2020.¹⁵ Of particular importance for my consideration of the Spanish industry is that, in the wake of the shortages that resulted from this disaster (which eliminated roughly 30 percent of U.S. production capacity¹⁶), domestic interested party Bio-Lab's parent company requested that Ercros divert shipments intended for Bio-Lab's affiliated European operations to supply Bio-Lab's operations in the U.S. market.¹⁷ Further, Ercros conditioned any exports to the U.S. market on domestic interested parties' withdrawal of a 2022 administrative review pending against it at

however, that figure dropped to *** percent, indicating that out-of-scope products accounted for a greater part of Spain's exports under that subheading. *Compare* CR/PR at Table IV-11 *with* Table IV-13.

¹³ CR/PR at Table IV-11. In interim 2021, the share of total Spanish industry shipments going to the home market or to the EU market was *** percent and in interim 2022, that share was *** percent, an indication that the trend had begun to reverse. *Id.*

¹⁴ During 2019-2021, Spanish export shipments to the U.S. market, as a share of total shipments, increased by *** percentage points, while shipments to the Spanish home market declined by *** percentage points, export shipments to the EU market declined by *** percentage points, and export shipments to all other markets declined by *** percentage points. CR/PR at Table IV-11.

¹⁵ CR/PR at III-2 to III-4.

¹⁶ CR/PR at III-8.

¹⁷ CR/PR at IV-2 & n.4. In 2021, *** imported *** short tons and *** short tons of chlorinated isos from Spain respectively. CR/PR at Tables III-16 and III-17. Combined, these imports *** were equivalent to *** percent of Spanish producers' exports to the United States in 2021 (*** short tons of *** short tons). Calculated from CR/PR at Tables III-16, III-17, and IV-11.

Commerce.^{18 19} This establishes the higher export orientation of the Spanish industry in 2021 as aberrant and was, to a large extent, directed by the U.S. industry. For cumulation purposes, I believe that, when considering likely export orientation should the antidumping duty orders be revoked, the export orientation measured in 2019 (when exports to the U.S. market were *** and the combined share of home market shipments and EU shipments was *** percent of the Spanish industry's total shipments) has more relevance than the other two years of the period, for which the trends are driven by the destruction of Bio-Lab's production facility and subsequent supply shortages.

During the period of the original investigations, exports by the Spanish industry to the U.S. market were *** than exports to all other markets (including other EU markets).²⁰ During the first review, domestic interested parties claimed that the increased presence of chlorinated isos from China in the EU market had led to increased pressure on Spanish producers to export outside of the EU.²¹ The increased pressure from imports in the EU of trichloroisocyanuric acid ("trichlor") from China resulted in antidumping duties being imposed by EU trade authorities in 2005 on imports of that product from China.²²

¹⁸ Hearing Tr. at 43-44 (Alves), 51 (Bentley), 96 (Sim), 155 (Sim). *See also* Domestic Interested Parties Witness Testimony and Hearing Materials, Attachment 6, slides 23 & 24.

¹⁹ It also appears that there were Spanish expectations of higher prices given the tightness in the U.S. market in the wake of the Bio-Lab explosion. Hearing Tr. at 23-24 (Lawrence), 55-56 (Bentley), 68 (Pan), 124-26 (Sim, Cros, Ferrell); Domestic Interested Parties responses to Commissioners' questions at I-22 to I-23; Ercros posthearing brief at 6, 8 and responses to Commissioners questions at 7.

²⁰ Total exports of chlorinated isos from Spain were *** percent of total shipments in 2002, *** percent in 2003, and *** percent in 2004. *** of the exports of the Spanish industry were to the *** market. No breakout for exports to Europe was available under the category "exports to all other markets." Original Conf. Staff Report at Table VII-3. Aragonesas Delsa indicated that its other principal export markets were ***. Original Conf. Staff Report at VII-10.

²¹ First Review Conf. Staff Report at I-47. *Id.* at I-39.

²² First Review Conf. Staff Report at I-39. The staff report from these third reviews indicates that this antidumping duty on imports from China remains in effect in 2022. CR/PR at IV-26.

The Commission expedited the first reviews, and as a result, no new information was collected by the Commission on the Spanish industry.²³ No Spanish firm participated in the second reviews, despite the Commission having determined to conduct full reviews.²⁴ Nevertheless, official export data from the Spanish government (based on an eight-digit tariff code) showed that, in addition to the U.S. market, leading destinations for Spanish exports were all in the EU; France was the leading destination throughout 2013-2015, followed by the Czech Republic, Germany, Portugal, Slovakia, and Italy.²⁵ Global Trade Atlas data collected in the second reviews showed that Spain accounted for 3.0 percent of global exports over 2013-2015 and ranged between the fifth and seventh largest global exporter.²⁶

(iii.) Capacity utilization by the Chinese industry

There is scant information on the record of these reviews regarding the capacity or production of the Chinese industry producing chlorinated isos, as no information was received from any Chinese producer in these or any previous reviews.²⁷ Domestic interested parties presented un rebutted information in these reviews that the industry in China currently has over 1,078,059 short tons of capacity for both sodium dichloroisocyanurate (“dichlor”) and

²³ No responses to the notice of institution were received from any Spanish producer at the time of the expedited first reviews in 2010. The only new information regarding the Spanish industry was from the domestic interested parties, who included excerpts from ***, indicating that “Aragonesas and INQUIDE exported *** percent and *** percent of their total production respectively in 2006.” First Review Conf. Staff Report at I-46 to I-47. INQUIDE’s exports were to “other Western European countries, South America, and the Middle East.” *Id.* at I-47.

²⁴ The staff report notes that Ercros had acquired Aragonesas Delsa in 2005 and was planning some capacity expansion. Second Review Conf. Staff Report at IV-10.

²⁵ Second Review Conf. Staff Report at Table IV-6.

²⁶ Second Review Conf. Staff Report at Table IV-8.

²⁷ CR/PR at IV-15.

trichlor.²⁸ While the record does not contain any Chinese production estimates for the industry as a whole, Global Trade Atlas data indicate that the Chinese industry exported 633,802 short tons in 2021,²⁹ which puts a lower bound on capacity utilization of about 58.8 percent (assuming, in the extreme, that all Chinese production were exported and all exports in the six-digit subheading consist of in-scope merchandise). Respondent Ercros presents an analysis, based on its participation in the EU antidumping proceedings, showing Chinese production capacity for trichlor at *** short tons, Chinese production at *** short tons, capacity utilization of *** percent, and with *** short tons of excess capacity.³⁰

In the original investigations, four Chinese firms accounting for most exports to the U.S. market responded.³¹ The capacity of the Chinese industry producing all granular chlorinated isos increased steadily from *** short tons in 2002 to *** short tons in 2004; production increased irregularly from *** short tons in 2002 to *** short tons in 2004; this resulted in capacity utilization of *** percent in 2002, *** percent in 2003, and *** percent in 2004.³²

In the first expedited reviews, domestic interested parties indicated they believed there to be six Chinese firms exporting to the U.S. market and presented information collected by *** that estimated there were at least 22 producers in China.³³ The Commission compiled a list of 14 Chinese firms from information provided by domestic interested parties in 2010 that showed

²⁸ Domestic Interested Parties prehearing brief at 28 (Table 2) (based on public marketing statements of firms on their respective websites).

²⁹ CR/PR at Table IV-7.

³⁰ Ercros posthearing brief at 10; Ercros responses to Commissioners' questions at 17-18. The reported figures were capacity of *** metric tons and production of *** metric tons. *Id.*

³¹ Original Conf. Staff Report at VII-1.

³² Original Conf. Staff Report at Table VII-1 (revised by memo INV-CC-080 of June 2, 2005).

³³ First Review Conf. Staff Report at I-42.

a combined capacity of nearly *** short tons, although combining these capacity figures is likely to introduce double-counting due to the inclusion of tableters who use granular chlorinated isos produced by other listed Chinese producers.³⁴ In the first reviews, domestic interested parties estimated that, in 2006, Chinese total production was estimated to be *** short tons, which was nearly three times the production quantity recorded during the original investigations.³⁵

In the full second reviews, the domestic interested parties provided information that, in 2010, the Chinese industry had capacity to produce 141,500 short tons of chlorinated isos and that two recent facility additions had raised China's manufacturing capacity by another 100,000 short tons.³⁶ Global Trade Atlas data on Chinese exports of trichlor (there were no reported Chinese exports of dichlor during 2013-2015) showed that, in 2014, Chinese exports totaled over 120,000 short tons, which was double the estimated total production quantity for China in 2006, so clearly capacity expanded between 2006 and 2014.³⁷

To summarize, while there is no capacity utilization available for the broader Chinese industry after the original investigation period of 2002-2004, there are data, albeit not perfect, showing that capacity in China during the first reviews (estimated at *** short tons³⁸) had increased by *** over what it was at the end of the period of the original investigations (when it peaked at *** short tons³⁹). Capacity in the second reviews reported a comparable figure (as

³⁴ First Review Conf. Staff Report at Table I-13.

³⁵ First Review Conf. Staff Report at I-43.

³⁶ Second Review Conf. Staff Report at IV-7.

³⁷ Second Review Conf. Staff Report at Table IV-5.

³⁸ First Review Conf. Staff Report at Table I-13.

³⁹ Original Conf. Staff Report at Table VII-1.

much as 241,500 short tons in 2010⁴⁰), but in these third reviews, current capacity estimates have increased over that second review figure by more than fourfold to 1,078,059 short tons.⁴¹ Chinese production capacity—measured from 2004 to 2021—has experienced a *** increase.⁴² Given this meteoric increase in Chinese capacity—as well as the trade remedies in place in both the United States and the EU—I find it likely that capacity utilization in the Chinese industry is currently much lower than it had been during the original investigations, when it was comparable to the Spanish industry’s capacity utilization.

(iv.) Export orientation of the Chinese industry

In these full third reviews, Global Trade Atlas data show exports from China to be steadily and dramatically increasing from 464,338 short tons in 2019, to 506,583 short tons in 2020, and 633,802 short tons in 2021.⁴³ These figures are notably higher (about five times as high) than those reported in the second review, but the data are not directly comparable to those used in the second review.⁴⁴ The Chinese industry’s leading export destinations in 2021 were geographically dispersed and included the United States, Brazil, Spain, India, Argentina, Mexico, Indonesia, the Netherlands, and Germany.⁴⁵ While the Chinese production data that would allow for a computation of the export orientation of the Chinese industry are not available on this record, even if all of the estimated 1,078,059 short tons of Chinese capacity

⁴⁰ Second Review Conf. Staff Report at IV-7.

⁴¹ Domestic Interested Parties prehearing brief at 28 (Table 2).

⁴² From *** short tons in 2004 to 1,078,059 short tons in 2021. Original Conf. Staff Report at Table VII-1; Domestic Interested Parties prehearing brief at 28 (Table 2).

⁴³ CR/PR at Table IV-7 (Global Trade Atlas data based on six-digit HS subheading).

⁴⁴ Data from the second reviews were based on an eight-digit tariff code, 2933.69.22. Second Review Conf. Staff Report at Table IV-5.

⁴⁵ CR/PR at Table IV-7.

was employed to produce chlorinated isos in 2021, the share of the Chinese industry's production that was exported was at least *** percent.⁴⁶ To the extent that production fell short of that capacity, the denominator in the export share calculation would be smaller and the export share would necessarily be higher.

In the original investigations, questionnaire data from the four responding Chinese producers showed that exports as a share of total Chinese shipments rose steadily throughout the period, increasing from *** percent in 2002, to *** percent in 2003, and to *** percent in 2004.⁴⁷ Data collected by the Commission on Chinese exports show that leading destinations other than the United States included "Asia and Europe (including Spain), as well as Australia, Canada, Mexico, and several countries in South America."⁴⁸

In the first expedited reviews, domestic interested parties estimated that, in 2006, Chinese total domestic consumption of chlorinated isos was *** short tons, while its production was *** short tons, implying that the Chinese industry exported *** percent of its production, or *** short tons, more than *** the largest annual exports during the period of the original investigations.⁴⁹ Domestic interested parties blamed the "surge" in imports from China during the period of the original investigations on an "export imperative" on the part of the Chinese industry, with its production increasing rapidly every year.⁵⁰

⁴⁶ Calculated as 633,802 short tons of Chinese exports divided by 1,078,059 short tons of potential production. CR/PR at Table IV-7; Domestic Interested Parties prehearing brief at 28 (Table 2).

⁴⁷ First Review Conf. Staff Report at Table VII-1. Quantities exported by the Chinese industry rose irregularly from *** short tons in 2002, increasing to *** short tons in 2003, then decreasing to *** short tons in 2004. *Id.*

⁴⁸ Original Conf. Staff Report at VII-1.

⁴⁹ First Review Conf. Staff Report at I-43.

⁵⁰ First Review Conf. Staff Report at I-43.

In the full second reviews, Global Trade Atlas data indicated that the industry in China exported at least 111,000 short tons in each year of the period (2013-2015),⁵¹ about *** the amount exported by the Chinese industry during the first reviews. This volume of exports was roughly *** the quantity reported (see above) in the first reviews. Apart from the U.S. market, other leading export destinations for the Chinese industry in 2015 were widely dispersed and included Spain, Mexico, Indonesia, Thailand, Brazil, Argentina, South Africa, and Germany.⁵² China was by far the largest global exporter, accounting for 67.1 percent of total global exports over the three years 2013-2015.⁵³

Summarizing the record on Chinese export orientation, while there has been no comprehensive production data collected for the Chinese industry since the original investigations, we do know that exports by the Chinese industry increased from *** short tons⁵⁴ in 2002 to 633,802 short tons in 2021,⁵⁵ a nearly *** increase, *** the growth in Chinese capacity over the same period (which was ***), supporting the conclusion that Chinese export orientation has increased since the original investigations, when it reached *** percent in 2004.⁵⁶

⁵¹ Second Review Conf. Staff Report at Table IV-5. The data are from subheading 2933.69.22 (a China-specific eight-digit code for trichlor).

⁵² Second Review Conf. Staff Report at Table IV-5 (ordered by volume in 2015).

⁵³ Second Review Conf. Staff Report at Table IV-8. During the final phase of the China and Japan investigations, the Commission quoted an industry trade journal that believed “‘almost all’ Chinese producers of chlorinated isos are export-oriented.” *Chlorinated Isos from China and Japan*, Inv. Nos. 701-TA-501 and 731-TA-1226 (Final), Pub. 4494 (Nov. 2014), VII-3 (citing a 2013 version of SRI’s *Chemical Economics Handbook*).

⁵⁴ First Review Conf. Staff Report at Table VII-1.

⁵⁵ CR/PR at Table IV-7.

⁵⁶ First Review Conf. Staff Report at Table VII-1.

(v.) Comparison of the Chinese and Spanish industries

Comparison of Capacity Utilization: The Spanish industry's capacity utilization was high throughout the period of these reviews, ranging from a share in the *** to nearly *** percent in 2021.⁵⁷ Further, because of the smaller size of the Spanish industry relative to the Chinese industry, the excess capacity corresponding to that capacity utilization was, at its peak in 2020, *** short tons,⁵⁸ which would have accounted for less than *** percent of apparent U.S. consumption in any given year.⁵⁹ The only other time capacity utilization was measured, during the original investigations, the Spanish industry's capacity utilization was even higher, supporting the position that the current high level of capacity utilization is not an anomaly.⁶⁰ The Chinese industry had similar, if somewhat lower, capacity utilization figures to the Spanish industry in the original investigations. Since 2005, reliable capacity and, especially, production data for the Chinese industry has been nonexistent. Nevertheless, the best estimate available is that since 2004, the Chinese capacity has increased ***, far more than the growth in global consumption (roughly ***), whereas Spanish capacity increased by less than ***, slower than the growth in global consumption.⁶¹ The capacity of the Chinese industry, in relation to the Spanish industry, is so large that even if the Chinese industry had a capacity utilization of ***

⁵⁷ CR/PR at Table IV-11.

⁵⁸ CR/PR at Table IV-11.

⁵⁹ CR/PR at Tables IV-11 & C-1.

⁶⁰ The Spanish industry had *** percent capacity utilization in 2002, *** percent in 2003, and *** percent in 2004. Original Conf. Staff Report at Table VII-3 (revised by memo INV-CC-080 of June 2, 2005).

⁶¹ Spanish production capacity increased from *** short tons in 2004 to *** short tons in 2021. CR/PR at Table IV-11 and Original Conf. Staff Report at Table VII-3. Chinese production capacity increased from *** short tons in 2004 to 1,078,059 short tons in 2021. Domestic Interested Parties prehearing brief at 28 (Table 2); Original Conf. Staff Report at Table VII-1.

percent, it would still have more excess capacity than did the Spanish industry in 2020.⁶² There is evidence on the record of these reviews that capacity utilization in at least some segments of the Chinese industry may be much lower than that, implying that excess capacity is substantial.⁶³

Comparison of Export Orientation: When exports to the European Union are considered together with the Spanish industry's home market shipments, a picture of low export orientation emerges, with *** percent of the Spanish industry's shipments in 2019 being directed to either Spain's home market or to Spain's neighbors in the EU; in 2020, that figure was *** percent and in 2021 it was *** percent.⁶⁴ As detailed above, the lower figures in 2020 and, especially, 2021 were caused by market tightness within the United States, and by the domestic industry's use of imports from the Spanish industry to alleviate such conditions. Further, 45.1 percent of Spain's exports of products under HS 2933.69 over the period 2019-2021 were to its immediate neighbors, France (32.3 percent) and Portugal (12.8 percent).⁶⁵ Considering the EU as an extension of the Spanish industry's "home market" has a compelling logic in these reviews as Ercros maintains that the Commission has trade data from the "two Spanish companies {that} comprise the entirety of the European chlorinated isos industry."⁶⁶ Unlike the situation during the period of the original investigations and part of the period of the first reviews, the Spanish industry has, since 2005, the benefit of an EU antidumping duty order

⁶² Chinese capacity in 2021 of 1,078,059 short tons, multiplied by ***, would yield excess capacity of *** short tons, larger than the *** short tons of Spanish excess capacity in 2020. Domestic Interested Parties prehearing brief at 28 (Table 2); CR/PR at Table IV-11.

⁶³ Ercros responses to Commissioners' questions at 17-18.

⁶⁴ CR/PR at Table IV-11.

⁶⁵ CR/PR at Table IV-13.

⁶⁶ Ercros posthearing brief at 9.

on imports of trichlor from China, providing breathing room for the Spanish industry to supply the whole of the EU market.⁶⁷ I am, therefore, comfortable assessing the Spanish industry's export orientation with its exports considered as an extension of its home market. Although the Chinese industry's export orientation was *** percent in 2002, that quickly rose to *** percent in 2004,⁶⁸ and by the first reviews, domestic interested parties estimated that the export orientation of the Chinese industry had reached *** percent.⁶⁹ In 2021, China was, by far, the leading exporter of the product covered by the six-digit HS subheading 2933.69, accounting for 64.4 percent of global exports, while Spain was the fourth largest exporter, accounting for 5.0 percent of global exports.⁷⁰ Unlike the export patterns of the Spanish industry, since the original investigations, the Chinese industry's leading export destinations were far-flung countries in North America, South America, and Europe.⁷¹

⁶⁷ First Review Conf. Staff Report at I-39 & I-47; *see also* CR/PR at IV-26. Although the foreign industry questionnaire data from the original investigations did not include a separate breakout for the EU, exports to "all other markets" were a low share of shipments, although steadily increasing from *** percent in 2002 to *** percent in 2004. Original Conf. Staff Report at Table VII-3. At the time of the first reviews, *** are listed among the "principal export markets." First Review Conf. Staff Report at I-48. By the time of the second reviews, EU countries account for 7 of the 9 leading export destinations in 2015, with France by far the largest (the United States and Morocco being the exceptions). Second Review Conf. Staff Report at Table IV-6. *See also* Hearing Tr. at 100 (Sim) ("Spanish producers are shielded from dumped Chinese imports in the European Union by the existing EU antidumping duty from trichlor from China.") and 113 (Morgan).

⁶⁸ First Review Conf. Staff Report at Table VII-1.

⁶⁹ First Review Conf. Staff Report at I-43.

⁷⁰ CR/PR at Table IV-14. It is again worth emphasizing that Spain's global export share in 2021 was higher than it would have been absent the unusual conditions in the U.S. market—Spain's global export share in 2019 was 2.5 percent, half of its value in 2021. *Id.*

⁷¹ CR/PR at Table IV-7; Second Review Conf. Staff Report at Table IV-5; Original Conf. Staff Report at VII-1.

(vi.) Conclusion

Therefore, I determine that, in the event of revocation of the antidumping duty orders on China and Spain, subject imports from Spain would be likely to compete under different conditions of competition than the subject imports from China. I base this decision on the significant differences between the capacity, capacity utilization, available excess capacity, and export orientation of the Chinese and Spanish industries producing chlorinated isos (taking into account the temporary tightness in the U.S. market as a result of the destruction of Bio-Lab's Lake Charles facility). Accordingly, for the reasons discussed above, I do not exercise my discretion to cumulate subject imports from Spain and I consider them separately from all other subject imports.

III. REVOCATION OF THE ANTIDUMPING DUTY ORDER ON SUBJECT IMPORTS FROM SPAIN IS NOT LIKELY TO LEAD TO A CONTINUATION OR RECURRENCE OF MATERIAL INJURY TO THE DOMESTIC INDUSTRY WITHIN A REASONABLY FORESEEABLE TIME

A. Likely Volume of Subject Imports from Spain

As discussed above in the section on cumulation, my primary reason for not cumulating subject imports from Spain is that the Spanish industry had, over the period of these third reviews, both high capacity utilization and low export orientation. The Spanish industry has both low levels of excess capacity with which to increase production of chlorinated isos, and a low propensity to export its production of this product beyond the EU. I believe that the combination of these characteristics makes it unlikely that there will be significant increases in subject imports from Spain within the reasonably foreseeable future were the antidumping duty order on chlorinated isos from Spain to be revoked.

During the period of the original investigations, the volume of subject imports from Spain increased by *** percent, increasing initially from *** short tons in 2002 to *** short tons in 2003, and then declining somewhat to *** short tons in 2004.⁷² The U.S. market share held by subject imports from Spain increased initially from *** percent in 2002 to *** percent in 2003, and then declined to *** percent in 2004, for an overall increase of *** percentage points.⁷³

After imposition of the antidumping duty order on chlorinated isos from Spain in 2005, subject imports from Spain were generally lower over the period of the expedited first reviews (2005 to 2009); in only one year (2008) did the volume of subject imports from Spain reach the range of the original investigations.⁷⁴ During the period of the second reviews, subject imports from Spain were *** in 2013, *** short tons in 2014, and *** short tons in 2015, all below the range from the original investigations.⁷⁵ The U.S. market share accounted for by U.S. shipments of imports from Spain increased steadily from *** in 2013, to *** percent in 2014, and to *** percent in 2015.⁷⁶

On the record of these third reviews, subject import volume from Spain was again *** in 2019, increasing to *** short tons in 2020 (within the range of the original investigations) and to *** short tons in 2021, *** for Spain.⁷⁷ The U.S. market share accounted for by U.S.

⁷² Original Conf. Staff Report at Table C-1 (revised by memo INV-CC-080 of June 2, 2005).

⁷³ Original Conf. Staff Report at Table C-1 (revised by memo INV-CC-080 of June 2, 2005).

⁷⁴ First Review Conf. Staff Report at Table I-9. Subject import volumes from Spain were 1,152 short tons in 2005, 2,050 short tons in 2006, 1,146 short tons in 2007, 4,627 short tons in 2008, and 2,149 short tons in 2009. *Id.*

⁷⁵ Second Review Conf. Staff Report at Table IV-1.

⁷⁶ Second Review Conf. Staff Report at Table C-1. U.S. shipments of imports from Spain were *** in 2013, *** short tons in 2014, and *** short tons in 2015. *Id.*

⁷⁷ CR/PR at Table IV-1.

shipments of imports from Spain increased steadily from *** in 2019, to *** percent in 2020, and to *** percent in 2021.⁷⁸

Since the 2005 imposition of the antidumping duty order on chlorinated isos from Spain, the import volume from Spain has been generally below the range of volumes observed during the period of the original investigations, or at most, just crossing the lower bound of that range. Not until 2021 were the import volumes recorded during the period of the original investigations exceeded. As noted above in the cumulation section, the increased export shipments to the U.S. market in 2021 came in the wake of the catastrophic destruction of Bio-Lab's Lake Charles, Louisiana, production facility in August 2020.⁷⁹ Due to the shortages that resulted from this disaster (eliminating about 30 percent of U.S. production capacity⁸⁰), domestic interested party Bio-Lab's parent company requested that Ercros divert shipments intended for its European operations to the supply Bio-Lab's operations in the U.S. market.⁸¹ Further, Ercros conditioned those exports to the U.S. market on domestic interested parties'

⁷⁸ CR/PR at Table C-2. The U.S. shipments of subject imports from Spain increased steadily from *** in 2019, *** short tons in 2020, and *** short tons in 2021. *Id.*

⁷⁹ CR/PR at III-2 to III-4.

⁸⁰ CR/PR at III-8.

⁸¹ CR/PR at IV-2 & n.4. In 2021, *** imported *** short tons and *** short tons of chlorinated isos from Spain. CR/PR at Tables III-16 and III-17. Combined, these imports *** equivalent to *** short tons of the *** short tons (or *** percent) of Spain's exports to the United States in 2021. Calculated from CR/PR at Tables III-16, III-17, and IV-11.

withdrawal of the 2022 administrative review pending against it at Commerce.⁸² ⁸³ Spanish respondents expect that this situation will reverse itself next year.⁸⁴

The preceding discussion demonstrates that the primary export market for Spanish chlorinated isos is the EU. Spanish producers view these exports as commercial commitments that are strengthened by the trade preferences of the EU customs union and by EU trade remedies in place on imports of in-scope trichlor from China.⁸⁵ Such trade remedies give Spanish exports of chlorinated isos an advantage over Chinese exports of chlorinated isos to the EU, an advantage that was not present during the period of the original investigations and during the initial part of the period of the first reviews.⁸⁶ In the absence of extraordinary market conditions in the United States, I expect that the Spanish industry's shipments would return to its pre-2020 patterns.⁸⁷

⁸² Hearing Tr. at 43-44 (Alves), 51 (Bentley), 96 (Sim), 155 (Sim). *See also* Domestic Interested Parties Witness Testimony and Hearing Materials, Attachment 6, slides 23 & 24.

⁸³ It also appears that Ercros had expectations of higher prices given the tightness in the U.S. market in the wake of the Bio-Lab explosion. Hearing Tr. at 23-24 (Lawrence), 55-56 (Bentley), 68 (Pan), 124-26 (Sim, Cros, Ferrell); Domestic Interested Parties responses to Commissioners' questions at I-22 to I-23; Ercros posthearing brief at 6, 8 and responses to Commissioners' questions at 7.

⁸⁴ "When this temporary market shortfall ends later this year with Bio-Lab's return to full production, exports to the U.S. will fall to their traditional lower levels and EU shipments will resume their higher share of total Spanish production." Ercros prehearing brief at 21.

⁸⁵ Hearing Tr. at 100 (Sim) ("Spanish producers are shielded from dumped Chinese imports in the European Union by the existing EU antidumping duty from trichlor from China.") and 113 (Morgan). Ercros claims that Spanish producers are the only producers of chlorinated isos in the EU. Ercros posthearing brief at 9.

⁸⁶ First Review Conf. Staff Report at I-39 & I-47. During the first review, domestic interested parties claimed that the increased presence of chlorinated isos from China in the EU market had led to increased pressure on Spanish producers to export outside of the EU. *Id.* at I-47.

⁸⁷ In this regard, I find it noteworthy that, since June 2011, Ercros' shipments to the United States have been found by the Commerce Department not to have been dumped, as the calculated levels of dumping for such shipments were zero or *de minimis*. CR/PR at Table I-6.

Hence, I conclude that, in the event that the order on subject imports of chlorinated isos from Spain were revoked, the likely volume of such imports would not be significant.

B. Likely Price Effects of Subject Imports from Spain

During the period of the original investigations, imports from Spain were only present in one traditional “selling price comparisons” pricing product (product 5—trichlor tablets). In the seven comparisons, there was only underselling in two quarters.⁸⁸ Imports from Spain were also present in two “purchase price comparisons” pricing products (products 1 and 2—granular trichlor and dichlor, respectively, in one-ton sacks). In each of the 22 quarters for which there were comparisons available, the imports from Spain were higher priced for these two products than imports from China.⁸⁹ When comparing the purchase prices of U.S.-produced products and subject imports from Spain, however, the Spanish price was lower in 23 of 24 quarterly comparisons, the exception being the ***.⁹⁰

There were *** lost sales allegations totaling over \$*** and involving over *** pounds of chlorinated isos. In addition, there were *** lost revenue allegations totaling over \$*** and involving over *** pounds of chlorinated isos.⁹¹ Of the *** lost sales allegations, *** named Spain as the country of origin, involving *** different purchasers; purchasers disagreed with *** allegations.⁹² Of the *** lost revenue allegations, only *** named Spain as the country of origin, involving *** purchasers; purchasers disagreed with *** allegations and there was no response to *** allegations.⁹³

⁸⁸ Original Conf. Staff Report at V-10 and Table V-6.

⁸⁹ Original Conf. Staff Report at Tables V-8 & V-9.

⁹⁰ Original Conf. Staff Report at V-11 and Tables V-11 & V-13.

⁹¹ Original Conf. Staff Report at V-37.

⁹² Original Conf. Staff Report at Table V-19.

⁹³ Original Conf. Staff Report at Table V-20.

In the first reviews, there were no price comparisons due to the expedited nature of the reviews.

In the second reviews, there were four pricing products, the first two of which were granular trichlor and dichlor, respectively. Within these two pricing products, there was only one quarter of comparison between U.S. and Spanish prices, which showed overselling in product 1 (trichlor).⁹⁴ For product 3 (trichlor tablets), there was underselling and overselling in equal proportion (3 quarters of underselling and 3 quarters of overselling, all with small margins).⁹⁵ For product 4 (blended tablet), there was underselling in all six quarters.⁹⁶

In these third reviews, the four pricing products were the same as during the second reviews, but in these reviews, there were comparisons for Spain in only pricing product 1 (granular trichlor) and 6 of the 9 quarterly comparisons showed overselling.⁹⁷ There was also testimony at the hearing regarding the domestic industry's perception that prices being offered by Ercros during the peak of U.S. market tightness were high.⁹⁸

Given that a significant volume of subject imports from Spain is not likely to occur upon revocation and given the mixed record of underselling by subject imports from Spain (especially when compared with China), I do not find a likelihood of significant adverse price effects from subject imports from Spain in the event of revocation of the order. I therefore conclude that, if the order on imports of chlorinated isos from Spain were revoked, the volumes of subject

⁹⁴ Second Review Conf. Staff Report at Tables V-3 & V-4.

⁹⁵ Second Review Conf. Staff Report at Table V-5.

⁹⁶ Second Review Conf. Staff Report at Table V-6.

⁹⁷ CR/PR at Table V-5.

⁹⁸ Hearing Tr. at 23-24 (Lawrence), 55-56 (Bentley), 68 (Pan), 124-26 (Sim, Cros, Ferrell); Domestic Interested Parties responses to Commissioners' questions at I-22 to I-23; Ercros posthearing brief at 6, 8 and responses to Commissioners questions at 7.

imports from Spain would not be likely to undersell significantly the domestic product or gain market share, nor would such imports be likely to have significant price depressing or suppressing effects.

C. Likely Impact of Subject Imports from Spain

Because Spain was cumulated with China in the original investigations and the first two sunset reviews, the Commission has not had the occasion to weigh the individual contribution of Spain to the likelihood of a continuation or recurrence of material injury in the event of revocation of this order.⁹⁹

In light of my finding that revocation of the antidumping duty order on subject imports from Spain would not be likely to lead to a significant increase in the volume of subject imports that would undersell the domestic like product and significantly depress or suppress U.S. producers' prices, I find that, if the order on imports from Spain were revoked, such imports would not be likely to have a significant adverse impact on the production, shipments, sales, market share, and revenues of the domestic industry. Accordingly, I conclude that, if the order on imports from Spain were revoked, subject imports from Spain would not be likely to have a significant adverse impact on the domestic industry within a reasonably foreseeable time.

⁹⁹ In the first review, Commissioner Pearson decumulated Spain and found that if the order on subject imports from Spain were revoked, such imports would not be likely to have a significant adverse impact on the domestic industry. Separate and Dissenting Views of Commissioner Daniel R. Pearson, USITC Pub. 4184 (Sept. 2010, First Reviews), at 25.

IV. CONCLUSION

For the foregoing reasons, I determine that revocation of the antidumping duty order on chlorinated isos from Spain would not be likely to lead to continuation or recurrence of material injury to the domestic industry within a reasonably foreseeable time.

Part I: Introduction

Background

On October 1, 2021, the U.S. International Trade Commission (“Commission” or “USITC”) gave notice, pursuant to section 751(c) of the Tariff Act of 1930, as amended (“the Act”),¹ that it had instituted reviews to determine whether revocation of the antidumping duty orders on chlorinated isocyanurates (“chlorinated isos”) from China and Spain would likely lead to the continuation or recurrence of material injury to a domestic industry.^{2 3} On January 4, 2022, the Commission determined that it would conduct full reviews pursuant to section 751(c)(5) of the Act.⁴ Table I-1 presents information relating to the background and schedule of this proceeding.⁵

¹ 19 U.S.C. 1675(c).

² 86 FR 54473, October 1, 2021. All interested parties were requested to respond to this notice by submitting the information requested by the Commission.

³ In accordance with section 751(c) of the Act, the U.S. Department of Commerce (“Commerce”) published a notice of initiation of five-year reviews of the subject antidumping duty orders. 86 FR 54423, October 1, 2021.

⁴ 87 FR 4290, January 27, 2022. The Commission found that the domestic interested party group response and the respondent interested party group response from Spain to its notice of institution were adequate and that the respondent interested party group response from China was inadequate. Ibid.

⁵ The Commission’s notice of institution, notice to conduct full reviews, scheduling notices, and statement on adequacy are referenced in appendix A and may also be found at the Commission’s web site (internet address www.usitc.gov). Commissioners’ votes on whether to conduct expedited or full reviews may also be found at the web site. Appendix B presents the witnesses who appeared at the Commission’s hearing.

Table I-1**Chlorinated isos: Information relating to the background and schedule of this proceeding**

Effective date	Action
November 29, 2016	Commerce's continuation of the antidumping duty orders on chlorinated isos from China and Spain (81 FR 85927, November 29, 2016)
October 1, 2021	Commerce's initiation of five-year reviews (86 FR 54423, October 1, 2021)
October 1, 2021	Commission's institution of five-year reviews (86 FR 54473, October 1, 2021)
January 4, 2022	Commission's determinations to conduct full five-year reviews (87 FR 4290, January 27, 2022)
January 31, 2022	Commerce's final results of expedited five-year reviews of the antidumping duty orders (87 FR 4841, January 31, 2022)
May 31, 2022	Commission's scheduling of the reviews (87 FR 34298, June 6, 2022)
September 6, 2022	Commission's revised schedule of the reviews (87 FR 55852, September 12, 2022)
September 12, 2022	Commission's notice of hearing update for the subject reviews (87 FR 56981, September 16, 2022)
September 29, 2022	Commission's hearing
December 1, 2022	Commission's vote
December 20, 2022	Commission's determinations and views

The original investigations

The original investigations resulted from petitions filed on May 14, 2004, with Commerce and the Commission by Clearon, Fort Lee, New Jersey and OxyChem, Dallas, Texas.⁶ On May 10, 2005, Commerce determined that imports of chlorinated isos from China and Spain were being sold at less than fair value ("LTFV").⁷ The Commission determined on June 17, 2005, that the domestic industry was materially injured by reason of LTFV imports of chlorinated isos from China and Spain.⁸ On June 24, 2005, Commerce issued its antidumping duty orders on chlorinated isos from China and Spain.⁹

⁶ Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Final), USITC Publication 3782, June 2005 ("Original publication"), p. I-1.

⁷ 70 FR 24502 and 70 FR 24506, May 10, 2005. Commerce also made a final determination that critical circumstances exist with regard to imports of chlorinated isos from Shanghai Tian Yuan International Trading Co., Ltd. and for all producers/exporters in China other than Changzhou Clean Chemical Co., Ltd., Hebei Jiheng Chemical Co, Ltd., Liaocheng Huaao Chemical Industry Co., Ltd., Nanning Chemical Industry Co., Ltd., Sinochem Hebei Import & Export Corp., and Sinochem Shanghai Import & Export Corp. Ibid. and original publication, p. IV-6.

⁸ 70 FR 36205, June 22, 2005. The Commission also made a negative finding of critical circumstances with regard to U.S. imports of chlorinated isos from China.

⁹ 70 FR 36561 and 70 FR 36562, June 24, 2005.

The first five-year reviews

On August 6, 2010, the Commission determined that it would conduct expedited reviews of the antidumping duty orders on chlorinated isos from China and Spain.¹⁰ On August 13, 2010, Commerce determined that revocation of the antidumping duty orders on chlorinated isos from China and Spain would be likely to lead to continuation or recurrence of dumping.¹¹ On September 30, 2010, the Commission determined that material injury would be likely to continue or recur within a reasonably foreseeable time.¹² Following affirmative determinations in the five-year reviews by Commerce and the Commission, effective October 13, 2010, Commerce issued a continuation of the antidumping duty orders on imports of chlorinated isos from China and Spain.¹³

The second five-year reviews

On December 7, 2015, the Commission determined that it would conduct full reviews of the antidumping duty orders on chlorinated isos from China and Spain.¹⁴ On January 6, 2016, Commerce determined that revocation of the antidumping duty orders on chlorinated isos from China and Spain would be likely to lead to continuation or recurrence of dumping.¹⁵ On November 16, 2016, the Commission determined that revocation of the antidumping duty orders on chlorinated isos from China and Spain would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.¹⁶ Following affirmative determinations in the five-year reviews by Commerce and the Commission, effective November 29, 2016, Commerce issued a continuation of the antidumping duty orders on imports of chlorinated isos from China and Spain.¹⁷

¹⁰ 75 FR 51113, August 18, 2010.

¹¹ 75 FR 49464, August 13, 2010.

¹² 75 FR 61772, October 6, 2010.

¹³ 75 FR 62764, October 13, 2010.

¹⁴ 80 FR 79358, December 21, 2015.

¹⁵ 81 FR 461, January 6, 2016.

¹⁶ 81 FR 83871, November 22, 2016.

¹⁷ 81 FR 85927, November 29, 2016.

Previous and related investigations

The Commission has conducted one previous import relief proceeding concerning chlorinated isos. Table I-2 presents information on this previous title VII proceeding.

Table I-2

Chlorinated isos: Previous and related Commission proceedings and status of orders

Date	Number	Country	Determination	Status of Order
2013	701-TA-501	China	Affirmative	Order continued after first five-year review, May 7, 2020
2013	731-TA-1226	Japan	Negative	---

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

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

Summary data

Table I-3 presents a summary of data from the original investigations, prior reviews, and the current full five-year reviews.¹⁸ Table I-4 and figure I-1 present apparent U.S. consumption during 2016-21. Apparent U.S. consumption by quantity was *** percent higher in 2021 than in 2015, the last year during the last full five-year reviews, and was *** percent higher by value. U.S. producers’ share of apparent consumption by quantity was *** percentage points lower in 2021 than in 2015, while subject importers’ share of apparent consumption was *** percentage points higher. U.S. integrated producers’ capacity and production were *** percent and *** percent lower in 2021 than in 2015, respectively. The quantity of U.S. producers’ U.S. shipments was *** percent lower in 2021 than in 2015, while the quantity of U.S. importers’ subject U.S. shipments was *** higher. The average unit value of U.S. producers’ U.S. shipments was *** percent higher in 2021 than in 2015 while the average unit value of U.S. importers’ subject U.S. shipments ***. U.S. producers’ operating income to sales ratio was *** percentage points lower in 2021 than in 2015, *** percent compared to *** percent.

¹⁸ For a detailed discussion of data coverage in each proceeding, please see “U.S. producers” and “U.S. importers” sections.

Table I-3

Chlorinated isos: Comparative data from the original investigations and subsequent reviews to-date, by terminal years

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

Item	Measure	2004	2009	2015	2021
Apparent consumption	Quantity	***	***	***	***
U.S. producers market share	Share of quantity	***	***	***	***
China market share	Share of quantity	***	***	***	***
Spain market share	Share of quantity	***	***	***	***
Subject market share	Share of quantity	***	***	***	***
Nonsubject market share	Share of quantity	***	***	***	***
Import market share	Share of quantity	***	***	***	***
Apparent consumption	Value	***	***	***	***
U.S. producers market share	Share of value	***	***	***	***
China market share	Share of value	***	***	***	***
Spain market share	Share of value	***	***	***	***
Subject market share	Share of value	***	***	***	***
Nonsubject market share	Share of value	***	***	***	***
Import market share	Share of value	***	***	***	***
China	Quantity	***	***	***	***
China	Value	***	***	***	***
China	Unit value	***	***	***	***
Spain	Quantity	***	***	***	***
Spain	Value	***	***	***	***
Spain	Unit value	***	***	***	***
Subject sources	Quantity	***	***	***	***
Subject sources	Value	***	***	***	***
Subject sources	Unit value	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***
Nonsubject sources	Value	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***
All import sources	Quantity	***	***	***	***
All import sources	Value	***	***	***	***
All import sources	Unit value	***	***	***	***

Table continued.

Table I-3 Continued**Chlorinated isos: Comparative data from the original investigations and subsequent reviews to-date, by terminal years**

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

Item	Measure	2004	2009	2015	2021
Capacity	Quantity	***	***	***	***
Production	Quantity	***	***	***	***
Capacity utilization	Ratio	***	***	***	***
Producer U.S. shipments	Quantity	***	***	***	***
Producer U.S. shipments	Value	***	***	***	***
Producer U.S. shipments	Unit value	***	***	***	***
Producer inventories	Quantity	***	NA	***	***
Producer inventory ratio to total shipments	Ratio	***	NA	***	***
Production workers (number)	Noted in label	***	NA	***	***
Hours worked (in 1,000 hours)	Noted in label	***	NA	***	***
Wages paid (1,000 dollars)	Value	***	NA	***	***
Hourly wages (dollars per hour)	Value	***	NA	***	***
Productivity (short tons per 1,000 hour)	Noted in label	***	NA	***	***
Net sales	Quantity	***	NA	***	***
Net sales	Value	***	***	***	***
Net sales	Unit value	***	NA	***	***
Cost of goods sold	Value	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***
SG&A expense	Value	***	***	***	***
Operating income or (loss)	Value	***	***	***	***
Unit COGS	Unit value	***	NA	***	***
Unit operating income	Unit value	***	NA	***	***
COGS/ Sales	Ratio	***	NA	***	***
Operating income or (loss)/ Sales	Ratio	***	***	***	***

Source: Office of Investigations memoranda INV-CC-069 (May 20, 2005), INV-HH-087 (September 2, 2010), and INV-OO-091 (October 7, 2016), and compiled from data submitted in response to Commission questionnaires.

Note: For 2004, trade data are for integrated producers only (inclusive of tableting from their own production), while employment and financial data are for integrated producers and tableters combined (except for productivity, which is for integrated producers only). For 2009, trade and financial data are for two of three integrated producers (Clearon and OxyChem) and does not include data for tableters. For 2015, trade data are for granular chlorinated isos producers (not inclusive of tableting from their own production), except for U.S. shipment value, which is inclusive of tableters' value added to domestic and imported granular chlorinated isos. Employment and financial data are for granular chlorinated isos producers and tableters combined (except for productivity, which is for granular chlorinated isos producers only). 2015 employment data (PRWs, hours worked, wages paid, and hourly wages) presented in this table are aggregate figures calculated/derived from historical data. For 2021, trade data are for integrated producers only, inclusive of tableting from their own production, except for U.S. shipment value, which is inclusive of tableters' value added to domestic and imported granular chlorinated isos. Employment and financial data are for integrated producers and tableters combined (except for productivity, which is for integrated producers only).

Table I-4
Chlorinated isos: Apparent U.S. consumption, by period and source

Quantity in short tons; share in percent

Source	Measure	2016	2017	2018
U.S. producers	Quantity	***	***	***
China	Quantity	***	***	***
Spain	Quantity	***	***	***
Subject sources	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
Spain	Share	***	***	***
Subject sources	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	***	***	***

Table continued.

Table I-4 Continued
Chlorinated isos: Apparent U.S. consumption, by period and source

Quantity in short tons; share in percent

Source	Measure	2019	2020	2021
U.S. producers	Quantity	***	***	***
China	Quantity	***	***	***
Spain	Quantity	***	***	***
Subject sources	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
All sources	Quantity	***	***	***
U.S. producers	Share	***	***	***
China	Share	***	***	***
Spain	Share	***	***	***
Subject sources	Share	***	***	***
Nonsubject sources	Share	***	***	***
All import sources	Share	***	***	***
All sources	Share	***	***	***

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

Note: U.S. producers' quantities reflect U.S. shipments for all years. U.S. importers' data reflect U.S. imports for years 2016 to 2018 and then U.S. shipments of imports for 2019 to 2021. Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Figure I-1
Chlorinated isos: Apparent consumption, by period and source

* * * * *

Statutory criteria

Section 751(c) of the Act requires Commerce and the Commission to conduct a review no later than five years after the issuance of an antidumping or countervailing duty order or the suspension of an investigation to determine whether revocation of the order or termination of the suspended investigation “would be likely to lead to continuation or recurrence of dumping or a countervailable subsidy (as the case may be) and of material injury.”

Section 752(a) of the Act provides that in making its determination of likelihood of continuation or recurrence of material injury--

(1) IN GENERAL.-- . . . the Commission shall determine whether revocation of an order, or termination of a suspended investigation, would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time. The Commission shall consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the order is revoked or the suspended investigation is terminated. The Commission shall take into account--

(A) its prior injury determinations, including the volume, price effect, and impact of imports of the subject merchandise on the industry before the order was issued or the suspension agreement was accepted,

(B) whether any improvement in the state of the industry is related to the order or the suspension agreement,

(C) whether the industry is vulnerable to material injury if the order is revoked or the suspension agreement is terminated, and

(D) in an antidumping proceeding . . . , (Commerce's findings) regarding duty absorption . . .

(2) VOLUME.--In evaluating the likely volume of imports of the subject merchandise if the order is revoked or the suspended investigation is terminated, the Commission shall consider whether the likely volume of imports of the subject merchandise would be significant if the order is revoked or the suspended investigation is terminated, either in absolute terms or relative to production or consumption in the United States. In so doing, the Commission shall consider all relevant economic factors, including--

(A) any likely increase in production capacity or existing unused production capacity in the exporting country,

(B) existing inventories of the subject merchandise, or likely increases in inventories,

(C) the existence of barriers to the importation of such merchandise into countries other than the United States, and

(D) 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.

(3) PRICE.--In evaluating the likely price effects of imports of the subject merchandise if the order is revoked or the suspended investigation is terminated, the Commission shall consider whether--

(A) there is likely to be significant price underselling by imports of the subject merchandise as compared to domestic like products, and

(B) imports of the subject merchandise are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of domestic like products.

(4) IMPACT ON THE INDUSTRY.--In evaluating the likely impact of imports of the subject merchandise on the industry if the order is revoked or the suspended investigation is terminated, the Commission shall consider all

relevant economic factors which are likely to have a bearing on the state of the industry in the United States, including, but not limited to—

(A) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity,

(B) likely negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, and

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

The Commission shall evaluate all such relevant economic factors . . . within the context of the business cycle and the conditions of competition that are distinctive to the affected industry.

Section 752(a)(6) of the Act states further that in making its determination, “the Commission may consider the magnitude of the margin of dumping or the magnitude of the net countervailable subsidy. If a countervailable subsidy is involved, the Commission shall consider information regarding the nature of the countervailable subsidy and whether the subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement.”

Organization of report

Information obtained during the course of the reviews that relates to the statutory criteria is presented throughout this report. A summary of trade and financial data for chlorinated isos as collected in the reviews is presented in appendix C. U.S. industry data are based on the questionnaire responses of three U.S. integrated producers that accounted for all domestic production of granular chlorinated isos in 2021, and six U.S. tableters of purchased/imported granular chlorinated isos.¹⁹ U.S. import data and related information are based on the questionnaire responses of 10 U.S. importers of chlorinated isos that accounted for the vast majority of total subject U.S. imports during 2021 and on official Commerce statistics. Foreign industry data and related information are based on the questionnaire responses of two integrated producers of chlorinated isos in Spain, which accounted for all known production of granular chlorinated isos in Spain during 2021, and one tableter of purchased/imported granular chlorinated isos. No producers in China submitted a response to

¹⁹ Integrated producers are firms that produce granular chlorinated isos and may also tablet their own granular chlorinated isos production either independently or via a tolling arrangement. Tableters are firms engaged in tableting operations of purchased/imported granular chlorinated isos.

the Commission's questionnaire. Responses by U.S. producers, importers, purchasers, and foreign producers of chlorinated isos to a series of questions concerning the significance of the existing antidumping duty orders and the likely effects of revocation of such orders are presented in appendix D.

Commerce's reviews²⁰

Administrative reviews

Commerce has completed 14 administrative reviews of the antidumping duty order on chlorinated isos from China and six administrative reviews of the antidumping duty order on chlorinated isos from Spain.²¹ The results of the administrative reviews of the antidumping duty orders for China and Spain are presented in tables I-5 and I-6, respectively.²²

Table I-5
Chlorinated isos: Administrative reviews of the antidumping duty order for China

Date results published	Period of review	Producer or exporter	Margin (percent)
January 2, 2008 (73 FR 159); amended February 19, 2008 (73 FR 9091) and October 11, 2011 (76 FR 62776)	December 16, 2004 to May 31, 2006	Hebei Jiheng Chemical Company Ltd.	9.19
September 10, 2008 (73 FR 52645); amended October 20, 2008 (73 FR 62249)	June 1, 2006 to May 31, 2007	Hebei Jiheng Chemical Company Ltd.	0.90
September 10, 2008 (73 FR 52645); amended October 20, 2008 (73 FR 62249)	June 1, 2006 to May 31, 2007	Nanning Chemical Industry Co., Ltd.	54.86
December 14, 2009 (74 FR 66087)	June 1, 2007 to May 31, 2008	Hebei Jiheng Chemical Company Ltd.	20.16
November 17, 2010 (75 FR 70212); amended December 9, 2010 (75 FR 76699)	June 1, 2008 to May 31, 2009	Hebei Jiheng Chemical Co., Ltd.	2.66

²⁰ Commerce has not conducted any changed circumstances reviews or scope rulings since the completion of the last five-year reviews. In addition, Commerce has not issued any duty absorption findings, any company revocations, or anti-circumvention findings since the imposition of the order.

²¹ Commerce also conducted a new shipper review and determined a 20.54 percent dumping margin for entries made by Juancheng Kangtai Chemical Co., Ltd./Juancheng Ouya Chemical Co., Ltd. during June 1, 2008 through November 30, 2008. 74 FR 68575, December 28, 2009.

²² For previously reviewed or investigated companies not included in an administrative review, the cash deposit rate continues to be the company-specific rate published for the most recent period.

Date results published	Period of review	Producer or exporter	Margin (percent)
November 16, 2011 (76 FR 70957)	June 1, 2009 to May 31, 2010	Hebei Jiheng Chemical Co., Ltd.	0.03
November 16, 2011 (76 FR 70957)	June 1, 2009 to May 31, 2010	Juancheng Kangtai Chemical Co., Ltd.	2.66
November 16, 2011 (76 FR 70957)	June 1, 2009 to May 31, 2010	Arch Chemicals (China) Co., Ltd.	2.66
November 16, 2011 (76 FR 70957)	June 1, 2009 to May 31, 2010	Zhucheng Taisheng Chemical Co., Ltd.	2.66
January 22, 2013 (78 FR 4386); amended December 21, 2016 (81 FR 93665)	June 1, 2010 to May 31, 2011	Hebei Jiheng Chemical Co., Ltd.	31.22
January 22, 2013 (78 FR 4386); amended December 21, 2016 (81 FR 93665)	June 1, 2010 to May 31, 2011	Juancheng Kangtai Chemical Co., Ltd.	38.25
January 22, 2013 (78 FR 4386)	June 1, 2010 to May 31, 2011	Nanning Chemical Industry Co., Ltd.	34.21
January 22, 2013 (78 FR 4386)	June 1, 2010 to May 31, 2011	Zhucheng Taisheng Chemical Co., Ltd.	34.08
January 30, 2014 (79 FR 4875); amended April 17, 2017 (82 FR 18111)	June 1, 2011 to May 31, 2012	Arch Chemicals (China) Co. Ltd.	38.36
January 30, 2014 (79 FR 4875); amended April 17, 2017 (82 FR 18111)	June 1, 2011 to May 31, 2012	Hebei Jiheng Chemical Co., Ltd.	27.99
January 30, 2014 (79 FR 4875); amended April 17, 2017 (82 FR 18111)	June 1, 2011 to May 31, 2012	Juancheng Kangtai Chemical Co., Ltd.	48.72
January 30, 2014 (79 FR 4875)	June 1, 2011 to May 31, 2012	Sinoacarbon International Trading Co., Ltd.	53.15
January 30, 2014 (79 FR 4875)	June 1, 2011 to May 31, 2012	Zhucheng Taisheng Chemical Co., Ltd.	53.15
January 28, 2015 (80 FR 4539)	June 1, 2012 to May 31, 2013	Arch Chemicals (China) Co. Ltd.	53.15
January 28, 2015 (80 FR 4539)	June 1, 2012 to May 31, 2013	Hebei Jiheng Chemical Co., Ltd.	0.00
January 28, 2015 (80 FR 4539)	June 1, 2012 to May 31, 2013	Juancheng Kangtai Chemical Co., Ltd.	0.00
January 28, 2015 (80 FR 4539); amended November 20, 2018 (83 FR 58532)	June 1, 2012 to May 31, 2013	Heze Huayi Chemical Co. Ltd.	0.00

Date results published	Period of review	Producer or exporter	Margin (percent)
January 28, 2015 (80 FR 4539)	June 1, 2012 to May 31, 2013	Zhucheng Taisheng Chemical Co., Ltd.	53.15
January 11, 2016 (81 FR 1167)	June 1, 2013 to May 31, 2014	Heze Huayi Chemical Co., Ltd.	0.00
January 11, 2016 (81 FR 1167)	June 1, 2013 to May 31, 2014	Hebei Jiheng Chemical Co., Ltd.	1.15
January 11, 2016 (81 FR 1167)	June 1, 2013 to May 31, 2014	Juancheng Kangtai Chemical Co., Ltd.	0.00
January 17, 2017 (82 FR 4852)	June 1, 2014 to May 31, 2015	Heze Huayi Chemical Co., Ltd.	53.95
January 17, 2017 (82 FR 4852)	June 1, 2014 to May 31, 2015	Hebei Jiheng Chemical Co., Ltd.	61.03
January 17, 2017 (82 FR 4852)	June 1, 2014 to May 31, 2015	Juancheng Kangtai Chemical Co., Ltd.	35.05
February 6, 2018 (83 FR 5243)	June 1, 2015 to May 31, 2016	Heze Huayi Chemical Co., Ltd.	16.06
February 6, 2018 (83 FR 5243)	June 1, 2015 to May 31, 2016	Juancheng Kangtai Chemical Co., Ltd.	24.82
February 20, 2019 (84 FR 5053)	June 1, 2016 to May 31, 2017	Heze Huayi Chemical Co., Ltd.	33.63
February 20, 2019 (84 FR 5053)	June 1, 2016 to May 31, 2017	Juancheng Kangtai Chemical Co., Ltd.	40.28
February 24, 2020 (85 FR 10411)	June 1, 2017 to May 31, 2018	Heze Huayi Chemical Co., Ltd.	76.63
February 24, 2020 (85 FR 10411)	June 1, 2017 to May 31, 2018	Juancheng Kangtai Chemical Co., Ltd.	116.83
April 30, 2021 (86 FR 22932)	June 1, 2018 to May 31, 2019	Heze Huayi Chemical Co., Ltd.	70.31

Source: Cited Federal Register notices.

Note: For the 2015-16 and 2016-17 administrative reviews, Commerce found Hebei Jiheng Chemical Co., Ltd. to be part of the China-wide entity with a weighted average dumping margin of 285.63 percent. 83 FR 5243, February 6, 2018; and 84 FR 5053, February 20, 2019.

Note: Commerce found that Juancheng Kangtai Chemical Co., Ltd. had no entries of subject merchandise during June 1, 2018 to May 31, 2019. 86 FR 22932, April 30, 2021.

Note: Commerce found that Heze Huayi Chemical Co., Ltd. and Juancheng Kangtai Chemical Co., Ltd. had no entries of subject merchandise during June 1, 2019 to May 31, 2020. 86 FR 36253, July 9, 2021.

Table I-6**Chlorinated isos: Administrative reviews of the antidumping duty order for Spain**

Date results published	Period of review	Producer or exporter	Margin (percent)
November 15, 2007 (72 FR 64194)	December 20, 2004 to May 31, 2006	Aragonesas Industrias y Energía S.A.	2.35
December 30, 2008 (73 FR 79789)	June 1, 2006 to May 31, 2007	Aragonesas Industrias y Energía S.A.	4.07
October 1, 2009 (74 FR 50774)	June 1, 2007 to May 31, 2008	Aragonesas Industrias y Energía S.A.	28.04
December 3, 2013 (78 FR 72633)	June 1, 2011 to May 31, 2012	Ercros, S.A.	<i>de minimis (less than 0.5 percent)</i>
October 24, 2018 (83 FR 53607)	June 1, 2016 to May 31, 2017	Ercros	0.00
December 3, 2019 (84 FR 66155)	June 1, 2017 to May 31, 2018	Ercros	0.00

Source: Cited Federal Register notices.

Note: Ercros S.A. formerly exported the subject merchandise through its 100 percent-owned subsidiary Aragonesas Industrias y Energía S.A. (Aragonesas). In 2010, Aragonesas was merged with Ercros S.A. 78 FR 72633, December 3, 2013.

Note: Commerce found that Ercros S.A. did not have any shipments of subject merchandise during June 1, 2012 to May 31, 2013 or during June 1, 2018 to May 31, 2019. 79 FR 44745, August 1, 2014; and 84 FR 66376, December 4, 2019.

Five-year reviews

Commerce has issued the final results of its expedited reviews with respect to all subject countries.²³ Tables I-7 and I-8 presents the dumping margins calculated by Commerce in its original investigations and subsequent reviews for China and Spain, respectively.

²³ 87 FR 4841, January 31, 2022.

Table I-7

Chlorinated isos: Commerce's original and subsequent five-year review dumping margins for producers/exporters in China

Producer/exporter	Original margin (percent)	First five-year review margin (percent)	Second five-year review margin (percent)	Third five-year review margin (percent)
Hebei Jiheng Chemical Co., Ltd.	75.78	75.78	75.78	---
Nanning Chemical Industry Co., Ltd.	285.63	285.63	285.63	---
Changzhou Clean Chemical Co., Ltd.	137.69	137.69	137.69	---
Liaocheng Huao Chemical Industry Co., Ltd.	137.69	137.69	137.69	---
Sinochem Hebei Import & Export Corporation	137.69	137.69	137.69	---
Sinochem Shanghai Import & Export Corporation	137.69	137.69	137.69	---
All others	285.63	285.63	285.63	285.63

Source: 70 FR 36561, June 24, 2005; 75 FR 49464, August 13, 2010; 81 FR 461, January 6, 2016; and 87 FR 4841, January 31, 2022.

Table I-8

Chlorinated isos: Commerce's original and subsequent five-year review dumping margins for producers/exporters in Spain

Producer/exporter	Original margin (percent)	First five-year review margin (percent)	Second five-year review margin (percent)	Third five-year review margin (percent)
Ercros S.A. (formerly Aragonesas Delsa S.A.)	24.83	24.83	24.83	24.83
All others	24.83	24.83	24.83	24.83

Source: 70 FR 36562, June 24, 2005; 75 FR 49464, August 13, 2010; 81 FR 461, January 6, 2016; and 87 FR 4841, January 31, 2022.

The subject merchandise

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:²⁴

The products covered by the AD Orders are chlorinated isos, which are derivatives of cyanuric acid, described as chlorinated s-triazine triones. There are three primary chemical compositions of chlorinated isos: (1) trichloroisocyanuric acid ($\text{Cl}_3(\text{NCO})_3$); (2) sodium dichloroisocyanurate (dehydrate) ($\text{NaCl}_2(\text{NCO})_3(2\text{H}_2\text{O})$); and (3) sodium dichloroisocyanurate (anhydrous) ($\text{NaCl}_2(\text{NCO})_3$). The AD Orders cover all chlorinated isos.

Tariff treatment

Chlorinated isos are currently imported under statistical reporting numbers 2933.69.6015, 2933.69.6021, 2933.69.6050 and subheading 3808.94.50 of the Harmonized Tariff Schedule of the United States ("HTS").²⁵ HTS subheading 2933.69.60 has a general rate of duty of 3.5 percent ad valorem (for the separate chemically identifiable compounds), while subheading 3808.94.50 has a general rate of duty of 5 percent ad valorem (for the disinfectants containing such compounds). Effective May 10, 2019, chlorinated isos produced in China and imported under HTS statistical reporting number 3808.94.5000 are subject to an additional 25.0 percent ad valorem duty under Section 301 of the Trade Act of 1974 as provided for in subheading 9903.88.03.²⁶ Effective February 14, 2020, chlorinated isos produced in China and imported under HTS subheading 2933.69.60 are subject to an additional 7.5 percent ad valorem duty under Section 301 of the Trade Act of 1974, as provided for in subheading 9903.88.15.²⁷

²⁴ 87 FR 4841, January 31, 2022; and Commerce's Issues and Decision Memorandum for the Third Expedited Sunset Reviews of the Antidumping Duty Orders on Chlorinated Isocyanurates from Spain and the People's Republic of China, January 26, 2022, p. 2.

²⁵ HTS statistical reporting numbers 2933.69.6021, 2933.69.6050, and 3808.94.5000 include chlorinated isos and nonsubject compounds with unfused triazine rings, including disinfectants and other nonsubject products.

²⁶ The U.S. Trade Representative has not granted any exclusions for goods provided for in subheading 3808.94.50 from Section 301 duties under 9903.88.03. *Harmonized Tariff Schedule of the United States (2021)*, Revision 12, USITC publication 5271, December 2021, chapter 99, U.S. notes 20(e) and 20(f); 84 FR 20459, May 9, 2019.

²⁷ The U.S. Trade Representative has not granted any exclusions for goods provided for in subheading 2933.69.60 from Section 301 duties under 9903.88.15. *Harmonized Tariff Schedule of the United States (2021)*, Revision 12, USITC publication 5271, December 2021, chapter 99, U.S. notes 20(r) and 20(s); 85 FR 3741, January 22, 2020.

Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

The product

Description and applications²⁸

Chlorinated isos are chemical compounds used primarily as sanitizing agents for swimming pools, spas, and industrial water, and as disinfecting and bleaching agents for detergents, bleaches, and cleansers. These products are sold to consumers as a solid, usually in granular, tablet, or stick form. The active ingredient for sanitizing purposes is chlorine, which acts as a biocide, killing algae and other microbes.

Commerce's scope includes the three primary chemical compositions of chlorinated isos: (1) trichloroisocyanuric acid ("trichlor") which has 90 percent available chlorine; (2) sodium dichloroisocyanurate ("dichlor") in anhydrous form, which has 63 percent available chlorine; and (3) dichlor in dihydrate form, which has 56 percent available chlorine. Trichlor and dichlor differ mainly in the percentage of chlorine each has available for sanitizing and the rate of release of chlorine in water.

Trichlor has the highest chlorine content, but the chlorine is released relatively slowly in water. This slow release rate is appropriate for maintaining swimming pool chlorine levels within safety guidelines (less than four parts per million) with weekly tablet applications and for other water treatment applications. Dihydrate and anhydrous dichlor contain less available chlorine, but the chlorine is released relatively quickly. Dichlor's rapid release rate is appropriate for "shock" swimming pool treatments to instill chlorine in swimming pools quickly and temporarily as well as uses in detergents, bleaches, and cleansers. Swimming pool and spa applications account for the bulk of the U.S. chlorinated isos market. Industrial applications, *e.g.*, industrial water treatment, and use in cleansers and detergents, account for most of the remaining 10-15 percent of the market. Non-pool applications, particularly disinfection of hard surfaces, increased during the COVID epidemic; however the increase was likely small, reportedly in the range of two percent of the total market.²⁹

²⁸ Unless otherwise noted, this information is based on Chlorinated Isocyanurates from China and Spain, Investigation Nos. 731-TA-1082-1083 (Second Review), USITC Publication 4646, November 2016 ("Second review publication"), pp. I-10-I-11.

²⁹ Hearing transcript, pp. 103—104 (Martineau, Pan, and Lawrence).

Some of the trichlor tablets produced in the United States and China are blended tablets that contain active ingredients other than chlorine that provide functions other than sanitizing. The ingredients in these tablets include copper sulfate, which acts as an algicide, and aluminum sulfate, which acts as a water clarifier.

In the United States, sanitizing agents such as trichlor and dichlor are statutorily controlled pesticides and must be approved by the U.S. Environmental Protection Agency (“EPA”) for public use. Accordingly, any chlorinated isos destined for use in the pool and spa market must be tested and approved prior to sale. The EPA testing and approval process, known as registration, is generally maintained by the producer, whether U.S. or foreign.

Manufacturing processes³⁰

The raw materials to produce both trichlor and dichlor are cyanuric acid, caustic soda, and chlorine gas. Cyanuric acid, which is made from urea, is refined, purified, and then neutralized with caustic soda to become sodium cyanurate, the basic feedstock for both trichlor and dichlor. Both trichlor and dichlor are produced in the same kilns to mix the cyanuric acid and caustic soda to form the sodium cyanurate feedstock, using the same equipment and the same employees. The feedstock then goes through dedicated production line to produce either trichlor or dichlor. To produce trichlor, chlorine gas is introduced into the feedstock, resulting in a granular solid that is either packaged and sold in 2,205-pound (1 metric ton) sacks or 300-pound drums, or further processed into tablets or sticks and packaged into 10 to 50-pound pails. The bulk of trichlor is ultimately consumed as tablets. To produce dichlor, a smaller amount of chlorine gas is introduced into the feedstock, resulting in an acid that is neutralized with caustic soda to produce the dichlor salt. This product can be further dried at higher temperatures to produce the anhydrous forms. Most dichlor is sold and used in granular form and is packaged in sacks or drums. For the most part, production is continuous, and the equipment and production workers used in production of chlorinated isos are specific to that purpose.

The production process results in byproducts, including ammonia gas, nitrogen, and chlorine-containing compounds, but virtually all are waste products subject to regulations requiring further treatment prior to disposal or are used as a source of energy in the production process. The exception is a small quantity of excess cyanuric acid, which is either sold or traded.

³⁰ Unless otherwise noted, this information is based on the second review publication, pp. I-11-I-12.

Domestic like product issues

In its original determinations, its expedited first five-year review determinations, and its full second five-year review determinations, the Commission defined a single domestic like product as all chlorinated isos, coextensive with Commerce's scope.³¹

In its notice of institution in these current five-year reviews, the Commission solicited comments from interested parties regarding the appropriate domestic like product. Domestic interested parties Bio-Lab, Clearon, and OxyChem indicated that they agree with the definition of the domestic like product, but reserve the right to comment during the course of the proceeding.³² Respondent Ercros indicated that it does not object to the definition of the domestic like product but reserves the right to comment during the course of the proceeding. No party requested that the Commission collect data concerning other possible domestic like products in their comments on the Commission's draft questionnaires.³³

In their prehearing brief, Bio-Lab, Clearon, and Oxychem assert that the Commission should continue to define a single domestic like product coextensive with Commerce's scope.³⁴ In its prehearing brief, Ercros agreed with the definition of the domestic like product set forth in the original investigations and subsequent reviews.³⁵ No other interested party provided further comment on the definition of the domestic like product.

³¹ 86 FR 54473, October 1, 2021. In the final phase of the original investigations, the Commission addressed three separate issues pertaining to the definition of the domestic like product: (1) whether trichlor and dichlor are separate domestic like products; (2) whether blended tablets and all other chlorinated isos are separate domestic like products; and (3) whether powdered chlorinated isos and all other chlorinated isos are separate domestic like products. Original publication, pp. 3-10.

³² Domestic interested parties' response to the notice of institution, November 1, 2021, p. 31; and respondent interested party's response to the notice of institution, November 1, 2021, p. 12.

³³ See *generally* domestic interested parties' comments on draft questionnaires, April 15, 2022.

³⁴ Domestic interested parties' prehearing brief, September 20, 2022, p. 11.

³⁵ Respondent Ercros' prehearing brief, September 20, 2022, p. 5.

U.S. market participants

U.S. producers

During the final phase of the original investigations, the Commission received U.S. producer questionnaires from three U.S. integrated producers, which accounted for 100 percent of integrated production of chlorinated isos in the United States during 2002-04. Additionally, the Commission collected data from six U.S. tableters.³⁶

During the first expedited five-year reviews, domestic interested parties provided a list of three known U.S. integrated producers of granular chlorinated isos operating at that time. Two firms, Clearon and OxyChem, provided U.S. industry data in response to the Commission's notice of institution and accounted for approximately *** percent of integrated chlorinated isos production in the United States during 2009.³⁷

During the second full five-year reviews, the Commission received U.S. producer questionnaires from three U.S. integrated producers of chlorinated isos that accounted for all domestic integrated production of granular chlorinated isos during 2013-15. The Commission also received questionnaire responses from four U.S. tableters.³⁸

In these current reviews, the Commission issued U.S. producers' questionnaires to 10 firms, seven of which provided the Commission with information on their chlorinated isos operations.³⁹ Of the seven U.S. producers, three are integrated producers (i.e., firms that produce granular chlorinated isos and may also tablet their own granular chlorinated isos production either independently or via a tolling arrangement). These three firms accounted for all U.S. production of granular chlorinated isos in 2021. In addition, data are presented for six U.S. tableters (i.e., firms engaged in tableting operations of purchased/imported granular chlorinated isos); two of the six tableters are also integrated producers.

Table I-9 presents a list of current domestic producers of chlorinated isos and each company's position on continuation of the orders, production location(s), and share of reported production of chlorinated isos in 2021. Table I-10 presents U.S. producers' ownership, related and/or affiliated firms.

³⁶ Original publication, p. III-1.

³⁷ Investigation Nos. 731-TA-1082-1083 (Review): Chlorinated Isocyanurates from China and Spain, Confidential Report, INV-HH-087, September 2, 2010, p. I-23.

³⁸ Second review publication, pp. I-6 and III-1.

³⁹ An eighth firm, Stellar Manufacturing ("Stellar"), provided an incomplete questionnaire response regarding its toll tableting operations. Stellar did not respond to staff's multiple attempts to obtain a usable questionnaire response. Staff correspondence with ***, September 21, 2022. See Part III for a more detailed discussion.

Table I-9

Chlorinated isos: U.S. producers, their positions on the orders, U.S. production locations, and shares of reported U.S. production, 2021

Share in percent

Firm	Position on orders	Production location(s)	Share of integrated production	Share of non-toll tableters' production	Share of toll tableters' production
Bio-Lab	Support	Lake Charles, LA Conyers, GA Ontario, CA	***	***	***
Clearon	Support	South Charleston, WV	***	***	***
Haviland	***	Grand Rapids, MI North Bend, OH	***	***	***
LPM	***	Phoenix, AZ	***	***	***
N. Jonas	***	Bensalem, PA	***	***	***
OxyChem	Support	Sauget, IL Luling, LA	***	***	***
Qualco	***	Passaic, NJ	***	***	***
All firms	Various	Various	***	***	***

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

Note: Bio-Lab transitioned from an integrated producer to a tableter following the closure of its granular chlorinated isos plant in August 2020.

Note: Toll tableter Stellar provided an incomplete questionnaire response and thus is not included in the dataset. Stellar accounted for *** percent of reported toll tableter's production in 2021 while *** accounted for ***. Stellar *** continuation of the orders.

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

As indicated in table I-10, no U.S. producers are related to foreign producers of the subject merchandise or to U.S. importers of the subject merchandise. In addition, as discussed in greater detail in Part III, three U.S. producers directly import the subject merchandise and one purchases the subject merchandise from U.S. importers.

Table I-10

Chlorinated isos: U.S. producers' ownership, related and/or affiliated firms

Reporting firm	Relationship type and related firm	Details of relationship
***	***	***
***	***	***
***	***	***
***	***	***

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

U.S. importers

During the final phase of the original investigations, the Commission received U.S. importer questionnaires from 12 firms, representing most imports of chlorinated isos.⁴⁰ Of the responding U.S. importers, one was a U.S. integrated producer and two were U.S. tableters.⁴¹ Import data presented in the original investigations are based on questionnaire responses.

Although the Commission did not receive responses from any respondent interested parties in its first five-year reviews, domestic interested parties provided a list of 13 firms that may have imported chlorinated isos from China and Spain during that proceeding.⁴² The domestic interested parties identified no integrated producer and five U.S. tableters as being U.S. importers of the subject merchandise.⁴³ Import data presented in the first five-year reviews are based on official Commerce statistics.

During the second full five-year reviews, the Commission received U.S. importer questionnaires from eight firms, which accounted for *** percent of U.S. imports of chlorinated isos from China, *** percent of U.S. imports from Spain, and *** percent of total U.S. imports in 2015.⁴⁴ Import data presented in the second reviews are based on data submitted in response to the Commission's U.S. importer questionnaire and supplemented by proprietary U.S. import data.

In the current proceeding, the Commission issued U.S. importers' questionnaires to 30 firms believed to be importers of chlorinated isos, as well as to all U.S. producers of chlorinated isos. Usable questionnaire responses were received from 10 firms, representing the vast majority of U.S. imports from China and Spain.⁴⁵ Of the responding U.S. importers, four were U.S. producers: integrated U.S. producers Bio-Lab and Clearon and U.S. tableters Haviland and N. Jonas. Import data presented in these current reviews are based on data submitted in response to the Commission's U.S. importer questionnaire and official Commerce statistics.

Table I-11 lists all responding U.S. importers of chlorinated isos from China, Spain, and other sources, their locations, and their shares of U.S. imports in 2021.

⁴⁰ Original publication, pp. I-2 and IV-1.

⁴¹ Original publication, p. III-10.

⁴² Chlorinated Isocyanurates from China and Spain, Investigation Nos. 731-TA-1082-1083 (Review), USITC Publication 4184, September 2010 ("First review publication"), p. I-20.

⁴³ First review publication, p. I-19.

⁴⁴ Investigation Nos. 731-TA-1082-1083 (Second Review): Chlorinated Isocyanurates from China and Spain, Confidential Report, INV-OO-091, October 7, 2016, p. I-32. The computation of the coverage of U.S. import data contained in Commission questionnaires is based on the share of U.S. imports obtained from official import statistics under HTS statistical reporting number 2933.69.6015.

⁴⁵ See Part IV for a detailed discussion on import coverage.

Table I-11
Chlorinated isos: U.S. importers, their headquarters, and share of imports within each source, 2021

Share in percent

Firm	Headquarters	China	Spain	Subject sources	Nonsubject sources	All import sources
Bio-Lab	Lawrenceville, GA	***	***	***	***	***
Brushby	Monrovia, IN	***	***	***	***	***
Clearon	South Charleston, WV	***	***	***	***	***
Doheny's	Pleasant Prairie, WI	***	***	***	***	***
Ercros	Barcelona, SP	***	***	***	***	***
Haviland	Grand Rapids, MI	***	***	***	***	***
N. Jonas	Bensalem, PA	***	***	***	***	***
SCP	Covington, LA	***	***	***	***	***
Shikoku	Orange, CA	***	***	***	***	***
Toyota Tsusho	Houston, TX	***	***	***	***	***
All firms	Various	***	***	***	***	***

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

U.S. purchasers

The Commission received 20 usable questionnaire responses from firms that bought chlorinated isos since January 1, 2016.⁴⁶ Nine responding purchasers are distributors, nine are retailers, and three are other types of firms (two manufacturers of chlorinating systems and one repacker). In general, responding U.S. purchasers were located in the Southeast, Midwest, and Pacific Coast. The responding purchasers represented distributors, retailers, and pool and other water treatment firms. Large purchasers of chlorinated isos include ***.

⁴⁶ Of the 20 responding purchasers, 16 purchased the domestic product, 6 purchased imports of the subject merchandise from China, 4 purchased imports from Spain, 4 purchased imports of chlorinated isos from other sources, and 3 purchasers did not know the source of their purchases.

Apparent U.S. consumption and market shares

Quantity

Table I-12 and figure I-2 present data on apparent U.S. consumption and U.S. market shares by quantity for chlorinated isos. Apparent U.S. consumption by quantity increased by *** percent during 2019-21, and was *** percent higher in January-March 2022 than in January-March 2021. U.S. producers' market share decreased by *** percentage points between 2019 and 2021, from *** percent to *** percent, while subject import market share increased from *** percent to *** percent during the same period. U.S. producers' market share was *** percentage points lower in January-March 2022 than in January-March 2021, while subject import market share was *** percentage points higher during the same period. These market share trends are primarily due to Bio-Lab, which transitioned from an integrated producer to a tableter following the closure of its granular chlorinated isos plant in August 2020 after it sustained damage caused by Hurricane Laura.⁴⁷ *** accounts for the majority of the increase in subject U.S. shipments of imports during 2020 and 2021. However, overall U.S. shipments from subject and nonsubject imports increased after Bio-Lab's plant closure caused a supply shortage during a period of increased demand.

⁴⁷ Smith, Mike. "'A new spirit:' Storm-hit Lake Charles area inaugurating major projects: \$20M museum, \$143M plant," The Advocate, June 29, 2021, https://www.theadvocate.com/lake_charles/article_d80ad50c-d924-11eb-aaaa-7fb242ce6023.html.

Table I-12**Chlorinated isos: Apparent U.S. consumption and market shares based on quantity, by source and period**

Quantity in short tons; share in percent

Source	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
U.S. producers	Quantity	***	***	***	***	***
China	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers	Share	***	***	***	***	***
China	Share	***	***	***	***	***
Spain	Share	***	***	***	***	***
Subject sources	Share	***	***	***	***	***
Nonsubject sources	Share	***	***	***	***	***
All import sources	Share	***	***	***	***	***
All sources	Share	***	***	***	***	***

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

Note: Quantity for U.S. producers' U.S. shipments reflects integrated producers' U.S. shipment quantities.

Figure I-2
Chlorinated isos: Apparent U.S. consumption based on quantity, by source and period

* * * * *

Value

Table I-13 and figure I-3 present data on apparent U.S. consumption and U.S. market shares by value for chlorinated isos. Apparent U.S. consumption by value increased overall by *** percent during 2019-21, with the majority of the increase taking place between 2020 and 2021, and was *** percent higher in January-March 2022 than in January-March 2021. U.S. producers' market share based on value decreased by *** percentage points during 2019-21, while subject import market share increased by *** percentage points. U.S. producers' market share was *** percentage points lower in January-March 2022 than in January-March 2021, while subject import market share was *** percentage points higher during the same period.

Table I-13**Chlorinated isos: Apparent U.S. consumption and market shares based on value, by source and period**

Value in 1,000 dollars; share in percent

Source	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
U.S. shipments integrated value	Value	***	***	***	***	***
U.S. shipments value added to domestic	Value	***	***	***	***	***
U.S. shipments fully domestic	Value	***	***	***	***	***
U.S. shipments value added to imports	Value	***	***	***	***	***
U.S. shipments total	Value	***	***	***	***	***
China	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***
U.S. shipments integrated value	Share	***	***	***	***	***
U.S. shipments value added to domestic	Share	***	***	***	***	***
U.S. shipments fully domestic	Share	***	***	***	***	***
U.S. shipments value added to imports	Share	***	***	***	***	***
U.S. shipments total	Share	***	***	***	***	***
China	Share	***	***	***	***	***
Spain	Share	***	***	***	***	***
Subject sources	Share	***	***	***	***	***
Nonsubject sources	Share	***	***	***	***	***
All import sources	Share	***	***	***	***	***
All sources	Share	***	***	***	***	***

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

Note: Value for U.S. producers' U.S. shipments reflects chlorinated isos products sold in the United States from domestically manufactured chlorinated isos (including the value added by U.S. tableters to domestic chlorinated isos), as well as the incremental value added by U.S. tableters to imported chlorinated isos. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as an import.

Figure I-3
Chlorinated isos: Apparent U.S. consumption based on value, by source and period

* * * * *

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

U.S. market characteristics

Chlorinated isos are used to maintain chlorine levels in swimming pools and spas. There is also demand for chlorinated isos from makers of detergents and cleansers for industrial and institutional use and water treatment at commercial plants.¹ Chlorinated isos are commonly sold in two forms: dichlor and trichlor. The pool and spa market uses both dichlor and trichlor. Although there is some use of trichlor for toilet bowl cleansers, the cleansers and sanitizers market generally uses dichlor, while the industrial water treatment segment generally uses trichlor.²

Trichlor dissolves more slowly in water than dichlor and is generally sold in the residential pool market as a tablet or stick to maintain chlorine levels in a pool. Dichlor, which is primarily sold in granular form,³ dissolves more quickly and is used in the residential pool market to “shock” a pool by raising the level of chlorine quickly to kill off algae and other organisms. However, both forms may be used in the other’s main application. In addition, some firms sell a “blended” tablet that mixes trichlor with other chemicals (e.g., anti-algae and water clarifying chemicals such as aluminum sulfate and copper sulfate).⁴ U.S. producer OxyChem stated that 95 percent of its sales of trichlor and 85 percent of its sales of dichlor are used for pool chemical disinfecting applications, but that dichlor has some other applications in the industrial market for cooling towers, wastewater treatment, and potable water uses. Additionally, demand for dichlor has increased (but remains a very small share of total demand) for hard surface sanitizers and disinfectants.⁵

Apparent U.S. consumption of chlorinated isos increased during 2019-21. Overall, apparent U.S. consumption in 2021 was *** percent higher than in 2019, and apparent consumption was *** percent higher during January-March 2022 than in January-March 2021.

¹ *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-1.

² *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-1.

³ Dichlor would dissolve too quickly as a tablet, although it can be tableted for some uses. *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-1.

⁴ *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-1.

⁵ Hearing transcript, pp. 17-18, 91 (Martineau, Pan).

Impact of section 301 tariffs

U.S. producers, importers, and purchasers were asked if the tariffs on Chinese-origin products under section 301, or changes in these tariffs, had an impact on the chlorinated isos market in the United States, including any effects on chlorinated isos cost, price, supply, and/or demand, since January 2016. Three of 7 responding U.S. producers, 3 of 10 importers, and 9 of 19 purchasers reported that they had. No U.S. producers provided additional comments, but importers reported that the tariffs have “prevented the U.S. market from being flooded with lower quality” chlorinated isos from China, “led to investment in domestic production,” and increased prices. Similarly, purchasers reported that the section 301 tariffs allowed domestic suppliers to raise prices to “an unprecedented level” during periods of supply shortages and reduce options to purchase abroad. All three responding foreign producers reported that the section 301 measures did not have an impact on their exports of chlorinated isos to the United States.

Channels of distribution

Both U.S. integrated producers and non-toll tableters sold mainly to retailers during January 2019-March 2022, while importers of chlorinated isos from China and Spain sold mainly to repackers or tableters, as shown in table II-1. No imports from China or Spain were reported during 2019. Similarly, nonsubject imports were sold mainly to repackers and tableters as well.

Table II-1**Chlorinated isos: Share of U.S. shipments by source, channel of distribution, and period**

Shares in percent

Source	Channel	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
United States: Integrated producers	Distributors	***	***	***	***	***
United States: Integrated producers	Repackers/tableters	***	***	***	***	***
United States: Integrated producers	Retailers	***	***	***	***	***
United States: Integrated producers	Industrial market	***	***	***	***	***
United States: Non-toll tableters	Distributors	***	***	***	***	***
United States: Non-toll tableters	Repackers/tableters	***	***	***	***	***
United States: Non-toll tableters	Retailers	***	***	***	***	***
United States: Non-toll tableters	Industrial market	***	***	***	***	***
China	Distributors	***	***	***	***	***
China	Repackers/tableters	***	***	***	***	***
China	Retailers	***	***	***	***	***
China	Industrial market	***	***	***	***	***
Spain	Distributors	***	***	***	***	***
Spain	Repackers/tableters	***	***	***	***	***
Spain	Retailers	***	***	***	***	***
Spain	Industrial market	***	***	***	***	***
Subject	Distributors	***	***	***	***	***
Subject	Repackers/tableters	***	***	***	***	***
Subject	Retailers	***	***	***	***	***
Subject	Industrial market	***	***	***	***	***
Nonsubject	Distributors	***	***	***	***	***
Nonsubject	Repackers/tableters	***	***	***	***	***
Nonsubject	Retailers	***	***	***	***	***
Nonsubject	Industrial market	***	***	***	***	***
All imports	Distributors	***	***	***	***	***
All imports	Repackers/tableters	***	***	***	***	***
All imports	Retailers	***	***	***	***	***
All imports	Industrial market	***	***	***	***	***

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

Geographic distribution

U.S. producers and importers reported selling chlorinated isos to all contiguous regions of the United States (table II-2). For U.S. producers, *** percent of sales were within 100 miles of their 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. point of shipment, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles.

Table II-2
Chlorinated isos: Count of U.S. producers' and U.S. importers' geographic markets

Number of firms reporting

Region	U.S. producers	China	Spain	Subject sources
Northeast	7	4	3	7
Midwest	7	5	2	7
Southeast	7	6	4	10
Central Southwest	7	6	2	8
Mountains	6	4	3	7
Pacific Coast	5	4	2	6
Other	1	1	1	2
Reporting firms	7	6	4	7

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 chlorinated isos from U.S. producers and from subject countries.

Table II-3

Chlorinated isos: Supply factors that affect the ability to increase shipments to the U.S. market, by country

Quantity in short tons; ratio and share in percent

Factor	Measure	United States: Integrated producers	United States: Tabletters	China	Spain: Integrated producers	Spain: Tabletters
Capacity 2019	Quantity	***	***	***	***	***
Capacity 2021	Quantity	***	***	***	***	***
Capacity utilization 2019	Ratio	***	***	***	***	***
Capacity utilization 2021	Ratio	***	***	***	***	***
Ending inventories 2019	Ratio	***	***	***	***	***
Ending inventories 2021	Ratio	***	***	***	***	***
Home market 2021	Ratio	***	***	***	***	***
Non-US export markets 2021	Ratio	***	***	***	***	***
Ability to shift production	Count	***	***	***	***	***

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

Note: Responding U.S. integrated producers accounted for virtually all U.S. production of granular chlorinated isos in 2021; in addition, data are presented for six U.S. tabletters of granular chlorinated isos. Responding foreign producer/exporter firms accounted for all known of U.S. imports of granular chlorinated isos from Spain during 2021; in addition, data are presented for one Spanish tableter of chlorinated isos. No Chinese firms responded. 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. producers of chlorinated isos have the ability to respond to changes in demand with moderate changes in the quantity of shipments of U.S.-produced chlorinated isos to the U.S. market. The main contributing factors to this degree of responsiveness of supply are a relatively limited availability of unused capacity, some ability to shift shipments from available inventories, little ability to shift shipments from alternate markets, and an inability to shift production to or from alternate products.

U.S. integrated producers’ reported capacity decreased during 2019-21, and reported shipments also decreased but to a lesser extent leading to an increase in capacity utilization. U.S. tabletters’ reported capacity increased, as did production, leading to a large increase in capacity utilization during 2019-21, although capacity utilization for tabletters remained low.

Most U.S. producers (6 of 7), importers (9 of 10), and purchasers (18 of 19) reported that the availability of U.S.-produced chlorinated isos has changed since 2016, primarily citing a fire at Bio-Lab’s production facility in Louisiana that took it offline in August 2020. All U.S. producers, and most importers (9 of 10) and purchasers (15 of 18) reported that they anticipate a change in availability in the future. Many firms reported that Bio-Lab’s production facility in

Louisiana is expected to be back online in late 2022 or early 2023 and some firms reported that U.S. producer Occidental Chemical is also expanding its production capacity.

Subject imports from China and Spain

There were no questionnaire responses from Chinese producers. However, based on available information from the second review and from responding producers', importers', and purchasers' questionnaire responses, producers of chlorinated isos from China have the ability to respond to changes in demand with large changes in the quantity of shipments of chlorinated isos to the U.S. market.⁶ The main contributing factors to this degree of responsiveness of supply are large Chinese production capacity and the ability to shift shipments between markets.

Based on available information, producers of chlorinated isos from Spain have the ability to respond to changes in demand with moderate changes in the quantity of shipments of chlorinated isos to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the ability to increase capacity, availability of existing unused capacity and some inventories. Factors mitigating responsiveness of supply include limited ability to shift production to or from alternate products or markets.⁷ All three responding Spanish producers reported that there had been changes affecting the supply of imported chlorinated isos from Spain, citing increased energy costs and ocean freight, limited availability of ocean vessels, and the void in the market caused by the Bio-Lab fire in 2021. All three Spanish producers, however, reported that they anticipate no changes in the availability of Spanish chlorinated isos in the future. Respondent interested party Ercros stated that the Spanish industry focuses on its long-standing customers, noting that more than *** of its production was devoted to *** European customers on multi-year contracts and that this limits its ability to supply new customers on a spot basis.⁸

Half of U.S. producers (4 of 7), and most importers (5 of 9) and purchasers (10 of 14) reported that the availability of subject imports from China and Spain had changed since 2016. Firms reported changes in availability due to increased imports to adjust for the U.S. supply shortages and importer/purchaser *** reported that the availability of Chinese produced

⁶ *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-4.

⁷ Spanish producer *** reported that it is easy to sell to the EU market because it already has required chemical registrations and that it can also easily sell into the African market because of a lack of EPA-style regulations, but that U.S. regulations pose a challenge to shift shipments to the U.S. market.

⁸ Ercros posthearing brief, p. 3; Exhibit 1, pp. 2-5.

chlorinated isos increased when duties on Chinese product decreased. Half of U.S. producers,⁹ importers, and a majority of purchasers reported that they do not anticipate changes in availability in the future. The firms anticipating changes in availability specifically cite the possibility of the removal of antidumping duties leading to increased imports from subject sources.

Imports from nonsubject sources

Nonsubject imports accounted for nearly one-quarter of total U.S. imports in 2021. The largest source of nonsubject imports during 2019-21 was Japan, which accounted for nearly 85 percent of nonsubject imports in 2021.¹⁰

Most responding U.S. producers (5 of 6), most importers (6 of 7), and half of responding purchaser (4 of 8) reported that the availability of nonsubject imports had not changed since 2016. All U.S. producers, and most importers (6 of 7) and purchasers (7 of 8) reported that they did not anticipate changes in availability of nonsubject imports.

Supply constraints

All seven U.S. producers and most importers (9 of 10) and purchasers (13 of 19) reported that they had experienced supply constraints since January 1, 2016. These constraints primarily occurred during 2020-22. Many producers, importers, and purchasers reported that a fire at the Bio-Lab facility in Louisiana in 2020 was major constraint on the supply of chlorinated isos.¹¹ Due to this event, weather-related events, and COVID-related issues, U.S. producers have declared forces majeure and placed their customers on allocation. In addition, U.S. producer *** reported that it had to limit orders due to shortages of critical raw materials such as chlorine and caustic soda. Importer *** reported that the antidumping duties have limited availability from foreign sources.

New suppliers

Five of 19 purchasers indicated that new suppliers had entered the U.S. market since January 1, 2016, and four expect additional entrants. Purchasers cited new entrants Bodal

⁹ U.S. producer and importer *** reported that it does not anticipate a change in supply unless the antidumping duties are lifted, in which case it would anticipate increased imports of chlorinated isos from China and Spain.

¹⁰ Based on official import statistics.

¹¹ Bio-Lab's new Lake Charles facility will be producing chlorinated isos for the 2023 season. Hearing transcript, pp. 63-64 (Bentley).

(India) (cited by two purchasers), Brushby (China), and Electroquímica Onubense S.L. (Spain). Purchasers also anticipated new suppliers from Bangladesh and China.

U.S. demand

Based on available information, the overall demand for chlorinated isos is likely to experience moderate changes in response to changes in price. The main contributing factors are the somewhat limited range of substitute products balanced by the large cost share of chlorinated isos in most of its end-use products. Also, demand for chlorinated isos in its primary end uses is seasonal.¹²

End uses and cost share

U.S. demand for chlorinated isos depends on the demand for U.S.-produced downstream products. Reported end uses include chlorine sticks, chlorine tablets, repackaged dichlor, blended and unblended trichlor, sanitizers, detergent, and bleaching agents for water treatment.¹³ ¹⁴All responding U.S. producers, importers, purchasers, and foreign producers reported no changes in end uses. Twelve of 14 responding purchasers reported that the demand for final products incorporating chlorinated isos had increased since 2016, and one purchaser each reported that demand for final products had decreased,¹⁵ fluctuated, or remained unchanged.

Thirteen responding purchasers reported that these changes in end uses affected their firms' demand for chlorinated isos. Many purchasers reported that the increase in backyard pools, especially during the COVID-19 pandemic, has led to increased demand for chlorinated isos. Purchaser *** reported that the primary drivers of changes in demand for chlorinated isos are the introduction of new systems that make water care easier for the consumer and a pandemic-related focus on backyard recreation.

¹² *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-5.

¹³ *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-6.

¹⁴ Foreign producers reported similar end uses for chlorinated isos, including water treatment for swimming pools, water purification for human and animal consumption, and surface disinfection.

¹⁵ Purchaser *** reported that demand for its products declined because salt has replaced chlorine as a water treatment in certain applications. Purchaser *** reported that demand for end uses had both increased and remained unchanged.

Chlorinated isos accounts for a moderate-to-large share of the cost of the end-use products in which it is used. Reported cost shares for some end uses were as follows:¹⁶

- chlorine sticks (75 percent)
- chlorine tablets (75-100 percent)
- repackaged dichlor (75 percent)
- blended trichlor (55-63 percent)
- sanitizers and water treatment (57-100 percent)
- detergents and bleaching agents (100 percent)

Business cycles

Six of 7 U.S. producers, 8 of 10 importers, and 11 of 19 purchasers indicated that the market was subject to business cycles or distinctive conditions of competition. Specifically, demand for chlorinated isos is seasonally driven by warm weather and pool usage during the summer months. Some firms reported distinct conditions of competition including increased imports from China and Spain, supply chain improvements, and the availability of alternative pool sanitizers. Four of six responding U.S. producers and five of eight importers reported that business cycles and conditions of competition had changed since 2016, citing increased demand, weather and fire damage to production plants, and alternative sources for pool sanitizing needs. Most purchasers (9 of 13) reported that there had not been changes since 2016.

Demand trends

Most firms reported U.S. demand for chlorinated isos had increased since January 1, 2016 (table II-4), and domestic interested parties cited an unprecedented increase in demand during 2020 and 2021 as consumers stayed home during the COVID-19 pandemic and extended their pool seasons.¹⁷ A plurality of U.S. producers and most purchasers expect demand for chlorinated isos to increase over the next two years, while most importers expect there to be no change in domestic demand; most responding firms expect no change in foreign demand (table II-5).

¹⁶ *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-6.

¹⁷ Hearing transcript, p. 25 (Pan).

Table II-4

Chlorinated isos: Count of firms' responses regarding overall domestic and foreign demand since January 1, 2016, by firm type

Number of firms reporting

Market	Firm type	Increase	No change	Decrease	Fluctuate
Domestic demand	U.S. producers	5	0	1	1
Domestic demand	Importers	5	3	1	1
Domestic demand	Purchasers	15	1	2	1
Domestic demand	Foreign producers	2	0	0	0
Foreign demand	U.S. producers	1	2	0	0
Foreign demand	Importers	1	3	0	1
Foreign demand	Purchasers	3	4	0	0
Foreign demand	Foreign producers	1	1	0	0
Demand for end use products	Purchasers	12	1	1	1

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

Table II-5

Chlorinated isos: Count of firms' responses regarding anticipated overall domestic and foreign demand, by firm type

Number of firms reporting

Market	Firm type	Increase	No change	Decrease	Fluctuate
Anticipated domestic demand	U.S. producers	3	1	0	3
Anticipated domestic demand	Importers	1	6	1	2
Anticipated domestic demand	Purchasers	12	1	3	3
Anticipated domestic demand	Foreign producers	0	2	0	0
Anticipated foreign demand	U.S. producers	0	3	0	0
Anticipated foreign demand	Importers	0	3	0	2
Anticipated foreign demand	Purchasers	0	2	0	0
Anticipated foreign demand	Foreign producers	0	2	0	0

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

Substitute products

Substitutes include calcium hypochlorite, sodium hypochlorite, salt systems, liquid chlorine, and bromine. Most U.S. producers (6 of 8), importers (8 of 10), and purchasers (16 of 19), as well as all foreign producers (3 of 3) reported that there were no changes in substitutes and most firms did not anticipate any future changes in substitutes. The firms reporting changes in substitutes indicated that salt chlorination systems have increased in popularity as well as sodium hypochlorite, liquid chloricalcium hypochlorite, and other alternative sanitizers such as minerals.

Substitutability issues

This section assesses the degree to which U.S.-produced chlorinated isos and imports of chlorinated isos from subject countries can be substituted for one another by examining the importance of certain purchasing factors and the comparability of chlorinated isos from domestic and imported sources based on those factors. Based on available data, staff believes that there is a moderate-to-high degree of substitutability between domestically produced chlorinated isos and chlorinated isos imported from subject sources.^{18 19} Factors contributing to this level of substitutability include interchangeability between domestic and subject sources, and limited significant factors other than price. Factors reducing substitutability include differences in lead times and availability of domestically produced product when compared to imported chlorinated isos from subject countries and some purchasers' preference for domestically produced chlorinated isos.

Factors affecting purchasing decisions²⁰

Purchaser decisions based on source

As shown in table II-6, purchasers reported a variety of preferences based on producer and country of origin. Six purchasers reported that they always make purchasing decisions based on the producer, six reported they never do, and the remaining firms were split between usually or sometimes making purchasing decisions based on the producer. A plurality of purchasers reported that they never make purchasing decisions based on the country of origin,

¹⁸ During the second review, staff estimated that there was a moderate degree of substitutability between U.S.-produced and Chinese chlorinated isos and a higher degree of substitutability between U.S.-produced and Spanish chlorinated isos. *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. II-7. During the instant review, firms have not provided information to lead staff to believe in substitutability differences between China and Spain, but rather most purchasers have indicated that the products are highly comparable. See "Purchase factor comparisons of domestic products, subject imports, and nonsubject imports."

¹⁹ The degree of substitution between domestic and imported chlorinated isos depends upon the extent of product differentiation between the domestic and imported products and reflects how easily purchasers can switch from domestically produced product to the chlorinated isos 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.).

²⁰ Eighteen purchasers indicated they had marketing/pricing knowledge of domestic product, nine of Chinese product, four of Spanish product, and five of product from nonsubject countries.

while the remaining purchasers were split amongst always, usually, and sometimes making decisions based on the country of origin. Most purchasers reported that their customers rarely make their purchasing decisions based on producer or country of origin. Of the purchasers that reported that they always or usually make decisions based on the manufacturer or country of origin, *** reported that its decisions are based on quality and price, and *** reported that it considers ease of delivery. *** reported that it considers consistency in quality such as granulation, moisture content and odor that some producers are not able to provide, and also considers it to have an ethical responsibility to provide the highest quality products for its customers and to choose U.S. product when possible.

Table II-6
Chlorinated isos: Count of purchasers' responses regarding frequency of purchasing decisions based on producer and country of origin

Number of firms reporting

Firm making decision	Decision based on	Always	Usually	Sometimes	Never
Purchaser	Producer	6	4	3	6
Customer	Producer	1	0	4	10
Purchaser	Country	5	2	3	9
Customer	Country	1	0	3	10

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

Importance of purchasing domestic product

Twelve of 18 responding purchasers reported that all of their purchases did not require purchasing U.S.-produced product, and two purchasers reported that 45-50 percent of their purchases did not require domestic product. Three purchasers reported that domestic product was required by their customers (for 50 to 100 percent of their purchases), and three reported other preferences for domestic product. Reasons cited for preferring domestic product included: availability, existing contracts with domestic suppliers, and warranties in effect for customers.

Fifteen of 19 purchasers reported that they do not have a country preference. Of the four purchasers reporting that they did, three reported preference for domestically produced chlorinated isos, *** reported preference for Chinese product, and *** reported that it only purchases chlorinated isos from *** in Japan.

Most important purchase factors

The most often cited top three factors firms consider in their purchasing decisions for chlorinated isos were price (16 firms), availability (14 firms), and quality (13 firms) as shown in

table II-7. Price was the most frequently cited first-most important factor (cited by 7 firms), followed by availability (5 firms); quality was the most frequently reported second-most important factor (7 firms); and price was also the most frequently reported third-most important factor (6 firms).

Table II-7
Chlorinated isos: Count of ranking of factors used in purchasing decisions as reported by purchasers, by factor

Number of firms reporting

Factor	First	Second	Third	Total
Price	7	3	6	16
Availability	5	5	4	14
Quality	4	7	2	13
All other factors	3	4	6	NA

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

Note: Other factors include brand, credit, terms, and product range (2 purchasers each), loyalty/relationship, and lead times (1 purchaser each).

A plurality of purchasers (8 of 18) reported that they only usually purchase the lowest-priced product, while seven reported that they sometimes purchase the lowest-priced product, and three reported that they never purchase the lowest-price product.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 15 factors in their purchasing decisions (table II-8). The factors rated as very important by more than half of responding purchasers were availability, price, product consistency, and reliability of supply (19 each), quality meets industry standards (18), delivery time (16), and delivery terms and U.S. transportation costs (13 each). Over half of responding purchasers (10) reported that minimum quantity requirements were not important. Producer Bio-Lab stated that its customers' purchasing decisions are typically based on price and reliability of supply.²¹

²¹ Hearing transcript, p. 22 (Lawrence).

Table II-8
Chlorinated isos: Count of purchasers' responses regarding importance of purchase factors, by factor

Number of firms reporting

Factor	Very important	Somewhat important	Not important
Availability	19	0	0
Delivery terms	13	5	1
Delivery time	16	3	0
Discounts offered	6	10	3
Minimum quantity requirements	1	7	10
Packaging	8	10	1
Payment terms	7	10	2
Price	19	0	0
Product consistency	19	0	0
Product range	7	9	3
Quality meets industry standards	18	1	0
Quality exceeds industry standards	8	9	2
Reliability of supply	19	0	0
Technical support/service (including lab/field services)	7	8	4
U.S. transportation costs	13	5	1

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

Lead times

Chlorinated isos are primarily sold from U.S. inventories. U.S. producers reported that *** percent of their commercial shipments were sold from inventories, with lead times averaging seven days. The remaining *** percent of their commercial shipments were produced-to-order, with lead times averaging 26 days. Importers reported that *** percent of their commercial shipments were sold from U.S. inventories, with lead times of *** days, while the remaining share was sold from foreign inventories with extended lead times. Foreign producers reported that *** percent of their commercial shipments were sold from inventories, and the remaining share of commercial shipments was produced to order.²²

Supplier certification

Ten of 19 responding purchasers do not require their suppliers to become certified or qualified to sell chlorinated isos to their firm. Most purchasers reporting that their suppliers must become qualified stated that the time to qualify a new supplier ranged from 30-90 days. All *** purchaser reported that no suppliers had failed in their attempts to qualify

²² Foreign producer *** reported that the lead time for shipments from inventories was *** days and *** reported that lead times were *** days for shipments from inventories and *** days for shipments that were produced to order.

chlorinated isos, or had lost its approved status since 2016. Purchaser *** reported that *** failed to qualify.

Minimum quality specifications

As can be seen from table II-9, 14 responding purchasers reported that domestically produced chlorinated isos always met minimum quality specifications. A plurality of responding purchasers reported that Chinese chlorinated isos always met minimum quality specifications and most purchasers reported that Spanish chlorinated isos always met minimum quality specifications.

Table II-9
Chlorinated isos: Count of purchasers' responses regarding suppliers' ability to meet minimum quality specifications, by source

Number of firms reporting

Source of purchases	Always	Usually	Sometimes	Rarely or never
United States	14	2	0	0
China	6	3	4	0
Spain	4	0	1	0
All other sources	2	2	1	0

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

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

Purchasers reported factors that determined quality include percentage of active chlorine (7 purchasers), product safety (4), particle specifications/consistent granulation (3), moisture content (3), consistency of quality, color, and size (3), odor (2), hardness of tablets or stick (2), ability to be tabletized, meeting industry standard testing, EPA registration, and compliance with regulations (1 each).

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2016 (table II-10). Most purchasers reported that their purchases of U.S.-produced chlorinated isos increased, as did the majority of purchasers that had purchased chlorinated isos from China or Spain. Reasons reported for changes in sourcing included overall increased demand for chlorinated isos, capacity reductions in the United States due to the Bio-Lab fire and other supply shortages leading to increased purchases of chlorinated isos from subject sources.

Table II-10

Chlorinated isos: Count of purchasers' responses regarding changes in purchase patterns from the United States, subject, and nonsubject countries, since 2016

Number of firms reporting

Source of purchases	Decreased	Increased	Constant	Fluctuated	Did not purchase
United States	4	8	3	1	1
China	2	4	1	1	7
Spain	0	3	0	1	9
All other sources	0	3	1	0	9
Sources unknown	0	2	1	0	11

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

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

Purchasers were asked a number of questions comparing chlorinated isos produced in the United States, subject countries, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 15 factors (table II-11) for which they were asked to rate the importance.

Most (or a plurality) of responding purchasers reported that U.S. and Chinese chlorinated isos are comparable on most factors, excluding availability and technical support/service (including lab/field services). Purchasers were split regarding availability (considered very important by all purchasers), with five reporting that U.S.-produced chlorinated isos were superior to Chinese product in availability, and five reporting that U.S. product was inferior; most purchasers reported that chlorinated isos produced in the United States was superior to Chinese product for technical support.

Most purchasers (or a plurality) reported that U.S.-produced and Spanish chlorinated isos are comparable on most factors, excluding availability, technical support/service, and U.S. transportation costs for which three purchasers each reported that U.S. product is superior or comparable to Spanish product. Three of six purchasers reported that U.S. product is superior to Spanish product in availability and reliability of supply (both considered very important by all purchasers).

Most purchasers reported that U.S. and nonsubject chlorinated isos were comparable on all factors, except for availability (considered very important by all purchasers) for which three of six responding purchasers reported that U.S.-produced chlorinated isos were inferior to chlorinated isos from nonsubject imports.

Table II-11

Chlorinated isos: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	U.S. vs China	5	3	5
Delivery terms	U.S. vs China	5	8	0
Delivery time	U.S. vs China	5	6	1
Discounts offered	U.S. vs China	3	8	1
Minimum quantity requirements	U.S. vs China	3	8	0
Packaging	U.S. vs China	3	9	1
Payment terms	U.S. vs China	4	7	2
Price	U.S. vs China	2	10	1
Product consistency	U.S. vs China	4	9	0
Product range	U.S. vs China	3	9	1
Quality meets industry standards	U.S. vs China	4	9	0
Quality exceeds industry standards	U.S. vs China	4	8	1
Reliability of supply	U.S. vs China	5	6	2
Technical support/service (including lab/field services)	U.S. vs China	7	4	2
U.S. transportation costs	U.S. vs China	4	8	1

Table continued.

Table II-11 Continued

Chlorinated isos: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	U.S. vs Spain	3	3	0
Delivery terms	U.S. vs Spain	1	5	0
Delivery time	U.S. vs Spain	2	4	0
Discounts offered	U.S. vs Spain	1	4	1
Minimum quantity requirements	U.S. vs Spain	1	5	0
Packaging	U.S. vs Spain	1	5	0
Payment terms	U.S. vs Spain	2	3	1
Price	U.S. vs Spain	0	5	1
Product consistency	U.S. vs Spain	1	5	0
Product range	U.S. vs Spain	2	4	0
Quality meets industry standards	U.S. vs Spain	1	5	0
Quality exceeds industry standards	U.S. vs Spain	1	5	0
Reliability of supply	U.S. vs Spain	3	2	1
Technical support/service (including lab/field services)	U.S. vs Spain	3	3	0
U.S. transportation costs	U.S. vs Spain	3	3	0

Table continued.

Table II-11 Continued

Chlorinated isos: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	China vs Spain	2	2	0
Delivery terms	China vs Spain	0	4	0
Delivery time	China vs Spain	0	4	0
Discounts offered	China vs Spain	1	3	0
Minimum quantity requirements	China vs Spain	0	4	0
Packaging	China vs Spain	0	3	1
Payment terms	China vs Spain	0	4	0
Price	China vs Spain	1	3	0
Product consistency	China vs Spain	0	4	0
Product range	China vs Spain	0	4	0
Quality meets industry standards	China vs Spain	0	4	0
Quality exceeds industry standards	China vs Spain	0	4	0
Reliability of supply	China vs Spain	1	3	0
Technical support/service (including lab/field services)	China vs Spain	0	3	1
U.S. transportation costs	China vs Spain	0	4	0

Table continued.

Table II-11 Continued

Chlorinated isos: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	U.S. vs nonsubject	1	2	3
Delivery terms	U.S. vs nonsubject	1	5	0
Delivery time	U.S. vs nonsubject	2	4	0
Discounts offered	U.S. vs nonsubject	0	5	1
Minimum quantity requirements	U.S. vs nonsubject	0	6	0
Packaging	U.S. vs nonsubject	1	4	1
Payment terms	U.S. vs nonsubject	0	5	1
Price	U.S. vs nonsubject	0	6	0
Product consistency	U.S. vs nonsubject	1	5	0
Product range	U.S. vs nonsubject	1	5	0
Quality meets industry standards	U.S. vs nonsubject	1	5	0
Quality exceeds industry standards	U.S. vs nonsubject	1	4	1
Reliability of supply	U.S. vs nonsubject	1	4	1
Technical support/service (including lab/field services)	U.S. vs nonsubject	2	3	1
U.S. transportation costs	U.S. vs nonsubject	1	5	0

Table continued.

Table II-11 Continued

Chlorinated isos: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	China vs nonsubject	2	0	1
Delivery terms	China vs nonsubject	0	2	1
Delivery time	China vs nonsubject	0	1	2
Discounts offered	China vs nonsubject	0	2	1
Minimum quantity requirements	China vs nonsubject	0	2	1
Packaging	China vs nonsubject	0	2	1
Payment terms	China vs nonsubject	0	2	1
Price	China vs nonsubject	1	2	0
Product consistency	China vs nonsubject	0	3	0
Product range	China vs nonsubject	0	2	1
Quality meets industry standards	China vs nonsubject	0	3	0
Quality exceeds industry standards	China vs nonsubject	0	3	0
Reliability of supply	China vs nonsubject	1	1	1
Technical support/service (including lab/field services)	China vs nonsubject	0	0	3
U.S. transportation costs	China vs nonsubject	0	2	1

Table continued.

Table II-11 Continued

Chlorinated isos: Count of purchasers' responses comparing U.S.-produced and imported product, by factor and country pair

Number of firms reporting

Factor	Country pair	Superior	Comparable	Inferior
Availability	Spain vs nonsubject	0	1	1
Delivery terms	Spain vs nonsubject	0	2	0
Delivery time	Spain vs nonsubject	1	1	0
Discounts offered	Spain vs nonsubject	0	2	0
Minimum quantity requirements	Spain vs nonsubject	0	2	0
Packaging	Spain vs nonsubject	0	1	1
Payment terms	Spain vs nonsubject	0	1	1
Price	Spain vs nonsubject	0	2	0
Product consistency	Spain vs nonsubject	0	2	0
Product range	Spain vs nonsubject	0	1	1
Quality meets industry standards	Spain vs nonsubject	0	2	0
Quality exceeds industry standards	Spain vs nonsubject	0	2	0
Reliability of supply	Spain vs nonsubject	0	2	0
Technical support/service (including lab/field services)	Spain vs nonsubject	1	1	0
U.S. transportation costs	Spain vs nonsubject	0	2	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 chlorinated isos

In order to determine whether U.S.-produced chlorinated isos can generally be used in the same applications as imports from China and Spain, 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-12 to II-14, most U.S. producers and purchasers reported that U.S.-produced chlorinated isos and chlorinated isos from China and Spain are always or frequently interchangeable, and most importers reported that U.S.-produced chlorinated isos and chlorinated isos from China and Spain are always interchangeable. Two of three responding Spanish producers also reported that their product is interchangeable with U.S.-produced chlorinated isos.²³

Table II-12
Chlorinated isos: Count of U.S. producers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	3	3	1	0
United States vs. Spain	4	2	1	0
China vs. Spain	3	2	2	0
United States vs. Other	3	3	0	0
China vs. Other	3	2	1	0
Spain vs. Other	3	3	0	0

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

Table II-13
Chlorinated isos: Count of importers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	6	2	0	0
United States vs. Spain	5	3	0	0
China vs. Spain	5	2	1	0
United States vs. Other	3	2	0	0
China vs. Other	3	2	0	0
Spain vs. Other	3	2	0	0

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

²³ Spanish producer *** reported that the products sold in the United States have slight differences in composition or formulation.

Table II-14

Chlorinated isos: Count of purchasers reporting the interchangeability between product produced in the United States and in other countries, by country pair

Number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	8	6	2	1
United States vs. Spain	4	2	2	0
China vs. Spain	3	3	1	0
United States vs. Other	3	3	0	1
China vs. Other	1	3	0	0
Spain vs. Other	1	3	0	0

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

U.S. producer ***, and *** purchaser *** reported that Chinese product would occasionally not meet product quality standards. Importer *** reported that Spanish product is better than Chinese product because it is more reliable. Purchaser *** reported that particle specifications and cubic density of Chinese and Spanish chlorinated isos do not work in its production line for its downstream products.

In addition, U.S. producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of chlorinated isos from the United States, subject, or nonsubject countries. As seen in tables II-15 to II-17, most U.S. producers and importers reported that differences other than price were sometimes or never significant, and purchasers' responses were more varied. U.S. producers reported that freight costs, freight availability, and product quality are significant factors other than price. Importer *** reported that China has good quality but the lead time is poor, and importer *** reported that U.S. producers have an advantage over subject imports in lead times.

Table II-15

Chlorinated isos: 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

Number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	2	1	3	1
United States vs. Spain	1	1	3	2
China vs. Spain	0	1	3	2
United States vs. Other	0	0	4	2
China vs. Other	1	0	3	1
Spain vs. Other	1	0	3	1

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

Table II-16

Chlorinated isos: Count of importers reporting the significance of differences between product produced in the United States and in other countries, by country pair

Number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	2	1	3	2
United States vs. Spain	1	1	2	3
China vs. Spain	1	0	2	2
United States vs. Other	1	1	2	1
China vs. Other	1	0	1	2
Spain vs. Other	0	0	1	2

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

Table II-17

Chlorinated isos: Count of purchasers reporting the significance of differences between product produced in the United States and in other countries, by country pair

Number of firms reporting

Country pair	Always	Frequently	Sometimes	Never
United States vs. China	4	6	4	3
United States vs. Spain	1	3	2	2
China vs. Spain	0	2	3	2
United States vs. Other	0	1	4	0
China vs. Other	0	0	3	1
Spain vs. Other	0	0	3	1

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

Elasticity estimates

This section discusses elasticity estimates; parties were encouraged to comment on these estimates; none did so.

U.S. supply elasticity

The domestic supply elasticity for chlorinated isos measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of chlorinated isos. 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 production to other products, the existence of inventories, and the availability of alternate markets for U.S.-produced chlorinated isos. Analysis of these factors above indicates that the U.S. industry has the ability to moderately increase or decrease shipments to the U.S. market; an estimate in the range of 2 to 4 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for chlorinated isos measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of chlorinated isos. 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 chlorinated isos in the production of any downstream products. Based on the available information, the aggregate demand for chlorinated isos is likely to be inelastic; a range of -0.5 to -0.75 is suggested.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.²⁴ 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 chlorinated isos and imported chlorinated isos is likely to be in the range of 2 to 4 for chlorinated isos imported from China and Spain. Factors contributing to this level of substitutability include interchangeability between domestic and subject sources, and limited significant factors other than price. Factors reducing substitutability include differences in lead times and availability of domestically produced product when compared to imported chlorinated isos from subject countries and some purchasers' preference for domestically produced chlorinated isos.

²⁴ 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.

Part III: Condition of the U.S. industry

Overview

The information in this section of the report was compiled from responses to the Commission’s questionnaires. Seven firms supplied information on their chlorinated isos operations in these reviews.¹ Of the seven U.S. producers, three are integrated producers (i.e., firms that produce granular chlorinated isos and may also tablet their own granular chlorinated isos production either independently or via a tolling arrangement). These three firms accounted for all U.S. production of granular chlorinated isos in 2021. In addition, data are presented for six U.S. tableters (i.e., firms engaged in tableting operations of purchased/imported granular chlorinated isos); two of the six tableters are also integrated producers.

Table III-1 presents events in the U.S. chlorinated isos industry since the last five-year reviews. In addition, Clearon is in the process of completing a large plant expansion and Bio-Lab has invested “a quarter of a billion dollars to design, rebuild, and expand” its Lake Charles facility, which is expected to come online for the 2023 pool season.² There has also been a consolidation of tableters in the U.S. industry.³

¹ An eighth firm, Stellar Manufacturing (“Stellar”), provided an incomplete questionnaire response regarding its toll tableting operations and could not be incorporated in this report. The firm provided ***. Stellar did not respond to staff’s multiple attempts to obtain a usable questionnaire response. Stellar reported capacity of *** short tons during 2019-21 and *** short tons during January-March 2021 and January-March 2022. It reported production and shipments to their customers of *** short tons in 2019, *** short tons in 2020, *** short tons in 2021, *** short tons in January-March 2021, and *** short tons in January-March 2022. Its shipments were valued at \$*** in 2019, \$*** in 2020, \$*** in 2021, \$*** in January-March 2021, and \$*** in January-March 2022. The firm’s customers were ***. Stellar’s producer questionnaire response, II-12; and Staff correspondence with ***, September 21, 2022.

² Hearing transcript, pp. 28 (Pan), 30-31 and 63-65 (Bentley).

³ “There used to be 25 tableters...now there are maybe half that, or less;” “there has been an evolution where tableters now are the customers;” “the largest distributor in the world is now a tableter and a retailer;” “...in the past several years we’ve seen the number of independent tableters shrinking.” Hearing transcript, pp. 77-79 (Cannon, Lawrence, and Martineau).

Table III-1**Chlorinated isos: Important industry events since January 1, 2016**

Type of change	Firm name and event
Plant Closure	Bio-Lab: Lake Charles dichlor/trichlor plant closed due to fire damage suffered in August 2020 Hurricane Laura.
Prolonged shutdown	OxyChem: On September 1, 2021, OxyChem declared force majeure on water treatment chemicals produced at its plants in Luling, LA, which was damaged during Hurricane Ida, and Sauget, IL, which depends on cyanuric acid produced in Luling.
Acquisition	Clearon: On August 11, 2022, Solenis LLC announced that it will acquire Clearon Corp., anticipating the acquisition to be complete by the end of 2022.

Source: Smith, Mike. "A new spirit: Storm-hit Lake Charles area inaugurating major projects: \$20M museum, \$143M plant," The Advocate, June 29, 2021, https://www.theadvocate.com/lake_charles/article_d80ad50c-d924-11eb-aaaa-7fb242ce6023.html; "OxyChem declares force majeure on chlor-alkali, EDC post-Ida," S&P Global Community Insights, September 1, 2021, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/petrochemicals/090121-oxychem-declares-force-majeure-on-chlor-alkali-edc-post-ida>; and Solenis LLC, news release, August 11, 2022, <https://www.solenis.com/en/resources/news-releases/2022/solenis-to-acquire-clearon>.

Changes experienced by the industry

Domestic producers were asked to indicate whether their firm had experienced any plant openings, relocations, expansions, acquisitions, consolidations, closures, or prolonged shutdowns because of strikes or equipment failure; curtailment of production because of shortages of materials or other reasons, including revision of labor agreements; or any other change in the character of their operations or organization relating to the production of chlorinated isos since 2016. The three integrated producers indicated that they had experienced such changes; their responses are presented in table III-2.

Firms were also asked about the impact of the COVID-19 pandemic on their chlorinated isos operations. Five of seven responding U.S. producers reported changes in their supply chain arrangements, production, employment, and/or shipments relating to chlorinated isos; their responses are presented in table III-3.

Table III-2**Chlorinated isos: U.S. producers' reported changes in operations since January 1, 2016**

Type of change	Firm name and narrative on changes in operations
Expansions	***
Expansions	***
Expansions	***
Acquisitions	***
Prolonged shutdowns or curtailments	***
Prolonged shutdowns or curtailments	***
Prolonged shutdowns or curtailments	***
Revised labor agreements	***
Other	***

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

Table III-3**Chlorinated isos: U.S. producers' reported impact of COVID-19 on their operations since January 1, 2020**

Firm name	Narrative on impact of COVID-19 pandemic
***	***
***	***
***	***
***	***
***	***

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

Anticipated changes in operations

The Commission asked domestic producers to report anticipated changes in the character of their operations relating to the production of chlorinated isos. Their responses are presented in table III-4.

Table III-4**Chlorinated isos: U.S. producers' anticipated changes in operations**

Firm	Narrative on anticipated changes in operations
***	***
***	***
***	***

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

Production-related activities⁴

U.S. producers were asked to rate the complexity, intensity, and importance of their production-related activities. Their responses are presented in tables III-5 and III-6. Table III-7 presents a summary of production-related activities factors reported by U.S. integrated producers and U.S. tableters. In addition, appendix E presents U.S. producers' responses regarding the nature and extent of their capital investments, technical expertise, value added, employment, quantity, type, and source of parts, and costs and activities in relation to their production operations.

⁴ In its original determinations, the Commission defined the domestic industry as all of the domestic integrated producers of chlorinated isos as well as all domestic tableters of chlorinated isos, which are those companies that only tablet and repackage chlorinated isos. The Commissioners were evenly divided in the original determinations with respect to whether or not to include tableters in the domestic industry. Three Commissioners found that tableters engaged in sufficient production-related activities to qualify as domestic producers and three Commissioners found that they did not.

In its expedited first five-year review determinations, the Commission defined the domestic industry as all of the domestic integrated producers of chlorinated isos and did not include tableters in the domestic industry. Two Commissioners found that the domestic industry includes tableters. In its full second five-year reviews, the Commission defined the domestic industry as all of the domestic integrated producers of granular chlorinated isos and tableters of chlorinated isos. One Commissioner found that tableters did not engage in sufficient production-related activities to qualify as domestic producers. 86 FR 54473, October 1, 2021.

In these current reviews, the domestic interested parties and respondent Ercros both argue that firms that only engage in tableting of purchased or imported granular chlorinated isos do not engage in sufficient production-related activities to qualify as domestic producers. Domestic interested parties' comments on draft questionnaires, April 15, 2022, pp. 2-3; Domestic interested parties' prehearing brief, September 20, 2022, pp. 11-24; Respondent Ercros' prehearing brief, September 20, 2022, pp. 5-8; and hearing transcript, pp. 7, 40, and 82 (Alves).

Table III-5
Chlorinated isos: Count of U.S. producers' rating complexity of production-related activities

Count in number of firms reporting

Firm	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
LPM	***	***	***	***	***
N. Jonas	***	***	***	***	***
OxyChem	***	***	***	***	***
Qualco	***	***	***	***	***
All producers	---	---	1	2	3

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

Note: Ratings are on a scale of 1-5 with 1 being the least complex and 5 the most.

Note: Despite staff's multiple attempts, ***. See staff correspondence with ***, August 30, 2022.

Table III-6
Chlorinated isos: U.S. producers' narratives regarding complexity of production-related activities

Firm	Narrative response
***	***
***	***
***	***
***	***
***	***
***	***
***	***

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

Table III-7

Chlorinated isos: U.S. producers' aggregate data for sufficient production related activities by SPRA factors, since January 1, 2019

Firm	U.S. integrated producers	U.S. tableters
Capital investments (Value in 1,000 dollars)	***	***
Technical expertise (Value in 1,000 dollars)	***	***
Value added (percent)	***	***
Employment (number of production related workers)	***	***
Quantity, type and source of parts (Value in 1,000 dollars)	***	***

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

Note: Capital investments are the aggregate range of capital expenditures reported from 2019-2021. Technical expertise is the aggregated range of research and development expenses reported from 2019-2021. Capital investments and technical expertise data were collected in one line for all producer types. Data for both capital expenditures and R&D expenses were allocated to each producer type by the net sales percentage by production type on a firm by firm basis before aggregating. Value added data are the range of aggregate annual total conversion costs divided by total COGS percentages reported from 2019-2021. Employment data are aggregate annual production and related workers (PRWs) range from 2019-2021. Quantity, type and source of parts data are the aggregate annual domestic raw materials costs for 2019-2021. U.S. integrated producers' raw material costs assume that all reported raw materials are domestic. U.S. tableters are the non-toll tableters' raw materials other than imported granular plus toll tableters' raw materials not supplied by tollee which are assumed to be domestic.

Note: After its plant closure in August 2020, Bio-Lab transitioned from being an integrated producer to a non-toll tableter.

U.S. production, capacity, and capacity utilization

Table III-8 and figure III-1 present U.S. integrated producers' capacity, production, and capacity utilization.⁵ Integrated producers' chlorinated isos capacity and production decreased during 2019-21, *** percent and *** percent respectively. Capacity and production were lower in January-March 2022 than in January-March 2021, by *** percent and *** percent, respectively. Capacity utilization increased in each year during 2019-21, from *** percent to *** percent, and was *** percentage points lower in January-March 2022 than in January-March 2021.⁶

The decrease in capacity and production is primarily driven by Bio-Lab, which closed its granular chlorinated isos plant in August 2020. Bio-Lab's plant shutdown "stripped more than 30 percent of trichlor production capacity in the U.S."⁷ ***. Also, ***'s production decreased from 2019-20 because, ***.⁸

Table III-8
Chlorinated isos: Firm-by-firm U.S. integrated producers' capacity, by period

Capacity					
Quantity in short tons					
Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

⁵ Data for U.S. integrated producers include any tableting operations of their own granular chlorinated isos production.

⁶ The chlorinated isos industry has high fixed costs and facilities need to run at high capacity to offset those fixed costs. Hearing transcript, p. 38 (Robella).

⁷ Hearing transcript, p. 25 (Pan). After production of granular chlorinated isos ceased at its Lake Charles facility, began tableting operations of purchased/imported granular chlorinated isos (see table III-9). Bio-Lab reported that its new Lake Charles facility will be producing at full capacity for the 2023 pool season. Hearing transcript, pp. 37-38 (Robella) and 63-65 (Bentley).

⁸ Staff correspondence with ***, August 25, 2022.

Table III-8 Continued**Chlorinated isos: Firm-by-firm U.S. integrated producers' production, by period****Production**

Quantity in short tons

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-8 Continued**Chlorinated isos: Firm-by-firm U.S. integrated producers' capacity utilization, by period****Capacity utilization**

Ratio in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-8 Continued**Chlorinated isos: Firm-by-firm U.S. integrated producers' share of production, by period****Share of production**

Share in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All firms	***	***	***	***	***

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

Note: Capacity utilization ratio represents the ratio of the U.S. producer's production to its production capacity.

Note: Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Figure III-1
Chlorinated isos: U.S. integrated producers' production, capacity, and capacity utilization, by period

* * * * * * *

Table III-9 and figure III-2 present U.S. tableters' production, capacity, and capacity utilization.⁹ U.S. tableters' capacity *** during 2019-21, and was *** in January-March 2022 compared to January-March 2021. Similarly, U.S. tableters' production increased *** during 2019-21, and was *** in January-March 2022 compared to January-March 2021. U.S. tableters' capacity utilization increased by *** percentage points during 2019-21, from *** percent to *** percent, and was stable during January-March 2022 compared to January-March 2021.

The increase in U.S. tableters' capacity and production is primarily driven by Bio-Lab, which began tableting operations of purchased/imported granular chlorinated isos after the August 2020 closure of its granular chlorinated isos facility. The trends are also due in part to ***.

⁹ Data for U.S. tableters include only tableting operations of purchased/imported granular chlorinated isos production.

Table III-9
Chlorinated isos: Firm-by-firm U.S. tableters' capacity, by period

Capacity

Quantity in short tons

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
LPM	***	***	***	***	***
N. Jonas	***	***	***	***	***
Qualco	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
Qualco	***	***	***	***	***
N. Jonas	***	***	***	***	***
All toll tableters	***	***	***	***	***
All tableters	***	***	***	***	***

Table continued.

Table III-9 Continued
Chlorinated isos: Firm-by-firm U.S. tableters' production, by period

Production

Quantity in short tons

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
LPM	***	***	***	***	***
N. Jonas	***	***	***	***	***
Qualco	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
Qualco	***	***	***	***	***
N. Jonas	***	***	***	***	***
All toll tableters	***	***	***	***	***
All tableters	***	***	***	***	***

Table continued.

Table III-9 Continued

Chlorinated isos: Firm-by-firm U.S. tableters' capacity utilization, by period

Capacity utilization

Ratio in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
LPM	***	***	***	***	***
N. Jonas	***	***	***	***	***
Qualco	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
Qualco	***	***	***	***	***
N. Jonas	***	***	***	***	***
All toll tableters	***	***	***	***	***
All tableters	***	***	***	***	***

Table continued.

Table III-9 Continued

Chlorinated isos: Firm-by-firm U.S. tableters' share of production, by period

Share of production

Share in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
LPM	***	***	***	***	***
N. Jonas	***	***	***	***	***
Qualco	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
Qualco	***	***	***	***	***
N. Jonas	***	***	***	***	***
All toll tableters	***	***	***	***	***
All tableters	***	***	***	***	***

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

Note: ***.

Note: ***.

Note: Capacity utilization ratio represents the ratio of the U.S. producer's production to its production capacity.

Note: Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Figure III-2
Chlorinated isos: U.S. tableters' production, capacity, and capacity utilization, by period

* * * * *

Alternative products

No U.S. producer reported producing alternative products using the same equipment, machinery, or employees as used to produce chlorinated isos.

Constraints on capacity

Five of the seven responding U.S. producers reported constraints in the manufacturing process. Responding firms reported that constraints in the manufacturing process include equipment capacity, equipment failure, size of facility, labor availability, raw material supply disruptions, utility supply disruptions, weather events, preventative maintenance, and maintenance shutdowns. U.S. tableter *** also reported as a constraint chlorinated isos being incompatible with most other chemicals.

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

Tables III-10, III-11, and III-12 present U.S. producers' U.S. shipments, export shipments, and total shipments for integrated producers, non-toll tableters, and toll tableters, respectively.¹⁰ Table III-13 presents U.S. producers' U.S. shipments for use in apparent U.S. consumption, including the incremental value associated with tableting operations.

Consistent with production trends discussed above, U.S. integrated producers' U.S. shipments decreased in each year, while U.S. tableters' shipments increased, reflecting Bio-Lab's transition from an integrated producer to a tableter of purchased/imported granular chlorinated isos as well as ***.

Both integrated producers' and tableters' average unit values ("AUVs") per short ton increased during 2019-21, particularly during the latter part of the period, and were markedly higher in January-March 2022 when compared to January-March 2021. Integrated producers' AUVs increased by *** percent during 2019-21, from \$*** to \$***, and were *** percent higher in January-March 2022 than in January-March 2021 (\$*** compared to \$***). Tableters' AUVs increased by *** percent and *** percent during 2019-20 and 2020-21 respectively, for an overall increase of *** percent during 2019-21 (from \$*** to \$***) and were *** percent higher in January-March 2022 than in January-March 2021 (\$*** compared to \$***).

¹⁰ Stellar reported shipments to their customers valued at \$*** in 2019, \$*** in 2020, \$*** in 2021, \$*** in January-March 2021, and \$*** in January-March 2022.

The overall increase in integrated producers' and tableters' AUVs, particularly during the latter part of the period, may be due to increasing raw material costs and supply shortages together with increased demand for chlorinated isos.¹¹ The increase in tableters' AUVs reflects the higher AUVs of their purchases/imports of granular chlorinated isos used in their tableting operations, which *** during 2019-21 and were *** percent higher in interim 2022 than in interim 2021.¹² ¹³ *** reported that ***. Similarly, *** reported that "prices and costs escalated during this period."¹⁴

U.S. integrated producers' U.S. shipments accounted for the vast majority of total shipments (*** percent in 2021). *** and *** reported export shipments during the period for which data were collected, with *** accounting for the majority. U.S. tableters' shipments of chlorinated isos were *** in the domestic market.

¹¹ According to witness testimony, raw materials chlorine and urea have increased four-fold since early 2020 and caustic soda has doubled, which has contributed to more than doubling the cost to produce trichlor and dichlor. Hearing transcript, pp. 39 (Pan) and 85 (Cannon).

¹² U.S. tableters' AUVs of their reported purchases/imports of granular chlorinated isos used in their tableting operations were as follows: \$*** in 2019; \$*** in 2020; \$*** in 2021; \$*** in January-March 2021; and \$*** in January-March 2022. *Calculated from* U.S. producers' questionnaire responses, II-9a.

¹³ This is consistent with responses provided by U.S. importers regarding their increasing import and shipment unit values. *** attributed the much higher unit value of its reported imports in January-March 2022 to "significant inflation from our suppliers for the cost of the Trichlor (~\$1000/MT) starting in January 2022." Staff correspondence with ***, July 29, 2022. *** reported increases on transport and raw materials during 2021 and subsequently "announced and applied a first increase of prices in July 2021 and then another much higher increase in October 2021....For some customers, we accepted not to apply the increase till January 2022 and this is the reason for the increase of value in Q12022." Staff correspondence with ***, July 22, 2022. *** and *** attributed the higher unit values in January-March 2022 to increased demand for chlorinated isos. Staff correspondence with ***, July 22, 2022; and with ***, July 27, 2022.

¹⁴ Staff correspondence with ***, July 28, 2022; and staff correspondence with ***, July 22, 2022.

Table III-10**Chlorinated isos: U.S. integrated producers' shipments, by destination and period**

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

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 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.

Table III-11**Chlorinated isos: U.S. non-toll tableters' shipments, by destination and period**

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

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 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.

Note: Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Table III-12**Chlorinated isos: U.S. toll tableters' shipments returned to tollee, by destination and period**

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

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
U.S. shipments	Quantity	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***

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

Note: All shipments returned to the tollee were for the account of customers other than producers or importers.

Table III-13**Chlorinated isos: U.S. producers' U.S. shipments for use in apparent consumption, by period**

Quantity in short tons; value in 1,000 dollars

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
U.S. shipments	Quantity	***	***	***	***	***
U.S. shipments integrated value	Value	***	***	***	***	***
U.S. shipments value added to domestic	Value	***	***	***	***	***
U.S. shipments fully domestic	Value	***	***	***	***	***
U.S. shipments value added to imports	Value	***	***	***	***	***
U.S. shipments total	Value	***	***	***	***	***

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

Note: Quantity for U.S. producers' U.S. shipments reflects integrated producer's U.S. shipment quantities. Value for U.S. producers' U.S. shipments reflects chlorinated isos products sold in the United States from domestically manufactured chlorinated isos (including the value added by U.S. non-toll tableters to domestic chlorinated isos), as well as the incremental value added by U.S. non-toll tableters to imported chlorinated isos. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as an import.

U.S. producers' inventories

Tables III-14 and III-15 present U.S. producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments for U.S. integrated producers and U.S. tableters, respectively. U.S. integrated producers' ending inventories declined by *** percent from 2019-20 then declined by *** percent from 2020-21, for an overall decrease of *** percent during 2019-21. Similarly, U.S. integrated producers' ending inventories were *** percent lower in January-March 2022 than in January-March 2021. U.S. integrated producers' inventory ratios to U.S. production, U.S. shipments, and total shipments all decreased by approximately *** percentage points during 2019-20, then increased by approximately *** percentage points during 2020-21. U.S. integrated producers' inventory trends are driven primarily by ***. *** also maintained a high ending inventory to production ratio in 2019 (*** percent), and beginning in 2020, implemented a strategy to draw down its inventories and move toward make-to-order production.¹⁵

U.S. tableters' ending inventories increased by *** percent during 2019-20, then *** during 2020-21, overall increasing *** during 2019-21. U.S. tableters' ending inventories were *** percent higher in January-March 2022 than in January-March 2021. The increase during 2019-21 is primarily due to ***. The higher inventories in January-March 2022 compared to January-March 2021 is also driven by ***. U.S. tableters' inventory ratios to U.S. production, U.S. shipments, and total shipments all decreased by *** percentage points during 2019-21 and were higher in January-March 2022 than in January-March 2021.

¹⁵ Staff correspondence with ***, August 25, 2022.

Table III-14**Chlorinated isos: U.S. integrated producers' inventories, by period**

Quantity in short tons; ratio in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
End-of-period inventory	Quantity	***	***	***	***	***
Inventory to U.S. production	Ratio	***	***	***	***	***
Inventory to U.S. shipments	Ratio	***	***	***	***	***
Inventory to total shipments	Ratio	***	***	***	***	***

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

Note: Ratios are inventories to production and shipments.

Table III-15**Chlorinated isos: U.S. non-toll tableters' inventories, by period**

Quantity in short tons; ratio in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
End-of-period inventory	Quantity	***	***	***	***	***
Inventory to U.S. production	Ratio	***	***	***	***	***
Inventory to U.S. shipments	Ratio	***	***	***	***	***
Inventory to total shipments	Ratio	***	***	***	***	***

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

Note: Ratios are inventories to production and shipments.

U.S. producers' imports from subject sources

Three firms (***) reported importing chlorinated isos from subject sources and one firm (***) reported importing chlorinated isos from nonsubject sources. Tables III-16 through III-19 present data on individual U.S. producers' U.S. production and U.S. imports of chlorinated isos. Table III-20 presents each firm's reason for importing.

Table III-16

Chlorinated isos: *'s U.S. production, subject imports, and ratio of subject imports to production, by source and period**

Quantity in short tons; ratio in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
U.S. integrated production	Quantity	***	***	***	***	***
U.S. non-toll tableter production	Quantity	***	***	***	***	***
Combined U.S. production	Quantity	***	***	***	***	***
Imports from China	Quantity	***	***	***	***	***
Imports from Spain	Quantity	***	***	***	***	***
Imports from subject sources	Quantity	***	***	***	***	***
Imports from China to combined U.S. production	Ratio	***	***	***	***	***
Imports from Spain to combined U.S. production	Ratio	***	***	***	***	***
Imports from subject sources to combined U.S. production	Ratio	***	***	***	***	***

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown as “---”.

Table III-17

Chlorinated isos: *'s U.S. production, subject imports, and ratio of subject imports to production, by source and period**

Quantity in short tons; ratio in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
U.S. integrated production	Quantity	***	***	***	***	***
U.S. non-toll tableter production	Quantity	***	***	***	***	***
Combined U.S. production	Quantity	***	***	***	***	***
Imports from China	Quantity	***	***	***	***	***
Imports from Spain	Quantity	***	***	***	***	***
Imports from subject sources	Quantity	***	***	***	***	***
Imports from China to combined U.S. production	Ratio	***	***	***	***	***
Imports from Spain to combined U.S. production	Ratio	***	***	***	***	***
Imports from subject sources to combined U.S. production	Ratio	***	***	***	***	***

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown as “---”.

Table III-18

Chlorinated isos: *'s U.S. production, subject imports, and ratio of subject imports to production, by source and period**

Quantity in short tons; ratio in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
U.S. integrated production	Quantity	***	***	***	***	***
U.S. non-toll tableter production	Quantity	***	***	***	***	***
Combined U.S. production	Quantity	***	***	***	***	***
Imports from nonsubject sources ***	Quantity	***	***	***	***	***
Imports from nonsubject sources to combined U.S. production	Ratio	***	***	***	***	***

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

Note: Zeroes, null values, and undefined calculations are suppressed and shown as “---”.

Table III-19

Chlorinated isos: *'s U.S. production, subject imports, and ratio of subject imports to production, by source and period**

* * * * *

Table III-20

Chlorinated isos: U.S. producers' reasons for importing

Item	Narrative response on reason(s) for importation
***	***
***	***
***	***
***	***

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

U.S. producers' purchases of imports from subject sources

One firm (***) reported purchases of chlorinated isos from *** during the period of review. ***'s purchases of imports from subject sources and its reasons for purchasing are presented in tables III-21 and III-22 respectively.

Table III-21

Chlorinated isos: *'s purchases of imports from subject sources, by source, importer of record, and period**

* * * * *

Table III-22

Chlorinated isos: U.S. producer's reasons for purchasing

Item	Narrative response on reason(s) for importation
***	***

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

U.S. employment, wages, and productivity

Tables III-23 through 25 present U.S. producers' employment-related data for U.S. integrated producers, U.S. tableters, and U.S producers combined, respectively. U.S. producers' employment trends are primarily driven by Bio-Lab, which transitioned from a U.S. integrated producer to a U.S. tableter after the closure of its Lake Charles facility in August 2020.

U.S. producers' combined average production and related workers ("PRWs"), wages paid, and hourly wages decreased during 2019-21 and were higher in January-March 2022 than in January-March 2021. Hours worked increased during 2019-21 and were higher in January-March 2022 than in January-March 2021. U.S. integrated producers' productivity *** between 2020 and 2021, while unit labor costs decreased by *** percent during the same period. U.S. integrated producers' productivity was *** percent lower in January-March 2022 than in January-March 2021, while unit labor costs were *** percent higher. Conversely, U.S. tableters' productivity sharply declined by *** percent between 2020 and 2021, while unit labor costs ***. U.S. tableters' productivity was *** percent lower in January-March 2022 than in January-March 2021, while unit labor costs were *** percent higher.

Table III-23**Chlorinated isos: U.S. integrated producers' employment-related data, by period**

Item	2019	2020	2021	Jan-Mar 2021	Jan-Mar 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 (short tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per short ton)	***	***	***	***	***

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

Table III-24**Chlorinated isos: U.S. tableters' employment-related data, by period**

Item	2019	2020	2021	Jan-Mar 2021	Jan-Mar 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 (short tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per short ton)	***	***	***	***	***

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

Note: The data contained in this table is from both toll tableters and non-toll tableters.

Table III-25**Chlorinated isos: U.S. producers' combined employment-related data, by period**

Item	2019	2020	2021	Jan-Mar 2021	Jan-Mar 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)	***	***	***	***	***

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

Financial experience of U.S. producers

Background¹⁶

Five U.S. producers (inclusive of integrated and tableting operations) provided usable financial data on their chlorinated isos operations, with financial results allocated based on the level of production. The three integrated U.S. producers (***) reported financial results on their operations producing granular isos and tableted forms of isos (“integrated producers”).¹⁷ Four U.S. tableters (***) reported financial results on their tableting operations using purchased and/or imported granular isos without any toll arrangements (“non-toll tableters”).¹⁸ Only one company

¹⁶ The following abbreviations may be used in the tables and/or text of this section: average unit values (“AUVs”), chlorinated isos including both granules and tablets (“isos”), cost of goods sold (“COGS”), cost of tolling services (“COTS”), fair market value (“FMV”), fiscal year (“FY”), Generally Accepted Accounting Principles (“GAAP”), granular/powder forms of chlorinated isos (“granular isos”), internally produced chlorinated isos using sodium cyanurate feedstock (“internal production” or “upstream granular production”), International Financial Reporting Standards (“IFRS”), sales of isos from internal production (“integrated sales”), selling, general, and administrative expenses (“SG&A expenses”), research and development expenses (“R&D expenses”), return on assets (“ROA”), and tableted chlorinated isos (“tableted isos” or “tablets”).

¹⁷ The integrated U.S. producers’ financial data reflect the combined operations of granular and tableted isos made and sold using granular isos produced by converting sodium cyanurate into trichlor or dichlor (integrated sales). Tablets made from internally produced granular isos *** are reported as commercial sales to avoid double counting of the granular isos used to convert into tablets as internal consumption and then again when those converted tablets (from internally produced granular isos) as commercial sales. *** U.S. producer that ***.

Starting in 2021, ***. Their operations are included in both integrated producers and non-toll tableters’ data, as appropriate (see note 18 below).

¹⁸ U.S. non-toll tableters start production of tableted chlorinated isos from granular isos purchased from domestic producers and/or imported suppliers. Two such U.S. tableting producers (***) provided usable data in the trade section of the Commission’s questionnaire but failed to report any financial data. Therefore, U.S. non-toll tableters’ data reflect tableting operations that use purchased and/or imported granular isos by *** as well as *** non-toll tableters ***. See tables III-2, III-8, and III-20 for more details.

***. *** U.S. producer questionnaire, II-4a, II-9a, and II-17. The firm did not provide financial data on its operations.

***. *** U.S. producer questionnaire, II-9a and I-10a; telephone interview with ***, August 10, 2022; and emails from ***, August 5 and 18, 2022.

(***) provided financial data on its *** tolling arrangement on behalf of ***.¹⁹ All responding U.S. producers reported financial results on a calendar year basis. Four of the responding U.S. producers provided their financial data on the basis of GAAP, while one, ***, reported financial results in accordance with IFRS.

Figure III-3 presents U.S. producers' share of the total reported net sales quantity in 2021. Net sales consisted primarily of commercial sales, with *** U.S. producer (***) reporting internal consumption from January 2019 to March 2022.²⁰ Non-commercial sales are included but not presented separately in this section of the report.

¹⁹ ***, *** U.S. producer questionnaire, II-12 and II-17.

²⁰ *** was less than *** percent of its net sales by quantity and value in all five time periods for which data were collected.

Figure III-3
Chlorinated isos: Share of net sales quantity in 2021, by firm

* * * * *

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

Operations on chlorinated isos

Table III-26 presents aggregated financial data on the combined U.S. integrated and non-toll tableting operations in relation to chlorinated isos, while table III-27 presents corresponding changes in AUVs.²¹ Table III-28 presents selected company-specific financial data. The shift in aggregated sales and COGS data in table III-26 largely reflects the ***.²²

²¹ Data in table III-26 represent the aggregated data of the three integrated producers (including ***) and non-toll tableters. Non-toll tableters' data include the tableting operations from purchased and imported granular isos of *** U.S. producers (***) and ***).

²² After the destruction of its sole granular isos facility, ***. Hearing transcript, p. 25 (Pan) and p. 30 (Bentley); *** U.S. producer questionnaire, III-9a and III-10a.

In addition, another *** also added non-toll tableting ***. Table III-28 shows ***. Table III-28 shows that a third non-toll tableter, ***.

Table III-26**Chlorinated isos: Results of combined operations of U.S. integrated and non-toll tableting producers (***), by item and period**

Quantity in short tons; value in 1,000 dollars

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Total net sales	Quantity	130,134	126,731	119,069	30,830	29,699
Total net sales	Value	353,960	354,173	401,033	96,271	165,004
COGS: Raw materials from integrated production	Value	***	***	***	***	***
COGS: Granular isos purchased from domestic sources	Value	***	***	***	***	***
COGS: Granular isos purchased from China	Value	***	***	***	***	***
COGS: Granular isos purchased from Spain	Value	***	***	***	***	***
COGS: Granular isos purchased from all other sources	Value	***	***	***	***	***
COGS: Non-toll tableters' all other raw materials	Value	***	***	***	***	***
COGS: Raw materials total	Value	***	***	***	***	***
COGS: Cost of tolling services	Value	***	***	***	***	***
COGS: Direct labor	Value	***	***	***	***	***
COGS: Other factory (including energy cost of integrated producers)	Value	***	***	***	***	***
COGS: Total	Value	308,100	290,116	390,046	90,064	136,786
Gross profit or (loss)	Value	45,860	64,057	10,987	6,207	28,218
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	***	***	***	***	***
Cash flow	Value	***	***	***	***	***

Table continued.

Table III-26

Chlorinated isos: Results of combined operations of U.S. integrated and non-toll tableting producers (*), by item and period**

Ratios in percent; shares in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
COGS: Raw materials total	Ratio to NS	***	***	***	***	***
COGS: Cost of tolling services	Ratio to NS	***	***	***	***	***
COGS: Direct labor	Ratio to NS	***	***	***	***	***
COGS: Other factory (including energy cost of integrated producers)	Ratio to NS	***	***	***	***	***
COGS: Total	Ratio to NS	87.0	81.9	97.3	93.6	82.9
Gross profit	Ratio to NS	13.0	18.1	2.7	6.4	17.1
SG&A expense	Ratio to NS	***	***	***	***	***
Operating income or (loss)	Ratio to NS	***	***	***	***	***
Net income or (loss)	Ratio to NS	***	***	***	***	***
COGS: Raw materials from integrated production	Share	***	***	***	***	***
COGS: Granular isos purchased from domestic sources	Share	***	***	***	***	***
COGS: Granular isos purchased from China	Share	***	***	***	***	***
COGS: Granular isos purchased from Spain	Share	***	***	***	***	***
COGS: Granular isos purchased from all other sources	Share	***	***	***	***	***
COGS: Non-toll tableters' all other raw materials	Share	***	***	***	***	***
COGS: Raw materials total	Share	***	***	***	***	***
COGS: Cost of tolling services	Share	***	***	***	***	***
COGS: Direct labor	Share	***	***	***	***	***
COGS: Other factory (including energy cost of integrated producers)	Share	***	***	***	***	***
COGS: Total	Share	***	***	***	***	***

Table continued.

Table III-26 Continued**Chlorinated isos: Results of combined operations of U.S. integrated and non-toll tableting producers (***) , by item and period**

Unit values in dollars per short ton; count in number of firms reporting

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Total net sales	Unit value	2,720	2,795	3,368	3,123	5,556
COGS: Raw materials from integrated production	Unit value	***	***	***	***	***
COGS: Granular isos purchased from domestic sources	Unit value	***	***	***	***	***
COGS: Granular isos purchased from China	Unit value	***	***	***	***	***
COGS: Granular isos purchased from Spain	Unit value	***	***	***	***	***
COGS: Granular isos purchased from all other sources	Unit value	***	***	***	***	***
COGS: Non-toll tableters' all other raw materials	Unit value	***	***	***	***	***
COGS: Raw materials total	Unit value	***	***	***	***	***
COGS: Cost of tolling services	Unit value	***	***	***	***	***
COGS: Direct labor	Unit value	***	***	***	***	***
COGS: Other factory	Unit value	***	***	***	***	***
COGS: Total	Unit value	2,368	2,289	3,276	2,921	4,606
Gross profit or (loss)	Unit value	352	505	92	201	950
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: Shares represent the share of total COGS.

Note: Table III-26 presents data for the *** that purchased and/or imported granular isos to produce tablets. ***.

Table III-27

Chlorinated isos: Combined U.S. integrated and non-toll tableting firms' changes in AUVs between comparison periods

Changes in percent

Item	2019-21	2019-20	2020-21	Jan-Mar 2021-22
Total net sales	▲ 23.8	▲ 2.7	▲ 20.5	▲ 77.9
COGS: Raw materials from integrated production	▼ ***	▼ ***	▼ ***	▲ ***
COGS: Granular isos purchased from domestic sources	▲ ***	▲ ***	▲ ***	▲ ***
COGS: Granular isos purchased from China	***	***	***	▲ ***
COGS: Granular isos purchased from Spain	***	***	***	▲ ***
COGS: Granular isos purchased from all other sources	▲ ***	▲ ***	▼ ***	▲ ***
COGS: Non-toll tableters' all other raw materials	▲ ***	▲ ***	▲ ***	▲ ***
COGS: Raw materials total (combined)	▲ ***	▼ ***	▲ ***	▲ ***
COGS: Cost of tolling services	▲ ***	▼ ***	▲ ***	▼ ***
COGS: Direct labor	▲ ***	▼ ***	▲ ***	▲ ***
COGS: Other factory (including energy cost of integrated producers)	▲ ***	▼ ***	▲ ***	▲ ***
COGS: Total	▲ 38.4	▼ (3.3)	▲ 43.1	▲ 57.7

Table continued.

Table III-27 Continued

Chlorinated isos: Combined U.S. integrated and non-toll tableting firms' changes in AUVs between comparison periods

Changes in dollars per short ton

Item	2019-21	2019-20	2020-21	Jan-Mar 2021-22
Total net sales	▲ 648	▲ 75	▲ 573	▲ 2,433
COGS: Raw materials from integrated production	▼ ***	▼ ***	▼ ***	▲ ***
COGS: Granular isos purchased from domestic sources	▲ ***	▲ ***	▲ ***	▲ ***
COGS: Granular isos purchased from China	▲ ***	***	▲ ***	▲ ***
COGS: Granular isos purchased from Spain	▲ ***	***	▲ ***	▲ ***
COGS: Granular isos purchased from all other sources	▲ ***	▲ ***	▼ ***	▲ ***
COGS: Non-toll tableters' all other raw materials	▲ ***	▲ ***	▲ ***	▲ ***
COGS: Raw materials total (combined)	▲ ***	▼ ***	▲ ***	▲ ***
COGS: Cost of tolling services	▲ ***	▼ ***	▲ ***	▼ ***
COGS: Direct labor	▲ ***	▼ ***	▲ ***	▲ ***
COGS: Other factory (including energy cost of integrated producers)	▲ ***	▼ ***	▲ ***	▲ ***
COGS: Total	▲ 908	▼ (78)	▲ 987	▲ 1,684
Gross profit or (loss)	▼ (260)	▲ 153	▼ (413)	▲ 749
SG&A expense	▲ ***	▼ ***	▲ ***	▲ ***
Operating income or (loss)	▼ ***	▲ ***	▼ ***	▲ ***
Net income or (loss)	▼ ***	▲ ***	▼ ***	▲ ***

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

Table III-28**Chlorinated isos: Firm-by-firm total net sales quantity, by period****Net sales quantity**

Quantity in short tons

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	130,134	126,731	119,069	30,830	29,699

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm total net sales value, by period****Net sales value**

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	353,960	354,173	401,033	96,271	165,004

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm COGS, by period

COGS

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	308,100	290,116	390,046	90,064	136,786

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm gross profit or (loss), by period

Gross profit or (loss)

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	45,860	64,057	10,987	6,207	28,218

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm SG&A expenses, by period
SG&A expenses

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm operating income or (loss), by period
Operating income or (loss)

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm net income or (loss), by period
Net income or (loss)

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm share of total net sales quantity, by period
Share of net sales quantity

Shares in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	100.0	100.0	100.0	100.0	100.0

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm share of total net sales value, by period****Share of net sales value**

Shares in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	100.0	100.0	100.0	100.0	100.0

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm ratio of COGS to net sales value, by period****COGS to net sales ratio**

Ratios in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	87.0	81.9	97.3	93.6	82.9

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm ratio of gross profit or (loss) to net sales value, by period****Gross profit or (loss) to net sales ratio**

Ratios in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	13.0	18.1	2.7	6.4	17.1

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm ratio of SG&A expenses to net sales value, by period****SG&A expenses to net sales ratio**

Ratios in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm ratio of operating income or (loss) to net sales value, by period****Operating income or (loss) to net sales ratio**

Ratios in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm ratio of net income or (loss) to net sales value, by period****Net income or (loss) to net sales ratio**

Ratios in percent

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm unit net sales value, by period
Unit net sales value

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	2,720	2,795	3,368	3,123	5,556

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm unit raw material costs, by period
Unit raw material

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm unit all other COGS (energy, direct labor, and other factory costs), by period****Unit all other COGS**

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued**Chlorinated isos: Firm-by-firm unit COGS, by period****Unit COGS**

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	2,368	2,289	3,276	2,921	4,606

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm unit gross profit or (loss), by period
Unit gross profit or (loss)

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	352	505	92	201	950

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm unit SG&A expenses, by period
Unit SG&A expenses

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm unit operating income or (loss), by period
Unit operating income or (loss)

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-28 Continued
Chlorinated isos: Firm-by-firm unit net income or (loss), by period
Unit net income or (loss)

Unit values in dollars per short ton

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
OxyChem	***	***	***	***	***
All integrated producers	***	***	***	***	***
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
Haviland	***	***	***	***	***
N. Jonas	***	***	***	***	***
All non-toll tableters	***	***	***	***	***
All firms	***	***	***	***	***

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

Note: Data for integrated producers represent aggregated totals of ***. Data for non-toll tableters represent the aggregated totals of ***, which use purchased and/or imported granular isos to produce tableted chlorinated isos.

Note: *** was unable to report raw materials based on source, therefore all other raw materials data in 2021 and in both interim periods include materials purchased from subject and nonsubject sources.

Net sales²³

As presented in table III-26, total net sales quantity decreased while value increased from 2019 to 2021, resulting in an increase of the AUVs for total net sales. Nearly all the increase in net sales value and AUVs occurred from 2020 to 2021 as U.S. producers sold less product but at much higher prices.²⁴ Table III-28 shows net sales shifting from tablets made from internally produced granular isos to tablets made from purchased granular isos starting in 2021 (***), resulting in a *** increase of total net sales by non-toll tableters from 2019 to 2021.²⁵

Differences in AUVs of net sales are largely attributable to differences in level of integration and product mix as well as supply shortages combined with the impact of COVID-19 on sales of chlorinated isos starting in 2020.²⁶ Total net sales by quantity was lower while value and AUVs were higher in interim 2022 than in interim 2021.

Cost of goods sold and gross profit or loss

As presented in table III-26, raw material costs are the majority share of total COGS from 2019 to March 2022. One U.S. producer *** reported purchasing inputs from related parties.²⁷ Total raw materials *** increased in value from 2019 to 2021 and were higher

²³ U.S. producers were asked to include sales of chlorinated isos that were tableted and then repackaged (which include value-added processing) but to exclude sales of chlorinated isos that were repackaged only (which represent the re-sale of purchased product without processing). ***. Email from ***, August 15, 2022. These re-sales by *** of product purchased from *** may overstate the aggregated total net sales revenue for the domestic industry because the amount of granular dichlor sold to *** were also reported by *** as commercial sales.

²⁴ Hearing witnesses explained that the supply disruption caused by Bio-Lab's destroyed granular isos facility and COVID resulted in higher prices for granular isos from both domestic and imported sources. Hearing transcript, pp. 23-24 (Lawrence), p. 25 (Pan), p. 107 (Cros), and p. 108 (Ferrell).

²⁵ As shown in table III-28, integrated producers *** did not report sales using purchased and/or imported granular isos until 2021. ***. U.S. producer questionnaires, III-9a and III-10a.

²⁶ For additional information on the effects of COVID-19 pandemic, see tables III-3 and III-37.

²⁷ ***.

in interim 2022 than in interim 2021.^{28 29} When measured as a ratio to total net sales and on a per-unit basis, total raw materials also *** increased and were higher in interim 2022 than in interim 2021. As presented in table III-28, differences among U.S. producers' total raw material costs and AUVs are attributable to the varying levels of vertical integration of the three integrated producers), product mix (e.g., granular trichlor, granular dichlor, blended granular dichlor, and tableted trichlor), and different sized packages.³⁰ Other factory costs (including energy) decreased in value as a result of the decline in net sales volume from 2019 to 2021; other factory costs were higher in interim 2022 than in interim 2021. Direct labor, which accounted for the smallest share of total COGS, *** increased from 2019 to 2021, and was also higher in interim 2022 than in interim 2021. When measured as a ratio to total net sales, other factory costs (including energy) *** declined and direct labor *** declined from 2019 to 2021; both were lower in interim 2022 than in interim 2021. On a per-unit basis, other factory costs (including energy) and direct labor both *** increased from 2019 to 2021 and both were higher in interim 2022 than in interim 2021. Similar to raw materials, the differences of direct labor and other factory costs (including energy) among individual U.S. producers varied partly depending on production activities (integrated and/or tableting), and partly on the costs shared with other products allocated to chlorinated isos).³¹

As presented in table III-26, total COGS and the ratio of COGS to net sales decreased from 2019 to 2020 before *** increasing from 2020 to 2021, mostly driven by the

²⁸ Raw materials for integrated production include urea, cyanuric acid, caustic soda, chlorine, and ***. U.S. producer questionnaires, II-9a and emails from ***, August 15-16, 2022

²⁹ Raw material costs by type for integrated production are not presented separately. This is because ***. *** U.S. producer questionnaire, II-9a; emails from ***, August 15-16, 2022; and, emails from ***, August 18 and 30, 2022.

³⁰ Vertical integration among producers varied, with *** starting with urea to make cyanuric acid while ***. ***. U.S. producer questionnaires, II-9a.

³¹ ***. Email from ***, August 25, 2022.

large increase in raw material costs from 2020 to 2021. The AUVs of COGS also decreased from 2019 to 2020 before increasing from 2020 to 2021. Total COGS and AUVs of COGS were higher while ratio of COGS to net sales were lower in interim 2022 than in interim 2021.

Based on the data in table III-26, the aggregated gross profits of the five reporting U.S. producers decreased from 2019 to 2020 then fell sharply in 2021; gross profits were higher in interim 2022 than in interim 2021. The *** decline in gross profits in 2021 reported by the U.S. industry is primarily attributable to the increase of raw material costs and partly to the loss of sales volume. Also, U.S. producers' sales AUVs increased each year but the increase in sales AUVs in 2021 was not commensurate with the increase in COGS in 2021. Total gross profit, as a ratio to net sales, and gross profit AUVs all were higher in interim 2022 than in interim 2021.

SG&A expenses and operating income or loss

As presented in table III-26, U.S. producers' total SG&A expenses decreased while AUVs of SG&A expenses *** increased from 2019 to 2021; both total SG&A expenses and AUVs of SG&A expenses were higher in interim 2022 than in interim 2021. The SG&A expense ratio (i.e., total SG&A expenses divided by net sales) declined from 2019 to 2021 and was lower in interim 2022 than in interim 2021. Table III-28 shows that *** reported the highest SG&A expense ratios during the annual years, however *** reported an overall decline in the SG&A expense ratios during the reporting period.

Table III-26 shows that U.S. producers' operating income followed a similar pattern as gross income, increasing from 2019 to 2020 before falling *** to a loss in 2021. Operating income was higher in interim 2022 than in interim 2021. Given that total SG&A expenses decreased during the annual periods, the declining operating performance of U.S. producers is attributable to the same reasons as those for gross income from 2020 to 2021 (i.e., sales volume declined, and sales prices increased less than total COGS).

All other expenses and net income or loss

Classified below the operating income level are interest expenses, other expenses, and other income. Table III-26 shows that interest expenses irregularly decreased from 2019 to 2021 but were higher in interim 2022 than in interim 2021. All other expenses and income fluctuated for the domestic industry with net all other expenses *** decreasing from 2019 to 2021 but were higher in interim 2022 than in interim 2021.

Net profit or loss had a similar pattern as operating profits: the industry reported a net loss in 2019 that increased to net income in 2020, but then fell to a large net loss in 2021; net income improved and was positive in interim 2022 compared with the industry's net loss in

interim 2021. The absolute difference between operating and net profits narrowed and widened in conjunction with changes in total interest expenses and all other income and expenses.³²

Tolling operations

In a tolling arrangement, one firm (the tollee) provides the input material (retaining title to the input) to another typically-unrelated firm (the toller) which upgrades the input to the desired form and quality. In chlorinated isos, the tollee provides granular isos to a toller, which then processes the granular isos and makes tablets as well as packages the tablets for the tollee's customers. *** U.S. toller (**) provided data on its tolling operations.³³ As noted earlier, the results of *** non-toll tableting operations are included in table III-26. The tolling analysis relies on (**) allocation of production costs for its tolling operations.

***.³⁴ ***.

³² A variance analysis is not shown due to large differences in product mix, production of other products, and the extent of vertical integration of U.S. producers. These differences result in wide variations in the costs allocated to chlorinated isos operations as well as the different cost structures among the reporting firms.

³³ At least *** additional firms (**) have operated as tollers since 2019; *** failed to provide financial data although it provided shipment data, as noted earlier, while *** have not provided any information on their operations in this proceeding. Because the Commission did not obtain data from several other firms, toller data is therefore understated. The amounts *** received for toll-producing tableted chlorinated isos on behalf of one of its tollees (**) were provided by *** and presented in table III-26. The quantity and value of *** tolling for *** ranged from *** from 2019 to 2021, with *** for interim 2022. U.S. producer questionnaires, II-17, III-9a, and III-9b.

³⁴ ***. *** U.S. producer questionnaire, III-10b.

Capital expenditures and R&D expenses

Table III-29 presents capital expenditures, by firm, and table III-31 presents R&D expenses, by firm.³⁵ Tables III-30 and III-32 present the firms' narrative explanations of the nature, focus, and significance of their capital expenditures and R&D expenses, respectively.

Table III-29
Chlorinated isos: U.S. producers' capital expenditures, by firm and period

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Bio-Lab	***	***	***	***	***
Clearon	***	***	***	***	***
N. Jonas	***	***	***	***	***
OxyChem	***	***	***	***	***
All firms	***	***	***	***	***

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

Table III-30
Chlorinated isos: Narrative descriptions of U.S. producers' capital expenditures, by firm

Firm	Narrative on capital expenditures
Bio-Lab	***
Clearon	***
Haviland	***
N. Jonas	***
OxyChem	***

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

³⁵ Bio-Lab ***. The capital expenses reported by Bio-Lab ***. The *** product ***. The *** expenses associated with the ***. Email from ***, August 15, 2021.

Table III-31
Chlorinated isos: U.S. producers' R&D expenses, by firm and period

Value in 1,000 dollars

Firm	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
***	***	***	***	***	***
All firms	***	***	***	***	***

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

Table III-32
Chlorinated isos: Narrative descriptions of U.S. producers' R&D expenses, by firm

Firm	Narrative on R&D expenses
Clearon	***
OxyChem	***

Source: Compiled from data submitted in response to Commission questionnaires; emails from ***, August 15-16, 2022; and emails from ***, August 18 and 30, 2022.

The Commission requested integrated producers and tableters to provide information on the capital cost and time necessary to recreate their current chlorinated isos production capabilities, in today's dollars. Table III-33 presents a summary of U.S. producers' responses on the capital investment necessary to recreate their current production capabilities, for both upstream chemical manufacturing and tableting operations.³⁶

Table III-33
Chlorinated isos: U.S. producers' responses on capital investment necessary to recreate current operations

Firm	Estimated capital investment
Bio-Lab	***
Clearon	***
Haviland	***
OxyChem	***

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

³⁶ Table III-7 aggregated these responses based on vertical integration and includes additional information with relation to the Commission's production-related activities analysis.

Assets and return on assets

Table III-34 presents data on the U.S. producers' total net assets, while table III-35 presents their operating ROA.³⁷ ³⁸ Table III-36 presents U.S. producers' narrative responses explaining their major asset categories and any significant changes in asset levels over time.

***.

Table III-34

Chlorinated isos: U.S. producers' total net assets, by firm and period

Value in 1,000 dollars

Firm	2019	2020	2021
Bio-Lab	***	***	***
Clearon	***	***	***
OxyChem	***	***	***
All firms	***	***	***

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

Table III-35

Chlorinated isos: U.S. producers' ROA, by firm and period

Ratio in percent

Firm	2019	2020	2021
Bio-Lab	***	***	***
Clearon	***	***	***
OxyChem	***	***	***
All firms	***	***	***

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

³⁷ The operating ROA is calculated as operating income divided by total assets. With respect to a firm's overall operations, the total asset value reflects an aggregation of a number of assets which are generally not product specific. Thus, high-level allocations are generally required in order to report a total asset value on a product-specific basis.

³⁸ The two ***.

Table III-36**Chlorinated isos: Narrative descriptions of U.S. producers' total net assets, by firm**

Firm	Narrative on assets
Bio-Lab	***
Clearon	***
Haviland	***
N. Jonas	***
OxyChem	***

Source: Compiled from data submitted in response to Commission questionnaires and email from ***, August 16, 2022.

COVID-19 and financial performance

Table III-37 presents the U.S. producers' narrative responses regarding the effects of COVID-19 on their financial performance.

Table III-37**Chlorinated isos: Narrative responses relating to COVID-19 pandemic effects on U.S. producers' financial performance, since January 1, 2020**

Firm	Narrative response on COVID-19
Bio-Lab	***
Clearon	***
N. Jonas	***

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

Part IV: U.S. imports and the foreign industries

U.S. imports

Overview

The Commission issued questionnaires to 30 potential importers of chlorinated isos between 2016 and March 2022.¹ Ten firms provided data and information in response to the questionnaires, while eight firms indicated that they had not imported chlorinated isos during the period for which data were collected.² Based on official Commerce statistics, HTS statistical reporting number 2933.69.6015, importers' questionnaire data accounted for *** percent of subject U.S. imports from China and Spain during January 2019 to March 2022 and *** percent of total U.S. imports during the same period.³ Import data in this report are based on questionnaire responses and official Commerce statistics.

Imports from subject and nonsubject countries

Table IV-1 and figure IV-1 present information on U.S. imports of chlorinated isos from China, Spain, and all other sources over the period examined. Total U.S. imports increased *** during 2019-21 and were *** percent higher in January-March 2022 than in January-March 2021. Subject imports were *** in 2019 then increased *** between 2020 and 2021, and were *** percent higher in interim 2022 than in interim 2021. Imports from nonsubject sources fluctuated and increased overall by *** percent during 2019-21, and were *** percent higher in interim 2022 than in interim 2021. Leading nonsubject sources of imports include Japan and Mexico.

¹ The Commission issued questionnaires to those firms identified in responses to the notice of institution, along with firms that, based on a review of data from third-party sources, may have imported more than one percent of total imports under HTS statistical reporting numbers 2933.69.6015, 2933.69.6021, 2933.69.6050, and 3808.94.5000 since January 1, 2019.

² Two of the eight firms, ***, submitted importer questionnaire responses but later confirmed that they were purchasers of chlorinated isos rather than importers of record.

³ HTS statistical reporting number 2933.69.6015 most accurately corresponds to Commerce's scope definition of chlorinated isos, but may include products outside the scope of these reviews. Also, small quantities of chlorinated isos may enter the United States under other HTS subheadings.

The increase in total imports during the period for which data were collected is primarily due to the closure of Bio-Lab's chlorinated isos facility in August 2020.⁴ The increase in subject imports is also due in part to several prolonged shutdowns and/or production curtailments reported by U.S. producers ***, ***. Six firms reported imports from China, with *** accounting for the majority in each period followed by ***. Three firms reported imports from Spain, with *** accounting for the majority in each period except for interim 2022, followed by ***.⁵ Overall, *** accounted for the majority of the increase in subject imports during 2020-21 (**% percent). Five firms reported imports from nonsubject sources, with *** accounting for the majority in each period (between **% percent to **% percent), followed by *** and ***.

Average unit values ("AUVs") from subject sources of imports increased by **% percent during 2020-2021, from \$*** per short ton to \$*** per short ton. Nonsubject AUVs increased irregularly between 2019 and 2021 and ranged from \$*** to \$*** per short ton. Subject AUVs were **% percent higher in interim 2022 than in interim 2021 (\$*** compared to \$***).⁶ Similarly, nonsubject AUVs were **% percent higher in interim 2022 than in interim 2021 (\$*** compared to \$***).

⁴ Ercros reportedly had a pre-existing contract with KIK, Bio-Lab's parent company, to supply the European market. However, after the Bio-Lab fire, KIK reportedly requested that Ercros divert those shipments to supply Bio-Lab. Ercros also asserts that imports from Spain increased only because of sales to Bio-Lab and Clearon to fill the supply gaps. Hearing transcript, pp. 96-97, 100 (Sim) and 106-107, 125-126 (Torrents Cros).

⁵ ***. The third firm, ***, began importing in 2021.

⁶ *** attributed the higher unit value of its reported imports in January-March 2022 to "significant inflation from our suppliers for the cost of the Trichlor (~\$1000/MT) starting in January 2022." Staff correspondence with ***, July 29, 2022. *** reported increases on transport and raw materials during 2021 and subsequently "announced and applied a first increase of prices in July 2021 and then another much higher increase in October 2021....For some customers, we accepted not to apply the increase till January 2022 and this is the reason for the increase of value in Q12022." Staff correspondence with ***, July 22, 2022. *** and *** attributed the higher unit values in January-March 2022 to increased demand for chlorinated isos. Staff correspondence with ***, July 22, 2022; and with ***, July 27, 2022.

Subject imports as a share of total imports increased by *** percentage points between 2020 and 2021, from *** percent in 2020 to *** percent in 2021, and were *** percentage points higher in interim 2022 than in interim 2021. The ratio of subject imports to U.S. production increased by *** percentage points during 2020-21, from *** percent to *** percent, and was *** percentage points higher in interim 2022 than in interim 2021.

Table IV-1
Chlorinated isos: U.S. imports, by source and period

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

Source	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
China	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
China	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
China	Unit value	***	***	***	***	***
Spain	Unit value	***	***	***	***	***
Subject sources	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued.

Table IV-1 Continued**Chlorinated isos: Share of U.S. imports and ratio to U.S. production, by source and period**

Share and ratio in percent

Source	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
China	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
China	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
China	Ratio	***	***	***	***	***
Spain	Ratio	***	***	***	***	***
Subject sources	Ratio	***	***	***	***	***
Nonsubject sources	Ratio	***	***	***	***	***
All import sources	Ratio	***	***	***	***	***

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

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

* * * * *

Cumulation considerations

In assessing whether U.S. imports from the subject countries are likely to compete with each other and with the domestic like product, the Commission has generally considered four factors: (1) fungibility, (2) presence of sales or offers to sell in the same geographical markets, (3) common or similar channels of distribution, and (4) simultaneous presence in the market. Information regarding channels of distribution, market areas, and interchangeability appear in Part II. Additional information concerning fungibility, geographical markets, and simultaneous presence in the market is presented below.

Fungibility

Table IV-2 and figure IV-2 present U.S. integrated producers' and U.S. importers' U.S. shipments of chlorinated isos by type (granular or tableted). Most or all U.S. shipments from each source in 2021 consisted of granular chlorinated isos, accounting for *** percent of U.S. integrated producers' U.S. shipments, *** percent of U.S. shipments from China, *** U.S. shipments from Spain, and *** percent of U.S. shipments from nonsubject sources.

Table IV-2**Chlorinated isos: U.S. integrated producers' and U.S. importers' U.S. shipments by type, 2021**

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

Source	Measure	Granular	Tableted	All types
U.S. producers	Quantity	***	***	***
China	Quantity	***	***	***
Spain	Quantity	***	***	***
Subject sources	Quantity	***	***	***
Nonsubject sources	Quantity	***	***	***
All import sources	Quantity	***	***	***
All sources	Quantity	***	***	***
U.S. producers	Value	***	***	***
China	Value	***	***	***
Spain	Value	***	***	***
Subject sources	Value	***	***	***
Nonsubject sources	Value	***	***	***
All import sources	Value	***	***	***
All sources	Value	***	***	***
U.S. producers	Unit value	***	***	***
China	Unit value	***	***	***
Spain	Unit value	***	***	***
Subject sources	Unit value	***	***	***
Nonsubject sources	Unit value	***	***	***
All import sources	Unit value	***	***	***
All sources	Unit value	***	***	***

Table continued.

Table IV-2 Continued**Chlorinated isos: U.S. integrated producers' and U.S. importers' U.S. shipments by type, 2021**

Share across in percent

Source	Measure	Granular	Tableted	All types
U.S. producers	Share of quantity	***	***	***
China	Share of quantity	***	***	***
Spain	Share of quantity	***	***	***
Subject sources	Share of quantity	***	***	***
Nonsubject sources	Share of quantity	***	***	***
All import sources	Share of quantity	***	***	***
All sources	Share of quantity	***	***	***

Table continued.

Table IV-2 Continued**Chlorinated isos: U.S. integrated producers' and U.S. importers' U.S. shipments by type, 2021**

Share down in percent

Source	Measure	Granular	Tableted	All types
U.S. producers	Share of quantity	***	***	***
China	Share of quantity	***	***	***
Spain	Share of quantity	***	***	***
Subject sources	Share of quantity	***	***	***
Nonsubject sources	Share of quantity	***	***	***
All import sources	Share of quantity	***	***	***
All sources	Share of quantity	***	***	***

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.

Figure IV-2**Chlorinated isos: U.S. producers' and U.S. importers' U.S. shipments by type, 2021**

* * * * *

Geographical markets

Chlorinated isos produced in the United States are shipped nationwide (see part II for more information on geographical markets). Table IV-3 presents U.S. imports of chlorinated isos, by source and border of entry in 2021, based on official Commerce statistics. U.S. imports of chlorinated isos from China and Spain entered multiple ports of entry across the nation. The vast majority of chlorinated isos from China entered through eastern and western borders of entry, primarily via Savannah, Georgia and Los Angeles, California, while the vast majority of chlorinated isos from Spain entered through eastern borders of entry, primarily via New York, New York and Savannah, Georgia.

Table IV-3
Chlorinated isos: U.S. imports by source and border of entry, 2021

Quantity in short tons

Source	East	North	South	West	All borders
China	18,432	2,034	6,612	15,147	42,225
Spain	8,671	---	1,424	---	10,095
Subject sources	27,103	2,034	8,036	15,147	52,320
Nonsubject sources	5,519	2,483	4,848	4,338	17,187
All import sources	32,622	4,517	12,884	19,484	69,507

Table continued.

Table IV-3 Continued
Chlorinated isos: U.S. imports by source and border of entry, 2021

Share across in percent

Source	East	North	South	West	All borders
China	43.7	4.8	15.7	35.9	100.0
Spain	85.9	---	14.1	---	100.0
Subject sources	51.8	3.9	15.4	29.0	100.0
Nonsubject sources	32.1	14.4	28.2	25.2	100.0
All import sources	46.9	6.5	18.5	28.0	100.0

Table continued.

Table IV-3 Continued
Chlorinated isos: U.S. imports by source and border of entry, 2021

Share down in percent

Source	East	North	South	West	All borders
China	56.5	45.0	51.3	77.7	60.7
Spain	26.6	---	11.1	---	14.5
Subject sources	83.1	45.0	62.4	77.7	75.3
Nonsubject sources	16.9	55.0	37.6	22.3	24.7
All import sources	100.0	100.0	100.0	100.0	100.0

Source: Official U.S. import statistics of the U.S. Department of Commerce Census Bureau, using HTS statistical reporting number 2933.69.6015, accessed July 7, 2022.

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

Presence in the market

Chlorinated isos produced in the United States were present in the market throughout the period for which data were collected. Table IV-4 and figures IV-3 and IV-4 present monthly data for U.S. imports of chlorinated isos from subject and nonsubject sources between January 2019 and April 2022, based on official Commerce statistics. Subject imports of chlorinated isos from China were present in 20 of 40 months between January 2019 and April 2022, while subject imports from Spain were present in 27 of 40 months.

Table IV-4
Chlorinated isos: Quantity of U.S. imports, by source and month

Quantity in short tons

Year	Month	China	Spain	Subject sources	Nonsubject sources	All import sources
2019	January	20	---	20	942	963
2019	February	---	---	---	671	671
2019	March	---	---	---	1,476	1,476
2019	April	---	---	---	1,347	1,347
2019	May	---	---	---	1,437	1,437
2019	June	---	---	---	1,132	1,132
2019	July	---	---	---	923	923
2019	August	---	---	---	575	575
2019	September	---	---	---	201	201
2019	October	---	---	---	420	420
2019	November	---	---	---	637	637
2019	December	---	---	---	645	645
2020	January	---	---	---	1,578	1,578
2020	February	---	168	168	1,191	1,358
2020	March	---	168	168	1,419	1,586
2020	April	---	251	251	1,320	1,571
2020	May	---	293	293	1,655	1,948
2020	June	---	503	503	1,688	2,190
2020	July	---	1,026	1,026	1,610	2,636
2020	August	---	251	251	1,211	1,462
2020	September	---	461	461	1,174	1,635
2020	October	153	335	488	825	1,313
2020	November	1,110	168	1,278	1,142	2,420
2020	December	2,372	419	2,791	1,489	4,280

Table continued.

Table IV-4 Continued**Chlorinated isos: Quantity of U.S. imports, by source and month**

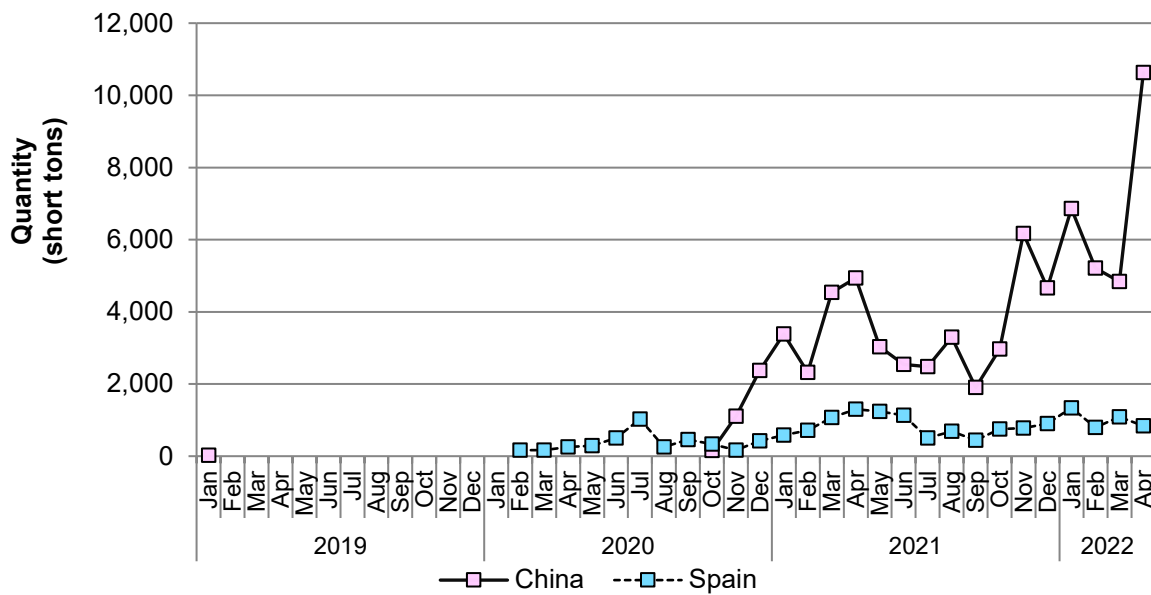
Quantity in short tons

Year	Month	China	Spain	Subject sources	Nonsubject sources	All import sources
2021	January	3,382	586	3,969	1,431	5,400
2021	February	2,320	712	3,032	1,603	4,635
2021	March	4,536	1,068	5,604	1,377	6,981
2021	April	4,934	1,299	6,232	2,023	8,255
2021	May	3,032	1,236	4,268	1,629	5,897
2021	June	2,545	1,131	3,676	2,126	5,802
2021	July	2,481	503	2,983	1,506	4,490
2021	August	3,292	691	3,984	1,180	5,164
2021	September	1,905	440	2,345	1,117	3,462
2021	October	2,964	754	3,718	1,021	4,739
2021	November	6,168	775	6,943	1,238	8,181
2021	December	4,666	901	5,567	936	6,502
2022	January	6,858	1,340	8,198	1,907	10,105
2022	February	5,210	796	6,006	851	6,857
2022	March	4,836	1,089	5,925	1,310	7,235
2022	April	10,631	838	11,469	2,150	13,618

Source: Official U.S. import statistics of the U.S. Department of Commerce Census Bureau, using HTS statistical reporting number 2933.69.6015, accessed July 7, 2022.

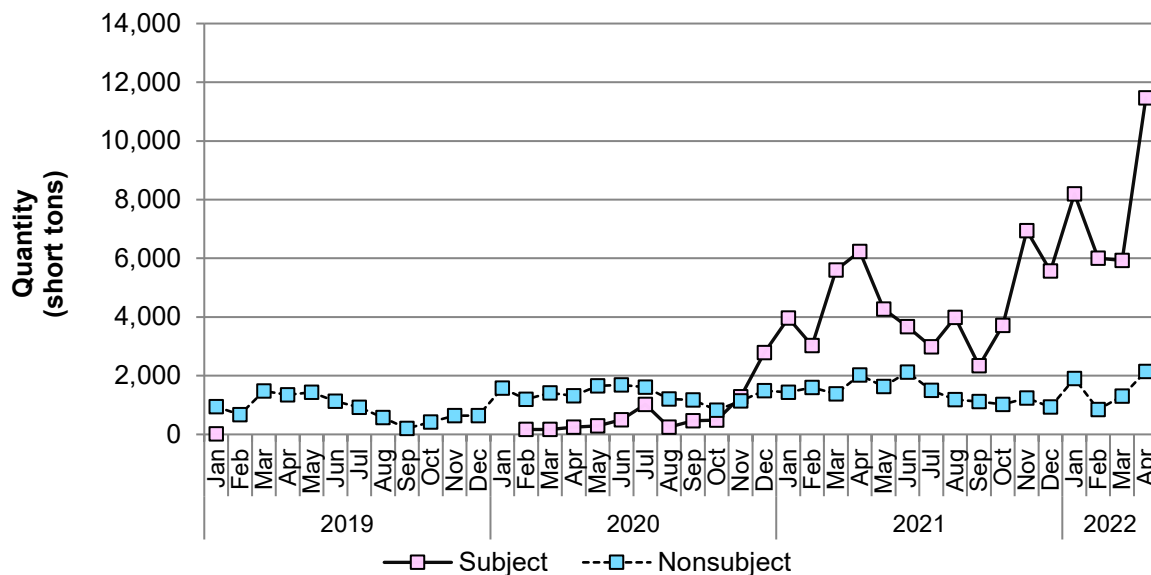
Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Figure IV-3
Chlorinated isos: U.S. imports from individual subject sources, by month



Source: Official U.S. import statistics of the U.S. Department of Commerce Census Bureau, using HTS statistical reporting number 2933.69.6015, accessed July 7, 2022.

Figure IV-4
Chlorinated isos: U.S. imports from aggregated subject and nonsubject sources, by month



Source: Official U.S. import statistics of the U.S. Department of Commerce Census Bureau, using HTS statistical reporting number 2933.69.6015, accessed July 7, 2022.

U.S. inventories of imported merchandise

Table IV-5 presents data on U.S. importers' reported inventories of chlorinated isos. Inventories of subject imports (primarily from China) were *** in 2019 and *** between 2020 and 2021. Inventories of subject imports were *** higher in interim 2022 than in interim 2021. The ratio of subject importers' inventories to imports decreased by *** percentage points, from *** percent to *** percent between 2020 and 2021, and were *** percentage points higher in interim 2022 than in interim 2021. Three of 10 responding importers reported inventories of subject imports (***).

Table IV-5
Chlorinated isos: U.S. importers' inventories and their ratio to select items, by source and period

Quantity in short tons; ratio in percent

Measure	Source	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Inventories quantity	China	***	***	***	***	***
Ratio to imports	China	***	***	***	***	***
Ratio to U.S. shipments of imports	China	***	***	***	***	***
Ratio to total shipments of imports	China	***	***	***	***	***
Inventories quantity	Spain	***	***	***	***	***
Ratio to imports	Spain	***	***	***	***	***
Ratio to U.S. shipments of imports	Spain	***	***	***	***	***
Ratio to total shipments of imports	Spain	***	***	***	***	***
Inventories quantity	Subject	***	***	***	***	***
Ratio to imports	Subject	***	***	***	***	***
Ratio to U.S. shipments of imports	Subject	***	***	***	***	***
Ratio to total shipments of imports	Subject	***	***	***	***	***
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.

U.S. importers' imports subsequent to March 31, 2022

The Commission requested importers to indicate whether they had imported or arranged for the importation of chlorinated isos for delivery after March 31, 2022; such imports are presented in table IV-6. All 10 responding firms indicated that they had arranged such imports. Seven firms reported arranged imports from subject sources, with *** accounting for the majority (***) percent), while four firms reported arranged imports from nonsubject sources, with *** accounting for the majority (***) percent).

Table IV-6
Chlorinated isos: U.S. importers' arranged imports, by source and period

Quantity in short tons

Source	Apr-Jun 2022	Jul-Sept 2022	Oct-Dec 2022	Jan-Mar 2023	Total
China	***	***	***	***	***
Spain	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject 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.

The industry in China

Overview

During the final phase of the original investigations, the Commission received foreign producer/exporter questionnaire responses from four firms, which were believed to account for most exports of chlorinated isos from China to the United States.⁷

Although the Commission did not receive responses to its notice of institution from any Chinese producers/exporters of chlorinated isos in its first expedited five-year reviews, domestic interested parties identified six possible producers of chlorinated isos in China in that proceeding.⁸

During the second full five-year reviews, the Commission did not receive any foreign producer/exporter questionnaire responses or responses to the notice of institution from firms in China. During that proceeding, domestic interested parties provided a list of 46 firms that they believed may have produced chlorinated isos in China at that time.⁹

In these third full five-year reviews, the Commission issued foreign producers/exporters' questionnaires to 24 firms believed to produce and/or export chlorinated isos in China. The Commission did not receive any questionnaire responses from Chinese producers/exporters.

Exports

Table IV-7 presents the leading export markets for HS 2933.69, a category that includes chlorinated isos and out-of-scope products, from China. During 2021, the United States, Brazil, and Spain were the leading export markets for product from China, accounting for 16.1 percent, 14.7 percent, and 8.7 percent, respectively.

⁷ Original publication, p. VII-1.

⁸ First review publication, p. I-30.

⁹ Second review publication, p. IV-3.

Table IV-7

Heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structure: Exports from China, by period

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

Destination market	Measure	2019	2020	2021
United States	Quantity	49,724	52,571	101,840
Brazil	Quantity	70,610	69,220	92,890
Spain	Quantity	35,723	43,170	55,238
India	Quantity	43,922	40,345	46,009
Argentina	Quantity	18,456	24,382	24,179
Mexico	Quantity	16,933	18,165	23,419
Indonesia	Quantity	20,135	16,897	18,170
Netherlands	Quantity	12,291	11,837	18,163
Germany	Quantity	8,952	12,212	18,001
All other destination markets	Quantity	187,593	217,784	235,893
All destination markets	Quantity	464,338	506,583	633,802
United States	Value	158,458	123,684	269,064
Brazil	Value	155,703	123,172	237,513
Spain	Value	46,717	37,404	67,740
India	Value	213,522	143,107	151,653
Argentina	Value	36,318	41,195	54,908
Mexico	Value	29,059	25,326	47,841
Indonesia	Value	30,806	22,187	34,035
Netherlands	Value	32,639	32,177	57,651
Germany	Value	19,376	19,663	41,934
All other destination markets	Value	473,788	455,678	638,213
All destination markets	Value	1,196,386	1,023,593	1,600,551

Table continued.

Table IV-7 Continued

Heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structure: Exports from China, by period

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

Destination market	Measure	2019	2020	2021
United States	Unit value	3,187	2,353	2,642
Brazil	Unit value	2,205	1,779	2,557
Spain	Unit value	1,308	866	1,226
India	Unit value	4,861	3,547	3,296
Argentina	Unit value	1,968	1,690	2,271
Mexico	Unit value	1,716	1,394	2,043
Indonesia	Unit value	1,530	1,313	1,873
Netherlands	Unit value	2,656	2,718	3,174
Germany	Unit value	2,164	1,610	2,329
All other destination markets	Unit value	2,526	2,092	2,706
All destination markets	Unit value	2,577	2,021	2,525
United States	Share of quantity	10.7	10.4	16.1
Brazil	Share of quantity	15.2	13.7	14.7
Spain	Share of quantity	7.7	8.5	8.7
India	Share of quantity	9.5	8.0	7.3
Argentina	Share of quantity	4.0	4.8	3.8
Mexico	Share of quantity	3.6	3.6	3.7
Indonesia	Share of quantity	4.3	3.3	2.9
Netherlands	Share of quantity	2.6	2.3	2.9
Germany	Share of quantity	1.9	2.4	2.8
All other destination markets	Share of quantity	40.4	43.0	37.2
All destination markets	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2933.69 as reported by China Customs in the Global Trade Atlas database, accessed August 1, 2022.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top. All remaining top export destinations are shown in descending order of 2021 data.

The industry in Spain

Overview

During the final phase of the original investigations, the Commission received a response to its foreign producer/exporter questionnaire from one firm, which was the sole Spanish exporter of chlorinated isos to the United States at that time.¹⁰

Although the Commission did not receive responses from any Spanish producers/exporters of chlorinated isos in its first five-year reviews, domestic interested parties identified two possible producers of chlorinated isos in Spain during that proceeding.¹¹

During the second five-year reviews, the Commission did not receive any foreign producer/exporter questionnaire responses or responses to the notice of institution from firms in Spain. Domestic interested parties again identified two possible producers of chlorinated isos in Spain during that proceeding.¹²

In these third full five-year reviews, the Commission issued foreign producer/exporter questionnaires to five firms believed to produce and/or export chlorinated isos in Spain. Usable responses to the Commission's questionnaire were received from three firms (two integrated producers and one tableter).¹³ These firms' exports to the United States accounted for virtually all reported U.S. imports of chlorinated isos from Spain in 2021.¹⁴ Responding producers Ercros and Hernani accounted for all known production of granular chlorinated isos in Spain in 2021.¹⁵

Table IV-8 presents information on the chlorinated isos operations of the responding producers and exporters in Spain.

¹⁰ Original publication, p. VII-2.

¹¹ First review publication, p. I-32.

¹² Second review publication, p. IV-10.

¹³ Data presented for Tamar are for tableting operations of purchased *** granular chlorinated isos. Tamar reported that it sourced granular chlorinated isos from ***. Staff correspondence with ***, October 19, 2022.

¹⁴ Reported exports to the United States exceeded reported U.S. imports from Spain in 2021. This may be due to timing differences in shipping/Customs clearance and recordkeeping. In addition, the coverage figure may be overstated in part due to ***. Staff correspondence with ***, October 19, 2022.

¹⁵ Hearing transcript, p. 113 (Morgan); and Respondent Ercros' posthearing brief, October 7, 2022, p. 9.

Table IV-8
Chlorinated isos: Summary data for integrated producers in Spain, 2021

Quantity in short tons

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Ercros	***	***	***	***	***	***
Hernani	***	***	***	***	***	***
All firms	***	***	***	***	***	***

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.

Table IV-9
Chlorinated isos: Summary data for tableter in Spain, 2021

Quantity in short tons

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Tamar	***	***	***	***	***	***
All firms	***	***	***	***	***	***

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.

Changes in operations

As presented in table IV-10, producers in Spain reported several operational and organizational changes since January 1, 2016. One firm reported a plant opening and two firms reported expansions since January 1, 2016.

Table IV-10

Chlorinated isos: Reported changes in operations in Spain, since January 1, 2016

Item	Firm name and narrative on changes in operations
Plant openings	***
Expansions	***
Expansions	***

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

Operations on chlorinated isos

Table IV-11 presents data on the chlorinated isos operations of the responding integrated producers in Spain. Capacity and production increased during 2019-21, by *** percent and *** percent respectively. Capacity and production were higher in interim 2022 than in interim 2021, by *** percent and *** percent respectively. Capacity utilization ranged between *** percent and *** percent between 2019 and 2021.

Home market shipments as a share of total shipments decreased by *** percentage points during 2019-21, from *** percent to *** percent, and was *** percentage points higher in interim 2022 than in interim 2021 (*** percent compared to *** percent). Exports to the United States as a share of total shipments increased from *** to *** percent between 2019 and 2021 and was *** percentage points lower in interim 2022 than in interim 2021. Spanish integrated producers' principal export markets in 2021 were the United States and the European Union, accounting for *** percent and *** percent of total shipments in 2021, respectively. The unit value of exports to any source was higher than the unit value of home market shipments in each period.

Responding firms reported machinery maintenance and breakdowns as constraints in the production process.

Table IV-11
Chlorinated isos: Data on integrated producers in Spain, by period

Quantity in short tons; value in 1,000 dollars

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Capacity	Quantity	***	***	***	***	***
Production	Quantity	***	***	***	***	***
End-of-period inventories	Quantity	***	***	***	***	***
Internal consumption and transfers	Quantity	***	***	***	***	***
Commercial home market shipments	Quantity	***	***	***	***	***
Home market shipments	Quantity	***	***	***	***	***
Exports to the United States	Quantity	***	***	***	***	***
Exports to the European Union	Quantity	***	***	***	***	***
Exports to Asia	Quantity	***	***	***	***	***
Exports to all other markets	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
Internal consumption and transfers	Value	***	***	***	***	***
Commercial home market shipments	Value	***	***	***	***	***
Home market shipments	Value	***	***	***	***	***
Exports to the United States	Value	***	***	***	***	***
Exports to the European Union	Value	***	***	***	***	***
Exports to Asia	Value	***	***	***	***	***
Exports to all other markets	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***

Table continued.

Table IV-11 Continued
Chlorinated isos: Data on integrated producers in Spain, by period

Unit value in dollars per short ton; ratio and share in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Internal consumption and transfers	Unit value	***	***	***	***	***
Commercial home market shipments	Unit value	***	***	***	***	***
Home market shipments	Unit value	***	***	***	***	***
Exports to the United States	Unit value	***	***	***	***	***
Exports to the European Union	Unit value	***	***	***	***	***
Exports to Asia	Unit value	***	***	***	***	***
Exports to all other markets	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
Capacity utilization ratio	Ratio	***	***	***	***	***
Inventory ratio to production	Ratio	***	***	***	***	***
Inventory ratio to total shipments	Ratio	***	***	***	***	***
Internal consumption and transfers	Share	***	***	***	***	***
Commercial home market shipments	Share	***	***	***	***	***
Home market shipments	Share	***	***	***	***	***
Exports to the United States	Share	***	***	***	***	***
Exports to the European Union	Share	***	***	***	***	***
Exports to Asia	Share	***	***	***	***	***
Exports to all other markets	Share	***	***	***	***	***
Export shipments	Share	***	***	***	***	***
Total shipments	Share	***	***	***	***	***

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

Note: ***.

Table IV-12 presents data on Tamar's chlorinated isos operations. As mentioned previously, Tamar tablets granular chlorinated isos purchased from ***. Capacity and production increased during 2019-21, by *** percent and *** percent respectively. Capacity and production were higher in interim 2022 than in interim 2021, by *** percent and *** percent respectively. Capacity utilization ranged between *** percent and *** percent between 2019 and 2021. The majority of Tamar's shipments were ***. Exports were primarily ***. The firm exported a *** quantity of tablets to the United States in ***.¹⁶

Table IV-12
Chlorinated isos: Data on tableter in Spain, by period

Quantity in short tons; value in 1,000 dollars

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Capacity	Quantity	***	***	***	***	***
Production	Quantity	***	***	***	***	***
End-of-period inventories	Quantity	***	***	***	***	***
Internal consumption and transfers	Quantity	***	***	***	***	***
Commercial home market shipments	Quantity	***	***	***	***	***
Home market shipments	Quantity	***	***	***	***	***
Exports to the United States	Quantity	***	***	***	***	***
Exports to the European Union	Quantity	***	***	***	***	***
Exports to Asia	Quantity	***	***	***	***	***
Exports to all other markets	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
Internal consumption and transfers	Value	***	***	***	***	***
Commercial home market shipments	Value	***	***	***	***	***
Home market shipments	Value	***	***	***	***	***
Exports to the United States	Value	***	***	***	***	***
Exports to the European Union	Value	***	***	***	***	***
Exports to Asia	Value	***	***	***	***	***
Exports to all other markets	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***

Table continued.

¹⁶ As mentioned previously, ***. Staff correspondence with ***, October 19, 2022.

Table IV-12 Continued**Chlorinated isos: Data on tableter industry in Spain, by period**

Unit value in dollars per short ton; ratio and share in percent

Item	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Internal consumption and transfers	Unit value	***	***	***	***	***
Commercial home market shipments	Unit value	***	***	***	***	***
Home market shipments	Unit value	***	***	***	***	***
Exports to the United States	Unit value	***	***	***	***	***
Exports to the European Union	Unit value	***	***	***	***	***
Exports to Asia	Unit value	***	***	***	***	***
Exports to all other markets	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
Capacity utilization ratio	Ratio	***	***	***	***	***
Inventory ratio to production	Ratio	***	***	***	***	***
Inventory ratio to total shipments	Ratio	***	***	***	***	***
Internal consumption and transfers	Share	***	***	***	***	***
Commercial home market shipments	Share	***	***	***	***	***
Home market shipments	Share	***	***	***	***	***
Exports to the United States	Share	***	***	***	***	***
Exports to the European Union	Share	***	***	***	***	***
Exports to Asia	Share	***	***	***	***	***
Exports to all other markets	Share	***	***	***	***	***
Export shipments	Share	***	***	***	***	***
Total shipments	Share	***	***	***	***	***

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

Alternative products

No responding firms produced other products on the same equipment and machinery used to produce chlorinated isos.

Exports

Table IV-13 presents the leading export markets for HS 2933.69, a category that includes chlorinated isos and out-of-scope products, from Spain. During 2021, France was the largest export market for product from Spain, accounting for 29.4 percent, followed by the United States and Portugal, accounting for 23.6 percent and 21.0 percent respectively.

Table IV-13

Heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structure: Exports from Spain, by destination market and by period

Quantity in short tons; value in 1,000 dollars

Destination market	Measure	2019	2020	2021
United States	Quantity	177	4,703	11,438
France	Quantity	7,787	8,412	14,214
Portugal	Quantity	916	1,005	10,149
Italy	Quantity	1,418	1,211	2,144
Belgium	Quantity	395	535	1,897
Germany	Quantity	1,423	1,149	1,688
Czech Republic	Quantity	3,353	5,254	1,267
Canada	Quantity	64	67	730
Bulgaria	Quantity	143	84	682
All other destination markets	Quantity	4,257	3,520	4,184
All destination markets	Quantity	19,933	25,939	48,392
United States	Value	888	8,809	22,352
France	Value	15,633	16,815	31,447
Portugal	Value	2,160	2,468	21,098
Italy	Value	4,710	4,306	7,867
Belgium	Value	941	1,190	4,696
Germany	Value	5,092	3,072	7,010
Czech Republic	Value	5,267	7,890	2,675
Canada	Value	133	136	1,371
Bulgaria	Value	303	176	1,588
All other destination markets	Value	10,965	9,761	13,247
All destination markets	Value	46,092	54,622	113,352

Table continued.

Table IV-13 Continued

Heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structure: Exports from Spain, by destination market and by period

Unit value in dollars per short ton; share in percent

Destination market	Measure	2019	2020	2021
United States	Unit value	5,028	1,873	1,954
France	Unit value	2,007	1,999	2,212
Portugal	Unit value	2,357	2,456	2,079
Italy	Unit value	3,323	3,556	3,670
Belgium	Unit value	2,383	2,225	2,475
Germany	Unit value	3,578	2,674	4,152
Czech Republic	Unit value	1,571	1,502	2,112
Canada	Unit value	2,083	2,021	1,878
Bulgaria	Unit value	2,121	2,106	2,330
All other destination markets	Unit value	2,576	2,773	3,166
All destination markets	Unit value	2,312	2,106	2,342
United States	Share of quantity	0.9	18.1	23.6
France	Share of quantity	39.1	32.4	29.4
Portugal	Share of quantity	4.6	3.9	21.0
Italy	Share of quantity	7.1	4.7	4.4
Belgium	Share of quantity	2.0	2.1	3.9
Germany	Share of quantity	7.1	4.4	3.5
Czech Republic	Share of quantity	16.8	20.3	2.6
Canada	Share of quantity	0.3	0.3	1.5
Bulgaria	Share of quantity	0.7	0.3	1.4
All other destination markets	Share of quantity	21.4	13.6	8.6
All destination markets	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2933.69 as reported by Eurostat in the Global Trade Atlas database, accessed August 1, 2022.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top. All remaining top export destinations are shown in descending order of 2021 data.

Third-country trade actions

The European Union ("EU") imposed antidumping duties ranging from 7.3 percent to 42.6 percent on imports of trichlor originating in China in July 2005. A review concluded in December 2017 resulted in duties ranging from 3.2 to 42.6 percent.¹⁷

¹⁷ Commission Implementing Regulation (EU) 2017/2230, Official Journal, (L 319/10), December 5, 2017.

Global market

Table IV-14 presents global export data for HS 2933.69, a category that includes chlorinated isos and out-of-scope products (by source in descending order of quantity for 2021). The leading exporters and their shares of 2021 global exports are: China, 64.4 percent; Poland, 6.2 percent; and Germany, 5.6 percent.

Table IV-14

Heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structures: Global exports, by reporting country and by period

Quantity in short tons; value in 1,000 dollars

Exporting country	Measure	2019	2020	2021
United States	Quantity	22,980	20,800	17,518
China	Quantity	464,338	506,583	633,802
Spain	Quantity	19,933	25,939	48,777
Subject sources	Quantity	484,271	532,522	682,579
Poland	Quantity	61,990	65,867	60,621
Germany	Quantity	50,864	51,963	55,533
Russia	Quantity	35,469	30,949	36,306
Japan	Quantity	29,938	30,918	28,873
Netherlands	Quantity	15,550	13,263	17,661
United Kingdom	Quantity	18,263	16,426	15,003
India	Quantity	6,905	5,568	10,405
France	Quantity	7,127	8,021	10,172
Denmark	Quantity	360	462	8,988
All other exporters	Quantity	66,541	44,182	40,396
All reporting exporters	Quantity	800,257	820,941	984,054
United States	Value	117,604	171,941	113,708
China	Value	1,196,386	1,023,593	1,600,551
Spain	Value	46,092	54,622	114,265
Subject sources	Value	1,242,478	1,078,215	1,714,816
Poland	Value	77,216	60,030	135,713
Germany	Value	260,428	211,298	257,891
Russia	Value	33,781	21,536	31,140
Japan	Value	107,432	90,405	107,600
Netherlands	Value	50,601	53,563	85,104
United Kingdom	Value	21,050	15,324	19,878
India	Value	62,919	70,308	101,060
France	Value	26,834	33,923	40,525
Denmark	Value	1,805	2,360	13,031
All other exporters	Value	362,073	288,830	353,049
All reporting exporters	Value	2,364,219	2,097,733	2,973,517

Table continued.

Table IV-14 Continued

Heterocyclic compounds (excluding melamine) containing an unfused triazine ring (whether or not hydrogenated) in the structures: Global exports, by reporting country and by period

Unit value in dollars per short ton; share in percent

Exporting country	Measure	2019	2020	2021
United States	Unit value	5,118	8,266	6,491
China	Unit value	2,577	2,021	2,525
Spain	Unit value	2,312	2,106	2,343
Subject sources	Unit value	2,566	2,025	2,512
Poland	Unit value	1,246	911	2,239
Germany	Unit value	5,120	4,066	4,644
Russia	Unit value	952	696	858
Japan	Unit value	3,588	2,924	3,727
Netherlands	Unit value	3,254	4,039	4,819
United Kingdom	Unit value	1,153	933	1,325
India	Unit value	9,112	12,627	9,713
France	Unit value	3,765	4,229	3,984
Denmark	Unit value	5,019	5,113	1,450
All other exporters	Unit value	5,441	6,537	8,740
All reporting exporters	Unit value	2,954	2,555	3,022
United States	Share of quantity	2.9	2.5	1.8
China	Share of quantity	58.0	61.7	64.4
Spain	Share of quantity	2.5	3.2	5.0
Subject sources	Share of quantity	60.5	64.9	69.4
Poland	Share of quantity	7.7	8.0	6.2
Germany	Share of quantity	6.4	6.3	5.6
Russia	Share of quantity	4.4	3.8	3.7
Japan	Share of quantity	3.7	3.8	2.9
Netherlands	Share of quantity	1.9	1.6	1.8
United Kingdom	Share of quantity	2.3	2.0	1.5
India	Share of quantity	0.9	0.7	1.1
France	Share of quantity	0.9	1.0	1.0
Denmark	Share of quantity	0.0	0.1	0.9
All other exporters	Share of quantity	8.3	5.4	4.1
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2933.69 reported by various national statistical authorities in the Global Trade Atlas database, accessed August 25, 2022.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top followed by the countries under investigation, all remaining top exporting countries in descending order of 2021 data.

Part V: Pricing data

Factors affecting prices

Raw material costs

The primary inputs used to produce granular chlorinated isos are chlorine, caustic soda, and urea. Urea and natural gas are both inputs into cyanuric acid, which, with further processing, yield chlorinated isos.¹ The price of urea is strictly tied to the price of Chinese exports and is driven by production of urea in China and agriculture demand in the United States. Caustic soda is a byproduct of chlorine and availability of caustic soda is directly tied to how much chlorine can be produced and consumed.² U.S. producers' total raw material costs as a share of cost of goods sold vary substantially depending on the level of integration of the responding producers, but likely comprise between *** of the cost of goods sold.^{3 4}

All responding U.S. producers, importers, and foreign producers reported that raw material prices had increased since January 2016, and most responding U.S. producers and foreign producers anticipate that raw material prices will continue to increase. A plurality of responding importers (4 of 9) reported that they anticipate that raw material prices will fluctuate.

Domestic interested parties estimated that raw materials account for approximately 70 percent of the cost to produce chlorinated isos.^{5 6} Prices for urea and natural gas are presented in figures V-1 and V-2 and tables V-1 and V-2. Urea prices increased almost three-fold over the period, and more than doubled during the fourth quarter of 2021 alone. Natural gas prices increased by 75 percent during January 2016 through March 2022, with a large spike and fall

¹ *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. V-1.

² *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, USITC Publication 4646, November 2016, p. V-1.

³ *Chlorinated Isocyanurates from China and Spain, Inv. Nos. 731-TA-1082-1083 (Second Review)*, Confidential Final Consolidated Staff Report Views, p. V-1.

⁴ For more specific information, please see part VI.

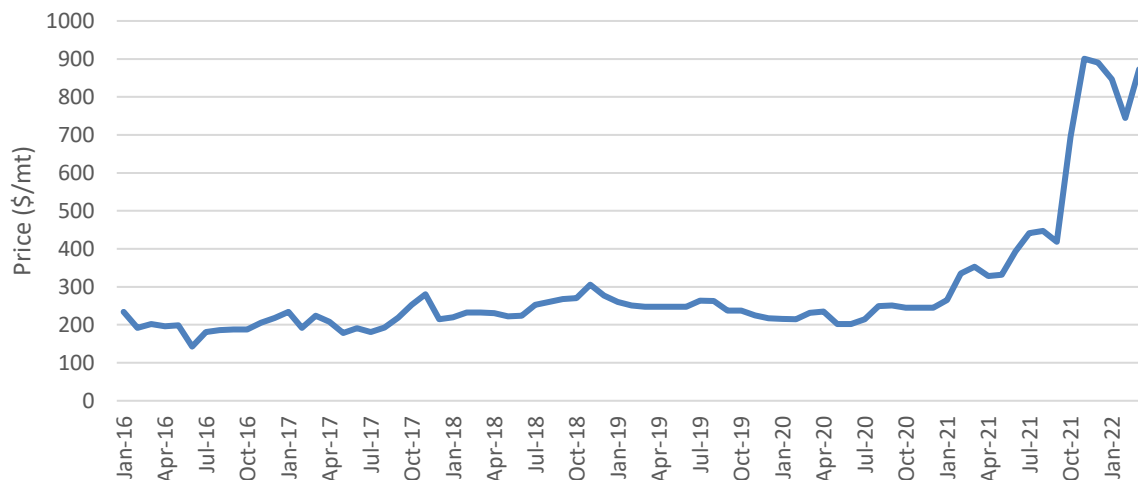
⁵ Hearing transcript, p. 29 (Pan).

⁶ Domestic interested parties stated that most supply chain disruptions for their raw materials are easing, but noted that freight for imported raw materials contributed to the increase in U.S. prices for chlorinated isos. Hearing transcript, p. 68 (Pan).

during the first quarter of 2021 and a continued steady increase in prices through the rest of the year. IHS Markit projects that these prices will stay elevated through 2025.⁷

U.S. producer OxyChem implemented a raw material surcharge for urea in the fourth quarter of 2021; this surcharge is adjusted monthly based on raw material indices such as the Green Market Report.⁸ Spanish producer Ercros stated that caustic soda and chlorine are energy intensive, and that European producers face higher energy prices relative to the United States.⁹ Increased electricity costs led to Spanish producer Ercros increasing prices in March 2022.¹⁰

Figure V-1
Urea: Prices of urea, by month, January 2016-March 2022



Source: World Bank Commodity Price Data (The Pink Sheet),
<http://www.worldbank.org/en/research/commodity-markets>, retrieved August 2, 2022.

⁷ Hearing transcript, p. 29 (Pan).

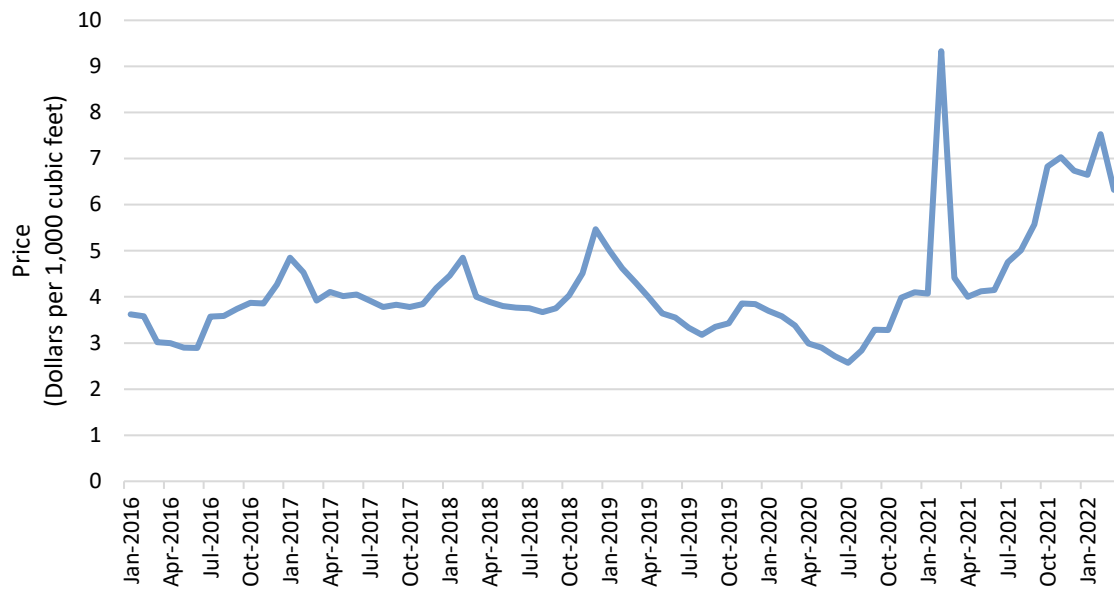
⁸ Hearing transcript, p. 16 (Martineau).

⁹ Ercros posthearing brief, Attachment, pp. 12-15.

¹⁰ Hearing transcript, p. 148 (Cros).

Figure V-2

Natural gas: U.S. natural gas industrial price, dollars per thousand cubic feet, by month, January 2016-March 2022



Source: U.S. Energy Information Administration, Natural Gas Prices,
https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm, retrieved August 2, 2022.

Table V-1
Urea: Prices of urea, by month, January 2016-March 2022

Month	2016	2017	2018	2019	2020	2021	2022
Jan	233.88	233.75	219.63	260.00	215.40	265.00	846.38
Feb	191.88	191.88	232.50	250.63	214.38	335.00	744.17
Mar	201.75	223.50	232.50	247.50	231.13	352.88	872.50
Apr	196.25	207.88	230.63	247.50	235.00	328.10	---
May	198.38	178.75	221.88	247.50	201.90	331.63	---
Jun	142.63	191.00	224.00	247.50	202.00	393.25	---
Jul	181.00	181.00	252.50	263.50	214.40	441.50	---
Aug	186.25	192.63	260.00	262.50	249.50	446.88	---
Sep	187.30	219.00	267.50	237.75	250.50	418.75	---
Oct	187.50	252.50	270.00	237.00	245.00	695.00	---
Nov	205.00	280.00	305.60	224.50	245.00	900.50	---
Dec	217.75	214.63	276.67	217.50	245.00	890.00	---

Source: World Bank Commodity Price Data (The Pink Sheet),
<http://www.worldbank.org/en/research/commodity-markets>, retrieved August 2, 2022.

Table V-2
Natural gas: U.S. natural gas industrial price, dollars per thousand cubic feet, by month, January 2016-March 2022

Month	2016	2017	2018	2019	2020	2021	2022
Jan	3.62	4.85	4.46	5.02	3.70	4.07	6.65
Feb	3.58	4.53	4.85	4.62	3.58	9.33	7.53
Mar	3.02	3.92	4.00	4.31	3.38	4.41	6.32
Apr	3.00	4.11	3.89	3.99	2.99	4.00	---
May	2.90	4.02	3.80	3.64	2.90	4.12	---
Jun	2.89	4.05	3.77	3.55	2.71	4.15	---
Jul	3.57	3.92	3.75	3.33	2.57	4.75	---
Aug	3.59	3.78	3.67	3.18	2.84	5.01	---
Sep	3.74	3.83	3.75	3.35	3.29	5.57	---
Oct	3.87	3.78	4.03	3.43	3.28	6.83	---
Nov	3.86	3.84	4.51	3.86	3.98	7.03	---
Dec	4.27	4.19	5.47	3.84	4.10	6.74	---

Source: World Bank Commodity Price Data (The Pink Sheet),
<http://www.worldbank.org/en/research/commodity-markets>, retrieved August 2, 2022.

Transportation costs to the U.S. market

Transportation costs for chlorinated isos shipped from subject countries to the United States averaged 9.0 percent of landed duty paid value for China and 7.7 percent for Spain during 2021. These estimates were derived from official import data and represent the transportation and other charges on imports.¹¹

U.S. inland transportation costs

Most U.S. producers (5 of 6) and importers (9 of 10) reported that they typically arrange transportation to their customers. Most U.S. producers reported that their U.S. inland transportation costs ranged from less than 1 percent to 10 percent while most responding importers reported costs of 2 to 7 percent.

Pricing practices

Pricing methods

U.S. producers and importers reported setting prices using transaction-by-transaction negotiations, contracts, price lists, and other methods (table V-3). U.S. producer *** reported that it provides a separate price list for each customer and producer *** reported that it sells to *** at market price. Importer *** reported that its prices are set by contract but may be revised if there are drastic changes in the costs of raw materials, electricity, or freight. Importer *** reported that its pricing methods vary by region and market conditions.

A representative of producer OxyChem stated that its annual pricing is negotiated during the late summer or early fall based on market conditions and big box stores such as Wal-Mart, Home Depot, and retailers like Leslie's and Suncoast generally request fixed price for the year.¹² A representative of Bio-Lab stated that recently its purchasers have been committing to price for a certain purchase order instead of committing to an annual price.¹³

¹¹ 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 2933.69.6015.

¹² Hearing transcript, p. 15 (Martineau).

¹³ Hearing transcript, p. 23 (Lawrence).

Table V-3**Chlorinated isos: Count of U.S. producers' and importers' reported price setting methods**

Method	U.S. producers	U.S. importers
Transaction-by-transaction	3	6
Contract	4	3
Set price list	3	3
Other	2	1
Responding firms	7	9

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.

U.S. producers reported selling most of their chlorinated isos under long-term contracts, while slightly over half of imported subject chlorinated isos are sold on the spot market and foreign producers reported that virtually all of their chlorinated isos were sold under annual contracts (table V-4). Some U.S. producers and importers reported that their annual and long-term (2 years or Evergreen) contracts fix both price and quantity, and some contracts may be indexed to raw materials and allow for price renegotiation, while others do not.¹⁴ U.S. producer *** reported that it indexes its price to the Green Market report for Urea, and *** reported that raw materials are reflected in individual customer price quotes.

Table V-4**Chlorinated isos: U.S. producers' and importers' shares of commercial U.S. shipments by type of sale, 2021**

Share in percent

Item	U.S. producers	Subject U.S. importers	Foreign producers
Long-term contracts	***	***	***
Annual contract	***	***	***
Short-term contracts	***	***	***
Spot sales	***	***	***

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

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

Three purchasers reported that they purchase product daily, 10 purchase weekly, 5 purchase monthly, and 2 purchase quarterly. Most purchasers (15 of 19) reported that they do not expect the frequency of their purchases to change over the next two years. Purchaser *** reported that it expects that its purchases will increase as it ***

¹⁴ Two of three foreign producers reported that their annual contracts allowed for price renegotiation and were not indexed to raw material prices.

***, and purchasers *** reported that they anticipate a decrease in purchasing frequency as demand levels off. Most purchasers (14 of 20) contact 1 to 4 suppliers before making a purchase.

Sales terms and discounts

U.S. producers and importers typically quote prices on a delivered basis and most U.S. producers and importers do not have discount policies. One U.S. producer reported quantity discounts, another reported total volume discounts, and another reported target volume-based discounts depending on the customer. One importer reported that its discount policies vary by region and market conditions.

Price leadership

Purchasers reported multiple price leaders: OxyChem (7 purchasers), Bio-Lab/KIK (6), Allchem and Clearon (2 each), and Haviland and Suncoast (1 each). Purchasers indicating the presence of price leaders indicated that OxyChem and Bio-Lab are the largest domestic producers and price increases are set by them. Purchaser *** reported that OxyChem announced its yearly price increase and others followed, adding that because OxyChem is a producer of bulk products, the distributors, tableters, retailers, and others need to follow OxyChem's price policies.

Price and purchase cost data

The Commission requested that U.S. producers and importers provide quarterly data for the total quantity and f.o.b. value of the following chlorinated isos products shipped to unrelated U.S. customers during January 2019-March 2022. Firms that imported these products from China and/or Spain for their own use, repackaging, or for retail sale were requested to provide import purchase cost data.¹⁵

¹⁵ Respondent interested parties argue that price data are most relevant to this review. Hearing transcript, p. 132 (Morgan).

Product 1.-- Granular trichloroisocyanuric acid with approximately 90 percent available chlorine content (similar to ACL®90 or CDB®), sold in bulk packages equal to or greater than 1,000 pounds and less than or equal to 2,205 pounds.

Product 2.-- Granular sodium dichloroisocyanuric (dihydrate) with approximately 56 percent available chlorine content (similar to ACL®56 or CDB®56), sold in bulk packages equal to or greater than 1,000 pounds and less than or equal to 2,205 pounds, sold for repackaging for pool treatment use.

Product 3.¹⁶-- 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with U.S.-produced granular/powder chlorinated isos.

Product 4.¹⁷-- Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers.

Six U.S. producers and five importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.¹⁸ Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' commercial shipments of chlorinated isos, *** percent of U.S. commercial

¹⁶ U.S. producers were asked to provide data for the following breakouts; these can be found in Appendix F:

Product 3a. -- 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with U.S.-produced granular/powder chlorinated isos.

Product 3b. -- 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with imported granular/powder chlorinated isos.

¹⁷ U.S. producers were asked to provide data for the following breakouts; these can be found in Appendix F:

Product 4a. -- Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers for tablets produced in the United States with U.S.- produced granular/powder chlorinated isos.

Product 4b. -- Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers for tablets produced in the United States with imported granular/powder chlorinated isos.

¹⁸ 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.

shipments of subject imports from China, and *** percent of U.S. commercial shipments of subject imports from Spain in 2021.^{19 20}

Price data for products 1-4 are presented in tables V-5 to V-8 and figures V-3 to V-6. Importers reported price data for imports from China for products 3 and 4 in 2021 and 2022. Importers reported price data for imports from Spain for product 1 in 2020, 2021, and 2022. No import price data were reported for product 2.

Table V-5
Chlorinated isos: 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	U.S. price	U.S. quantity	China price	China quantity	China margin	Spain price	Spain quantity	Spain 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	***	***	***	***	***	***	***	***

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

Note: Product 1: Granular trichloroisocyanuric acid with approximately 90 percent available chlorine content (similar to ACL®90 or CDB®), sold in bulk packages equal to or greater than 1,000 pounds and less than or equal to 2,205 pounds.

¹⁹ Pricing coverage is based on U.S. shipments reported in questionnaires.

²⁰ Pricing data reported by these firms accounted for *** percent of total imports from China and *** percent of total imports from Spain in 2021.

Table V-6

Chlorinated isos: 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	U.S. price	U.S. quantity	China price	China quantity	China margin	Spain price	Spain quantity	Spain 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	***	***	***	***	***	***	***	***

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

Note: Product 2: Granular sodium dichloroisocyanuric (dihydrate) with approximately 56 percent available chlorine content (similar to ACL®56 or CDB®56), sold in bulk packages equal to or greater than 1,000 pounds and less than or equal to 2,205 pounds, sold for repackaging for pool treatment use.

Table V-7

Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic and imported product 3 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	Spain price	Spain quantity	Spain 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	***	***	***	***	***	***	***	***

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

Note: Product 3: 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets.

Table V-8

Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic and imported product 4 and margins of underselling/(overselling), by source and quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China margin	Spain price	Spain quantity	Spain 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	***	***	***	***	***	***	***	***

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

Note: Product 4: Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers.

Figure V-3
Chlorinated isos: Weighted-average prices and quantities of domestic and imported product 1, by source and quarter

* * * * *

Figure V-4

Chlorinated isos: Weighted-average prices and quantities of domestic and imported product 2, by source and quarter

* * * * *

Figure V-5
Chlorinated isos: Weighted-average prices and quantities of domestic and imported product 3, by source and quarter

* * * * *

Figure V-6
Chlorinated isos: Weighted-average prices and quantities of domestic and imported product 4, by source and quarter

* * * * *

Import purchase cost data

Two importers (***) reported useable import purchase cost data for products 1 and 3.²¹ Purchase cost data reported by these firms accounted for *** percent of total imports from China in 2021, and *** percent of total imports from Spain. Landed duty-paid purchase cost data for imports from China and Spain are presented in tables V-9 and V-10 and figures V-7 and V-8, along with U.S. producers' sales prices.²²

*** reported that it incurred additional costs beyond landed duty-paid costs by importing chlorinated isos itself rather than purchasing from a U.S. producer or U.S. importer, and estimated that the total additional cost incurred was *** percent compared to the landed-duty-paid value, and this additional cost included inland freight. *** also reported that one of its Chinese suppliers ***. *** reported that it had not incurred additional costs.

*** reported that they do not compare costs of importing to the cost of purchasing from a U.S. producer or importer in determining whether to import chlorinated isos. Both firms reported that they needed to import to supplement insufficient domestic supply.

Firms were also asked whether the import cost (both excluding and including additional costs) of chlorinated isos they imported are lower than the price of purchasing chlorinated isos from a U.S. producer or importer. *** reported that prices of imported chlorinated isos were not lower than domestic prices, and *** reported that they were lower when the additional costs of importing were excluded.

²¹ Three other importers (***) provided some additional information regarding the costs and benefits of importing chlorinated isos themselves, but because none of these firms reported imports for internal consumption or purchase cost data, their responses are not included.

²² LDP import value does not include any potential additional costs that a purchaser may incur by importing rather than purchasing from another importer or U.S. producer. Price-cost differences are based on LDP import values whereas margins of underselling/overselling are based on importer sales prices.

Table V-9**Chlorinated isos: Import landed duty-paid purchase costs and domestic prices, quantities of product 1, and price-cost differentials, by quarter**

Price and LDP value in dollars per pound, quantity in 1,000 pounds, margin and price-cost differential in percent.

Period	U.S. price	U.S. quantity	China unit LDP value	China quantity	China price/cost differential	Spain unit LDP value	Spain quantity	Spain price/cost differential
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	***	***	***	***	***	***	***	***

Period	U.S. price	U.S. quantity	Subject sources unit LDP value	Subject sources quantity	Subject sources price/cost differential
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	***	***	***	***	***

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

Note: Product 1: Granular trichloroisocyanuric acid with approximately 90 percent available chlorine content (similar to ACL®90 or CDB®), sold in bulk packages equal to or greater than 1,000 pounds and less than or equal to 2,205 pounds.

Note: U.S. producer price data is the same as that presented in table V-5.

Table V-10

Chlorinated isos: Import landed duty-paid purchase costs and domestic prices, quantities of product 3, and price-cost differentials, by quarter

Price and LDP value in dollars per pound, quantity in 1,000 pounds, margin and price-cost differential in percent.

Period	U.S. price	U.S. quantity	China unit LDP value	China quantity	China price/cost differential	Spain unit LDP value	Spain quantity	Spain price/cost differential
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	***	***	***	***	***	***	***	***

Period	U.S. price	U.S. quantity	Subject sources unit LDP value	Subject sources quantity	Subject sources price/cost differential
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	***	***	***	***	***

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

Note: Product 3: 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets.

Note: U.S. producer price data is the same as that presented in table V-5.

Figure V-7

Chlorinated isos: Import landed duty-paid purchase costs and domestic prices, quantities of product 1, by quarter

* * * * *

Figure V-8
Chlorinated isos: Import landed duty-paid purchase costs and domestic prices, quantities of product 3, by quarter

* * * * *

Price and purchase cost trends

Prices and landed duty-paid costs increased during January 2019-March 2022. Table V-11 summarizes the price and purchase trends, by country and by product. As shown in the table, domestic price increases ranged from *** percent to *** percent during January 2019-March 2022. Imports of chlorinated isos entered into the market in 2020 for pricing product 1, and late 2021 for pricing products 3 and 4, but increased by similar rates.

Table V-11
Chlorinated isos: Summary of price and cost data, by product and source

Volume in 1,000 pounds, price and cost in dollars per pound

Product	Source	Number of quarters	Quantity	Low price/cost	High price/cost	First quarter price/cost	Last quarter price/cost	Change over period
Product 1	United States price	***	***	***	***	***	***	***
Product 1	China price	***	***	***	***	***	***	***
Product 1	China cost	***	***	***	***	***	***	***
Product 1	Spain price	***	***	***	***	***	***	***
Product 1	Spain cost	***	***	***	***	***	***	***
Product 2	United States price	***	***	***	***	***	***	***
Product 2	China price	***	***	***	***	***	***	***
Product 2	China cost	***	***	***	***	***	***	***
Product 2	Spain price	***	***	***	***	***	***	***
Product 2	Spain cost	***	***	***	***	***	***	***
Product 3	United States price	***	***	***	***	***	***	***
Product 3	China price	***	***	***	***	***	***	***
Product 3	China cost	***	***	***	***	***	***	***
Product 3	Spain price	***	***	***	***	***	***	***
Product 3	Spain cost	***	***	***	***	***	***	***
Product 4	United States price	***	***	***	***	***	***	***
Product 4	China price	***	***	***	***	***	***	***
Product 4	China cost	***	***	***	***	***	***	***
Product 4	Spain price	***	***	***	***	***	***	***
Product 4	Spain cost	***	***	***	***	***	***	***

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

Note: Percentage change from the first quarter in which data were available in 2019 to the last quarter in which data were available in 2022.

Virtually all purchasers reported that the price of chlorinated isos from the United States, China, and Spain had changed since January 2016. Purchasers were asked how the prices of chlorinated isos from the United States had changed relative to the prices of chlorinated isos from China and Spain since 2016. When comparing the changes in price of chlorinated isos produced in the United States to product from China, five purchasers reported that prices of both products changed at the same rate, five reported that the price of U.S.-produced chlorinated isos increased relative to Chinese product, and one reported that prices of U.S.-produced product decreased relative to Chinese product. When comparing the changes in price of chlorinated isos produced in the United States to product from Spain, three purchasers reported that prices of both products changed at the same rate and four reported that the price of U.S.-produced chlorinated isos increased relative to Spanish product.

Foreign producers were asked to compare market prices of chlorinated isos in their home market, the United States, and third-country markets. Spanish producer *** reported that U.S. prices are the highest of all markets, and *** reported that generally prices in Europe are “intermediate,” prices in third-country markets, such as Africa, are lower. It noted that prices in the United States are higher due to “the superior quality that American markets require.”

Price and purchase cost comparisons

Price comparisons

As shown in table V-12, prices for product imported from subject countries were below those for U.S.-produced product in 4 of 18 instances (*** pounds); margins of underselling ranged from 6.5 to 25.2 percent. In 14 instances (*** pounds), prices for product from subject countries were between *** and *** percent above prices for the domestic product.

As shown in table V-13, prices for Chinese product were higher than those for U.S.-produced product in 8 of 9 instances (*** pounds), and prices for Spanish product were higher than those for U.S.-produced product in 6 of 9 instances (*** pounds).

Table V-12**Chlorinated isos: Instances of underselling and overselling and the range and average of margins, by product**

Quantity in 1,000 pounds; margin in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
Product 1	Underselling	3	***	***	***	***
Product 2	Underselling	---	***	***	***	***
Product 3	Underselling	---	***	***	***	***
Product 4	Underselling	1	***	***	***	***
Total, underselling	Underselling	4	***	***	***	***
Product 1	Overselling	6	***	***	***	***
Product 2	Overselling	---	***	***	***	***
Product 3	Overselling	5	***	***	***	***
Product 4	Overselling	3	***	***	***	***
Total, overselling	Overselling	14	***	***	***	***

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

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

Table V-13**Chlorinated isos: Instances of underselling and overselling and the range and average of margins, by source**

Quantity in 1,000 pounds; margin in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
China	Underselling	1	***	***	***	***
Spain	Underselling	3	***	***	***	***
Total, underselling	Underselling	4	***	***	***	***
China	Overselling	8	***	***	***	***
Spain	Overselling	6	***	***	***	***
Total, overselling	Overselling	14	***	***	***	***

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

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

Price-cost comparisons

As shown in table V-14, landed duty-paid costs for chlorinated isos imported from subject countries were below the sales price for U.S.-produced product in 7 of 20 instances (** pounds; less than 10 percent of reported purchase cost quantities); price-cost differentials ranged from *** to *** percent. In the remaining 13 instances (** pounds; more than 90 percent by quantity), landed duty-paid costs for chlorinated isos from subject countries were between *** and *** percent above sales prices for the domestic product.

As shown in table V-15, landed duty-paid costs for chlorinated isos imported from China were higher than the sales price for U.S.-produced product in all 10 instances (** pounds). Prices for Spanish product were lower than those for U.S.-produced product in 7 of 10 instances (** pounds; ** percent of reported quantities).

Table V-14

Chlorinated isos: Instances of lower and higher import purchase costs and the range and average of price-cost differentials, by product

Quantity in 1,000 pounds; price-cost differential in percent

Product	Type	Number of quarters	Quantity	Average price-cost differential	Min price-cost differential	Max price-cost differential
Product 1	Lower than U.S. price	***	***	***	***	***
Product 2	Lower than U.S. price	***	***	***	***	***
Product 3	Lower than U.S. price	***	***	***	***	***
Product 4	Lower than U.S. price	***	***	***	***	***
Total	Lower than U.S. price	***	***	***	***	***
Product 1	Higher than U.S. price	***	***	***	***	***
Product 2	Higher than U.S. price	***	***	***	***	***
Product 3	Higher than U.S. price	***	***	***	***	***
Product 4	Higher than U.S. price	***	***	***	***	***
Total	Higher than U.S. price	***	***	***	***	***

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

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

Table V-15

Chlorinated isos: Instances of lower and higher import purchase costs and the range and average of price-cost differentials, by source

Quantity in 1,000 pounds; price-cost differential in percent

Source	Type	Number of quarters	Quantity	Average price-cost differential	Min price-cost differential	Max price-cost differential
China	Lower than U.S. price	***	***	***	***	***
Spain	Lower than U.S. price	***	***	***	***	***
Total, lower	Lower than U.S. price	***	***	***	***	***
China	Higher than U.S. price	***	***	***	***	***
Spain	Higher than U.S. price	***	***	***	***	***
Total, higher	Higher than U.S. price	***	***	***	***	***

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

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

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
86 FR 54423 October 1, 2021	<i>Initiation of Five-Year (Sunset) Reviews</i>	https://www.govinfo.gov/content/pkg/FR-2021-10-01/pdf/2021-21539.pdf
86 FR 54473 October 1, 2021	<i>Chlorinated Isocyanurates From China and Spain; Institution of a Five-Year Review</i>	https://www.govinfo.gov/content/pkg/FR-2021-10-01/pdf/2021-21223.pdf
87 FR 4290, January 27, 2022	<i>Chlorinated Isocyanurates From China and Spain; Notice of Commission Determination To Conduct Full Five-Year Reviews</i>	https://www.govinfo.gov/content/pkg/FR-2022-01-27/pdf/2022-01536.pdf
87 FR 4841, January 31, 2022	<i>Chlorinated Isocyanurates From Spain and the People's Republic of China: Final Results of the Third Expedited Sunset Reviews of the Antidumping Duty Orders</i>	https://www.govinfo.gov/content/pkg/FR-2022-01-31/pdf/2022-01933.pdf
87 FR 34298, June 6, 2022	<i>Chlorinated Isocyanurates From China and Spain; Scheduling of Full Five-Year Reviews</i>	https://www.govinfo.gov/content/pkg/FR-2022-06-06/pdf/2022-12023.pdf
87 FR 55852, September 12, 2022	<i>Chlorinated Isocyanurates From China and Spain; Revised Schedule for Full Five-Year Reviews</i>	https://www.govinfo.gov/content/pkg/FR-2022-09-12/pdf/2022-19585.pdf
87 FR 56981, September 16, 2022	<i>Chlorinated Isocyanurates from China and Spain; Hearing Update for the Subject Reviews</i>	https://www.govinfo.gov/content/pkg/FR-2022-09-16/pdf/2022-20011.pdf

Note: The press release announcing the Commission's determinations concerning adequacy and the conduct of a full or expedited review can be found at https://www.usitc.gov/press_room/news_release/2022/er010411860.htm. A summary of the Commission's votes concerning adequacy and the conduct of a full or expedited review can be found at https://www.usitc.gov/chlorinated_isocyanurates_china.htm_1. The Commission's explanation of its determinations can be found at https://usitc.gov/investigations/701731/2021/chlorinated_isocyanurates_china_and_spain/third_review_full.htm.

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

Those listed below appeared in the United States International Trade Commission's hearing concerning:

Subject: Chlorinated Isocyanurates from China and Spain
Inv. Nos.: 731-TA-1082-1083 (Third Review)
Date and Time: September 29, 2022 - 9:30 a.m.

OPENING REMARKS:

In Support of Continuation (**Mary Jane Alves**, Cassidy Levy Kent (USA) LLP)
In Opposition to Continuation (**Edmund Sim**, Appleton Luff)

In Support of Continuation of Antidumping Duty Orders:

Cassidy Levy Kent (USA) LLP
Washington, DC
on behalf of

Bio-Lab Inc.
Clearon Corporation
Occidental Chemical Corporation

Robert Martineau, Business Manager for Trichlor/Dichlor,
Occidental Chemical Corporation

Anthony Pan, Senior Director of Revenue Operations,
Clearon Corporation

Ted Lawrence, Vice President of Sales, Bio-Lab, Inc.

John Robella, Vice President of Finance, Bio-Lab, Inc.

Rich Bentley, Vice President of Operations, Bio-Lab Inc.

James R. Cannon)
Mary Jane Alves) – OF COUNSEL
Ulrika K. Swanson)

**In Opposition to Continuation of
Antidumping Duty Orders:**

Appleton Luff
Washington, DC
on behalf of

Ercros S.A

Natalia Torrents Cros, Water Treatment Product Manager, Ercros S.A.

Lal Patel, President, Ryte Products

Edmund Sim)
) – OF COUNSEL
Kelly Slater)

Law Offices of David L. Simon, PLLC
Trade Law Defense PLLC
Washington, DC
on behalf of

Brushby, LLC (“Brushby”)

Reb Ferrell, Adviser, Brushby, LLC

Mark B. Lehnardt)
) – OF COUNSEL
Frank H. Morgan)

REBUTTAL/CLOSING REMARKS:

In Support of Continuation (**James R. Cannon**, Cassidy Levy Kent (USA) LLP)

In Opposition to Continuation (**Frank H. Morgan**, Trade Law Defense PLLC)

-END-

APPENDIX C
SUMMARY DATA

Table C-1

Chlorinated isos: Summary data concerning the U.S. market, by item and period

Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=short tons per 1,000 hours; Period changes=percent--exceptions noted

Item	Reported data					Period changes			
	Calendar year		Jan-Mar			Calendar year		Jan-Mar	
	2019	2020	2021	2021	2022	2019-21	2019-20	2020-21	2021-22
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
China.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	▲***	▲***	▼***	▼***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Producers' share (fn1):									
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value added to imports.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Overall value for producers.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
China.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	▲***	▲***	▼***	▼***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. importers' U.S. shipments of imports from:									
China:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	***	▲***	▲***
Subject sources:									
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.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-1 Continued

Chlorinated isos: Summary data concerning the U.S. market, by item and period

Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=short tons per 1,000 hours; Period changes=percent--exceptions noted

Item	Reported data					Period changes			
	Calendar year		Jan-Mar			Calendar year		Jan-Mar	
	2019	2020	2021	2021	2022	2019-21	2019-20	2020-21	2021-22
U.S. integrated producers' and tableters':									
Intergrated: Capacity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Intergrated: Production.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Intergrated: Capacity utilization (fn1).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Tableters: Capacity.....	***	***	***	***	***	▲***	▲***	▲***	***
Tableters: Production.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Tableters: Capacity utilization (fn1).....	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. shipments (fn2):									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value:									
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value added to imports.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Overall value for producers.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Export shipments:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Integrated: Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Integrated: Inv./total shipments (fn1).....	***	***	***	***	***	▼***	▼***	▲***	▼***
Tableters: Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Tableters: Inv./total shipments (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Production workers.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Hours worked (1,000s).....	***	***	***	***	***	▲***	▲***	▼***	▲***
Wages paid (\$1,000).....	***	***	***	***	***	▼***	▲***	▼***	▲***
Hourly wages (dollars per hour).....	***	***	***	***	***	▼***	▲***	▼***	▲***
Integrated: Productivity.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Integrated: Unit labor costs.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Tableters: Productivity.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Tableters: Unit labor costs.....	***	***	***	***	***	▲***	▼***	▲***	▲***
U.S. integrated producers' and non-toll tableters' (fn3):									
Net sales:									
Quantity.....	130,134	126,731	119,069	30,830	29,699	▼(8.5)	▼(2.6)	▼(6.0)	▼(3.7)
Value.....	353,960	354,173	401,033	96,271	165,004	▲13.3	▲0.1	▲13.2	▲71.4
Unit value.....	\$2,720	\$2,795	\$3,368	\$3,123	\$5,556	▲23.8	▲2.7	▲20.5	▲77.9
Cost of goods sold (COGS).....	308,100	290,116	390,046	90,064	136,786	▲26.6	▼(5.8)	▲34.4	▲51.9
Gross profit or (loss) (fn4).....	45,860	64,057	10,987	6,207	28,218	▼(76.0)	▲39.7	▼(82.8)	▲354.6
SG&A expenses.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Operating income or (loss) (fn4).....	***	***	***	***	***	▼***	▲***	▼***	▲***
Net income or (loss) (fn4).....	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit COGS.....	\$2,368	\$2,289	\$3,276	\$2,921	\$4,606	▲38.4	▼(3.3)	▲43.1	▲57.7
Unit SG&A expenses.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit operating income or (loss) (fn4).....	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit net income or (loss) (fn4).....	***	***	***	***	***	▼***	▲***	▼***	▲***
COGS/sales (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▼***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▲***	▼***	▲***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▲***	▼***	▲***
U.S. integrated producers' and tableters':									
Capital expenditures.....	***	***	***	***	***	▲***	▼***	▲***	▲***
Research and development expenses.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Net assets.....	***	***	***	***	***	▲***	▼***	▲***	***

Table continued.

Table C-1 Continued

Chlorinated isos: Summary data concerning the U.S. market, by item and period

Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=short tons per 1,000 hours; Period changes=percent--exceptions noted

Item	Reported data					Period changes			
	Calendar year		2021	Jan-Mar		Comparison years			Jan-Mar
	2019	2020		2021	2022	2019-21	2019-20	2020-21	
U.S. toll tableters' (fn3):									
Net tolling:									
Quantity.....	***	***	***	***	***	***	▲ ***	▼ ***	***
Value.....	***	***	***	***	***	***	▲ ***	▼ ***	***
Unit value.....	***	***	***	***	***	***	▲ ***	▼ ***	***
Total cost of tolling services (COTS).....	***	***	***	***	***	***	▲ ***	▼ ***	***
Gross profit or (loss) (fn4).....	***	***	***	***	***	***	▼ ***	▲ ***	***
G&A expenses.....	***	***	***	***	***	***	▲ ***	▼ ***	***
Operating income or (loss) (fn4).....	***	***	***	***	***	***	▼ ***	▲ ***	***
Unit COTS.....	***	***	***	***	***	***	▲ ***	▼ ***	***
Unit G&A expenses.....	***	***	***	***	***	***	▲ ***	▼ ***	***
Unit operating income or (loss) (fn4).....	***	***	***	***	***	***	▼ ***	▲ ***	***
COTS/sales (fn1).....	***	***	***	***	***	***	▲ ***	▼ ***	***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	***	▼ ***	▲ ***	***

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

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.

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

fn2.--Quantity for U.S. producers' U.S. shipments reflects integrated producer's U.S. shipment quantities. Value for U.S. producers' U.S. shipments reflects chlorinated isos products sold in the United States from domestically manufactured chlorinated isos (including the value added by U.S. tableters of domestic chlorinated isos), as well as the incremental value added by U.S. tableters of imported chlorinated isos. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported as an import. Unit values are based on the fully domestic value.

fn3.--One firm, ***, which was ***, did not provide useable information relating to its financial performance is, therefore, not included in these results. *** did provide useable information relating to its production, shipments, inventories, and employment.

fn4.--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.

Integrated U.S. producers

Table C-2

Chlorinated isos: Summary data concerning the U.S. market including only integrated U.S. producers, by item and period

Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=short tons per 1,000 hours; Period changes=percent--exceptions noted

Item	Reported data					Period changes			
	Calendar year		Jan-Mar			Calendar year		Jan-Mar	
	2019	2020	2021	2021	2022	2019-21	2019-20	2020-21	2021-22
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
China.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	▲***	▲***	▼***	▼***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
China.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	▲***	▲***	▼***	▼***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. importers' U.S. shipments of imports from:									
China:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	***	▲***	▲***
Subject sources:									
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.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-2 Continued

Chlorinated isos: Summary data concerning the U.S. market including only integrated U.S. producers, by item and period

Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=short tons per 1,000 hours; Period changes=percent--exceptions noted

Item	Reported data					Period changes			
	Calendar year		Jan-Mar			Calendar year		Jan-Mar	
	2019	2020	2021	2021	2022	2019-21	2019-20	2020-21	2021-22
U.S. integrated producers':									
Capacity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Production.....	***	***	***	***	***	▼***	▼***	▼***	▼***
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.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Unit labor costs.....	***	***	***	***	***	▼***	▲***	▼***	▲***
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).....	***	***	***	***	***	▼***	▲***	▼***	▲***

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

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.

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

LIKELY EFFECT OF REVOCATION

Table D-1**Chlorinated isos: Firms' narratives on the impact of the order(s) and the likely impact of revocation**

Response type	Firm type	Firm name and narrative on impact or likely impact
Effect of order	U.S. producers	***
Effect of order	U.S. producers	***
Effect of order	U.S. producers	***
Effect of order	U.S. producers	***
Effect of order	U.S. producers	***
Effect of order	U.S. producers	***
Effect of order	U.S. producers	***
Likely impact of revocation	U.S. producers	***
Likely impact of revocation	U.S. producers	***

Response type	Firm type	Firm name and narrative on impact or likely impact
Likely impact of revocation	U.S. producers	***
Likely impact of revocation	U.S. producers	***
Likely impact of revocation	U.S. producers	***
Likely impact of revocation	U.S. producers	***
Likely impact of revocation	U.S. producers	***
Effect of order	Importers	***

Response type	Firm type	Firm name and narrative on impact or likely impact
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***

Response type	Firm type	Firm name and narrative on impact or likely impact
Likely impact of revocation	Importers	***
Likely impact of revocation	Importers	***
Likely impact of revocation	Importers	***
Likely impact of revocation	Importers	***
Likely impact of revocation	Importers	***
Likely impact of revocation	Importers	***
Likely impact of revocation	Importers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***

Response type	Firm type	Firm name and narrative on impact or likely impact
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Effect of orders	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***

Response type	Firm type	Firm name and narrative on impact or likely impact
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Effect of order	Foreign producers	***
Effect of order	Foreign producers	***
Effect of order	Foreign producers	***
Likely impact of revocation	Foreign producers	***

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

APPENDIX E

PRODUCTION-RELATED ACTIVITIES

Table E-1

Chlorinated isos: U.S. producer Bio-lab's narrative explanations relating to its overall domestic production activities and to the sufficient production-related activities factors as it relates to production or tableting operations

Factor	Narrative responses
Domestic production activities description	***
Capital investments	***
Technical expertise	***
Value added	***
Employment	***
Quantity, type and source of parts	***
Costs and activities	***
Rating of complexity	***
Narrative on complexity	***

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

Table E-2**Chlorinated isos: U.S. producer Bio-lab's U.S. production and tableting, by type and by period**

Quantity in short tons; Shares in percent

Production type	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Integrated production	Quantity	***	***	***	***	***
Tableting production	Quantity	***	***	***	***	***
All production and tableting types	Quantity	***	***	***	***	***
Integrated production	Share of quantity	***	***	***	***	***
Tableting production	Share of quantity	***	***	***	***	***
All production and tableting types	Share of quantity	***	***	***	***	***

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 E-3

Chlorinated isos: U.S. producer Clearon's narrative explanations relating to its overall domestic production activities and to the sufficient production-related activities factors as it relates to production or tableting operations

Factor	Narrative responses
Domestic production activities description	***
Capital investments	***
Technical expertise	***
Value added	***
Employment	***
Quantity, type and source of parts	***
Costs and activities	***
Rating of complexity	***
Narrative on complexity	***

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

Table E-4**Chlorinated isos: U.S. producer Clearon's U.S. production and tableting, by type and by period**

Quantity in short tons; Shares in percent

Production type	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Integrated production	Quantity	***	***	***	***	***
Tableting production	Quantity	***	***	***	***	***
All production and tableting types	Quantity	***	***	***	***	***
Integrated production	Share of quantity	***	***	***	***	***
Tableting production	Share of quantity	***	***	***	***	***
All production and tableting types	Share of quantity	***	***	***	***	***

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 E-5

Chlorinated isos: U.S. producer Haviland's narrative explanations relating to its overall domestic production activities and to the sufficient production-related activities factors as it relates to production or tableting operations

Factor	Narrative responses
Domestic production activities description	***
Capital investments	***
Technical expertise	***
Value added	***
Employment	***
Quantity, type and source of parts	***
Costs and activities	***
Rating of complexity	***
Narrative on complexity	***

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

Table E-6

Chlorinated isos: U.S. producer Haviland's U.S. production and tableting, by type and by period

Quantity in short tons; Shares in percent

Production type	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Integrated production	Quantity	***	***	***	***	***
Tableting production	Quantity	***	***	***	***	***
All production and tableting types	Quantity	***	***	***	***	***
Integrated production	Share of quantity	***	***	***	***	***
Tableting production	Share of quantity	***	***	***	***	***
All production and tableting types	Share of quantity	***	***	***	***	***

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 E-7

Chlorinated isos: U.S. producer LPM's narrative explanations relating to its overall domestic production activities and to the sufficient production-related activities factors as it relates to production or tableting operations

Factor	Narrative responses
Domestic production activities description	***
Capital investments	***
Technical expertise	***
Value added	***
Employment	***
Quantity, type and source of parts	***
Costs and activities	***
Rating of complexity	***
Narrative on complexity	***

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

Table E-8

Chlorinated isos: U.S. producer LPM's U.S. production and tableting, by type and by period

Quantity in short tons; Shares in percent

Production type	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Integrated production	Quantity	***	***	***	***	***
Tableting production	Quantity	***	***	***	***	***
All production and tableting types	Quantity	***	***	***	***	***
Integrated production	Share of quantity	***	***	***	***	***
Tableting production	Share of quantity	***	***	***	***	***
All production and tableting types	Share of quantity	***	***	***	***	***

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 E-9

Chlorinated isos: U.S. producer N. Jonas' narrative explanations relating to its overall domestic production activities and to the sufficient production-related activities factors as it relates to production or tableting operations

Factor	Narrative responses
Domestic production activities description	***
Capital investments	***
Technical expertise	***
Value added	***
Employment	***
Quantity, type and source of parts	***
Costs and activities	***
Rating of complexity	***
Narrative on complexity	***

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

Table E-10**Chlorinated isos: U.S. producer N. Jonas' U.S. production and tableting, by type and by period**

Quantity in short tons; Shares in percent

Production type	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Integrated production	Quantity	***	***	***	***	***
Tableting production	Quantity	***	***	***	***	***
All production and tableting types	Quantity	***	***	***	***	***
Integrated production	Share of quantity	***	***	***	***	***
Tableting production	Share of quantity	***	***	***	***	***
All production and tableting types	Share of quantity	***	***	***	***	***

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 E-11

Chlorinated isos: U.S. producer OxyChem's narrative explanations relating to its overall domestic production activities and to the sufficient production-related activities factors as it relates to production or tableting operations

Factor	Narrative responses
Domestic production activities description	***
Capital investments	***
Technical expertise	***
Value added	***
Employment	***
Quantity, type and source of parts	***
Costs and activities	***
Rating of complexity	***
Narrative on complexity	***

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

Table E-12**Chlorinated isos: U.S. producer OxyChem's U.S. production and tableting, by type and by period**

Quantity in short tons; Shares in percent

Production type	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Integrated production	Quantity	***	***	***	***	***
Tableting production	Quantity	***	***	***	***	***
All production and tableting types	Quantity	***	***	***	***	***
Integrated production	Share of quantity	***	***	***	***	***
Tableting production	Share of quantity	***	***	***	***	***
All production and tableting types	Share of quantity	***	***	***	***	***

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 E-13

Chlorinated isos: U.S. producer Qualco's narrative explanations relating to its overall domestic production activities and to the sufficient production-related activities factors as it relates to production or tableting operations

Factor	Narrative responses
Domestic production activities description	***
Capital investments	***
Technical expertise	***
Value added	***
Employment	***
Quantity, type and source of parts	***
Costs and activities	***
Rating of complexity	***
Narrative on complexity	***

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

Table E-14

Chlorinated isos: U.S. producer Qualco's U.S. production and tableting, by type and by period

Quantity in short tons; Shares in percent

Production type	Measure	2019	2020	2021	Jan-Mar 2021	Jan-Mar 2022
Integrated production	Quantity	***	***	***	***	***
Tableting production	Quantity	***	***	***	***	***
All production and tableting types	Quantity	***	***	***	***	***
Integrated production	Share of quantity	***	***	***	***	***
Tableting production	Share of quantity	***	***	***	***	***
All production and tableting types	Share of quantity	***	***	***	***	***

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 "---".

APPENDIX F

PRICE DATA FOR PRODUCT 3 AND 4

PRODUCED WITH U.S. AND IMPORTED CHLORINATED ISOS

U.S. producers were asked to provide price data for tableted products (product 3 and product 4) made from U.S.-produced chlorinated isos and imported chlorinated isos, as follows:

Product 3a-- 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with U.S.-produced granular/powder chlorinated isos

Product 3b-- 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with imported granular/powder chlorinated isos.

Product 4a-- Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers for tablets produced in the United States with U.S.-produced granular/powder chlorinated isos.

Product 4b-- Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers for tablets produced in the United States with imported granular/powder chlorinated isos.

Six of seven U.S. producers provided usable pricing data for sales of products 3 and/or 4 produced from U.S.-produced chlorinated isos, and two producers provided pricing data for tableted products produced from imported chlorinated isos. Data are presented in tables F-1 and F-2.

Table F-1

Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic product 3, by input source and quarter

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

Period	U.S. price of Product 3 (U.S.-produced chlorinated isos)	U.S. quantity of Product 3 (U.S.-produced chlorinated isos)	U.S. price of Product 3 (imported chlorinated isos)	U.S. quantity of Product 3 (imported chlorinated isos)
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	***	***	***	***

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

Note: Product 3: 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets.

Table F-2

Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic product 4, by input source and quarter

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

Period	U.S. price of Product 4 (U.S.-produced chlorinated isos)	U.S. quantity of Product 4 (U.S.-produced chlorinated isos)	U.S. price of Product 4 (imported chlorinated isos)	U.S. quantity of Product 4 (imported chlorinated isos)
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	***	***	***	***

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

Note: Product 4: Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers.

APPENDIX G

PRICE AND PURCHASE COST ANALYSIS FOR PRODUCTS 3 AND 4

PRODUCED WITH U.S. CHLORINATED ISOS ONLY

Price and purchase cost data and comparisons for U.S.-produced tableted products (product 3 and product 4) made from U.S.-produced chlorinated isos only is provided below. Four of seven U.S. producers provided usable pricing data for sales of products 3 and/or 4 produced from U.S.-produced chlorinated isos. Price data for products 3 and 4 are presented in tables G-1 and G-2, and purchase cost data for product 3 are presented in tables G-3.¹ There are no purchase cost comparisons for product 4. Tables G-4 through G-7 show price and purchase cost comparisons for all products.

Table G-1
Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic product 3, by input source and quarter

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

Period	U.S. price of Product 3 (U.S.-produced chlorinated isos)	U.S. quantity of Product 3 (U.S.-produced chlorinated isos)	China price	China quantity	China 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	***	***	***	***	***

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

Note: Product 3: 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with U.S.-produced granular/powder chlorinated isos. For imported product, tablets are made from foreign-produced chlorinated isos.

¹ U.S. producers' price and purchase cost data for the granular products remain unchanged. These data are presented in part V.

Table G-2

Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic product 4, by input source and quarter

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

Period	U.S. price of Product 4 (U.S.-produced chlorinated isos)	U.S. quantity of Product 4 (U.S.-produced chlorinated isos)	China price	China quantity	China 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	***	***	***	***	***

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

Note: Product 4: Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers for tablets produced in the United States with U.S.- produced granular/powder chlorinated isos. For imported product, tablets are made from foreign-produced chlorinated isos.

Table G-3

Chlorinated isos: Weighted-average f.o.b. prices, unit LDP values, and quantities of domestic product 3 (produced and tableted in the United States only, excluding imported and tableted in the United States) and imported product 3, and price/cost differentials, by quarter

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

Period	U.S. price of Product 3 (U.S.- produced chlorinated isos)	U.S. quantity of Product 3 (U.S.- produced chlorinated isos)	China unit LDP value	China quantity	China price/cost differential	Spain unit LDP value	Spain quantity	Spain price/cost differential
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	***	***	***	***	***	***	***	***

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

Note: Product 3: 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets produced in the United States with U.S.-produced granular/powder chlorinated isos. For imported product, tablets are made from foreign-produced chlorinated isos.

Table G-4

Chlorinated isos: Instances of underselling/overselling and the range and average of margins, by product

Quantity in thousands of pounds; margins in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
Product 1	Underselling	***	***	***	***	***
Product 2	Underselling	***	***	***	***	***
Product 3a	Underselling	***	***	***	***	***
Product 4a	Underselling	***	***	***	***	***
Total, underselling	Underselling	***	***	***	***	***
Product 1	Overselling	***	***	***	***	***
Product 2	Overselling	***	***	***	***	***
Product 3a	Overselling	***	***	***	***	***
Product 4a	Overselling	***	***	***	***	***
Total, overselling	Overselling	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain only chlorinated isos produced and tableted in the U.S, i.e. only U.S.-origin product.

Table G-5

Chlorinated isos: Instances of underselling/overselling and the range and average of margins, by country

Quantity in thousands of pounds; margins in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
China	Underselling	***	***	***	***	***
Spain	Underselling	***	***	***	***	***
Total, underselling	Underselling	***	***	***	***	***
China	Overselling	***	***	***	***	***
Spain	Overselling	***	***	***	***	***
Total, overselling	Overselling	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain only chlorinated isos produced and tableted in the U.S, i.e. only U.S.-origin product.

Table G-6

Chlorinated isos: Instances of lower/(higher) average unit purchase costs compared to U.S. prices and the range and average of price/cost differentials, by product

Quantity in thousands of pounds; differentials in percent

Item	Type	Number of quarters	Quantity	Average differential	Minimum differential	Maximum differential
Product 1	Lower	***	***	***	***	***
Product 2	Lower	***	***	***	***	***
Product 3a	Lower	***	***	***	***	***
Product 4a	Lower	***	***	***	***	***
Total, lower	Lower	***	***	***	***	***
Product 1	Higher	***	***	***	***	***
Product 2	Higher	***	***	***	***	***
Product 3a	Higher	***	***	***	***	***
Product 4a	Higher	***	***	***	***	***
Total, higher	Higher	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain only chlorinated isos produced and tableted in the U.S, i.e. only U.S. origin product.

Table G-7

Chlorinated isos: Instances of lower/(higher) average unit purchase costs compared to U.S. prices and the range and average of price/cost differentials, by country

Quantity in thousands of pounds; differentials in percent

Item	Type	Number of quarters	Quantity	Average differential	Minimum differential	Maximum differential
China	Lower	***	***	***	***	***
Spain	Lower	***	***	***	***	***
Total, lower	Lower	***	***	***	***	***
China	Higher	***	***	***	***	***
Spain	Higher	***	***	***	***	***
Total, higher	Higher	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain only chlorinated isos produced and tableted in the U.S, i.e. only U.S. origin product.

APPENDIX H

PRICE AND PURCHASE COST ANALYSIS FOR PRODUCTS 3 AND 4

PRODUCED BY INTEGRATED U.S. PRODUCERS ONLY (EXCLUDING U.S.

TABLETERS)

Price and purchase cost data and comparisons for U.S. integrated producers only. This includes some or all of the data reported by BioLab, Clearon, and OxyChem.¹ U.S. tabletters Haviland, LPM, N. Jonas, and Qualco are excluded from this analysis. Price data for products 3 and 4 are presented in tables H-1 and H-2, and purchase cost data for product 3 are presented in tables H-3.² There are no price or purchase cost comparisons for product 4. Tables H-4 through H-7 show price and purchase cost comparisons.

Table H-1

Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic and imported product 3 excluding U.S. tableting production, and margins of underselling/(overselling), by quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China 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	***	***	***	***	***

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

Note: Product 3: 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets.

¹ This includes:

BioLab's data provided ***.

Clearon's data provided for ***.

OxyChem's data provided ***.

² U.S. producers' price and purchase cost data for the granular products remain unchanged. These data are presented in part V.

Table H-2

Chlorinated isos: Weighted-average f.o.b. prices and quantities of domestic and imported product 4 excluding U.S. tableting production, and margins of underselling/(overselling), by quarter

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

Period	U.S. price	U.S. quantity	China price	China quantity	China 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	***	***	***	***	***

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

Note: Product 4: Blended 3-inch or comparable tablets, with tablet volume of 6 to 8 ounces, with approximately 85 to 90 percent available chlorine content, in 24-26 pound containers for tablets.

Table H-3

Chlorinated isos: Weighted-average f.o.b. prices, unit LDP values, and quantities of domestic product 3 excluding U.S. tableting production and imported product 3, and price/cost differentials, by quarter

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

Period	U.S. price	U.S. quantity	China unit LDP value	China quantity	China price/cost differential	Spain unit LDP value	Spain quantity	Spain price/cost differential
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	***	***	***	***	***	***	***	***

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

Note: Product 3: 3-inch or comparable trichlor tablets, with tablet volume of 6 to 8 ounces, in 35-55 pound containers for tablets.

Table H-4

Chlorinated isos: Instances of underselling/overselling and the range and average of margins, by product

Quantity in thousands of pounds; margins in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
Product 1	Underselling	***	***	***	***	***
Product 2	Underselling	***	***	***	***	***
Product 3	Underselling	***	***	***	***	***
Product 4	Underselling	***	***	***	***	***
Total, underselling	Underselling	***	***	***	***	***
Product 1	Overselling	***	***	***	***	***
Product 2	Overselling	***	***	***	***	***
Product 3	Overselling	***	***	***	***	***
Product 4	Overselling	***	***	***	***	***
Total, overselling	Overselling	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain chlorinated isos produced and tableted in the United States and imported and tableted in the United States.

Table H-5

Chlorinated isos: Instances of underselling/overselling and the range and average of margins, by country

Quantity in thousands of pounds; margins in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
China	Underselling	***	***	***	***	***
Spain	Underselling	***	***	***	***	***
Total, underselling	Underselling	***	***	***	***	***
China	Overselling	***	***	***	***	***
Spain	Overselling	***	***	***	***	***
Total, overselling	Overselling	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain chlorinated isos produced and tableted in the United States and imported and tableted in the United States.

Table H-6

Chlorinated isos: Instances of lower/(higher) average unit purchase costs compared to U.S. prices and the range and average of price/cost differentials, by product

Quantity in thousands of pounds; differentials in percent

Item	Type	Number of quarters	Quantity	Average differential	Minimum differential	Maximum differential
Product 1	Lower	***	***	***	***	***
Product 2	Lower	***	***	***	***	***
Product 3	Lower	***	***	***	***	***
Product 4	Lower	***	***	***	***	***
Total, lower	Lower	***	***	***	***	***
Product 1	Higher	***	***	***	***	***
Product 2	Higher	***	***	***	***	***
Product 3	Higher	***	***	***	***	***
Product 4	Higher	***	***	***	***	***
Total, higher	Higher	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain chlorinated isos produced and tableted in the United States and imported and tableted in the United States.

Table H-7

Chlorinated isos: Instances of lower/(higher) average unit purchase costs compared to U.S. prices and the range and average of price/cost differentials, by country

Quantity in thousands of pounds; differentials in percent

Item	Type	Number of quarters	Quantity	Average differential	Minimum differential	Maximum differential
China	Lower	***	***	***	***	***
Spain	Lower	***	***	***	***	***
Total, lower	Lower	***	***	***	***	***
China	Higher	***	***	***	***	***
Spain	Higher	***	***	***	***	***
Total, higher	Higher	***	***	***	***	***

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

Note: The data reported for the quantities of domestic of product 3 and 4 contain chlorinated isos produced and tableted in the United States and imported and tableted in the United States.

